ADMINISTRACIÓN DE SERVICIOS MÉDICOS DE PUERTO RICO

ASEM

GOBIERNO DE PUERTO RICO

INVITATION FOR REQUEST FOR SEALED PROPOSALS
27DJ-00415

TITLE: Design-Build of Puerto Rico's New Trauma Hospital

PUBLICATION DATE: September 2, 2026

PURPOSE: The Puerto Rico Medical Services Administration (ASEM) has identified the need to contract planning, design, permitting, procurement, construction, commissioning, activation, and operational readiness of Puerto Rico's New Trauma Hospital (the Project) using the Design-Build Project Delivery Method.

Puerto Rico has limited infrastructure to care for its citizens in situations involving physical trauma, whether caused by natural disasters, serious accidents, violence, or emergencies requiring immediate and specialized care. This limitation leads to significant delays in medical care and increases the risk of complications that threaten the patient's health and life. In the event of high-impact incidents, the population is exposed to higher rates of morbidity and mortality, especially citizens living in rural areas or with limited access to specialized medical care facilities.

This project will not only address current needs for trauma services in Puerto Rico but will also strengthen operational capacity and the quality of care, ensuring a more efficient and effective response to future challenges. It will help prevent future impacts while fully complying with the objectives of the CDBG-MIT program and the risk mitigation goals for critical infrastructure, including risk reduction, resilience enhancement, and continuity of operations.

AVAILABILITY OF THE REQUEST FOR SEALED PROPOSALS DOCUMENTS: The documents for this Request for Sealed Proposals (RFP) must be downloaded (free of charge), starting from the date of publication of the Request for Sealed Proposals notice, from the website https://www.asem.pr.gov/administrativo#Subastas or through the link provided by the J.E.D.I. platform, https://jedi.asg.pr.gov/#/Repository?Identifier=27DJ-00415

PRE-PROPOSAL MEETING: The pre-proposal meeting will be held on September 24, 2026, at 10:00a.m. in Puerto Rico's Medical Center, Auditorium B and C at Cardiovascular Center of Puerto Rico and Caribbean, First Floor, located in the Bo. Monacillos, San Juan, Puerto Rico. This meeting will also be streamed live via Microsoft Teams, as posted on the website https://www.asem.pr.gov/administrativo#Subastas. Proposers are strongly encouraged to attend. Representatives from ASEM will be present to discuss the project scope, evaluation criteria, proposal requirements, terms, and conditions. Attendance at the pre-proposal meeting is not mandatory.

SITE INSPECTION: An opportunity will be provided to conduct a site inspection immediately following the pre-proposal meeting. Although attendance at the site inspection is not mandatory, Proposers and other Key Personnel or Staff on its team are strongly encouraged to examine the site. The site will be open to all interested parties to familiarize themselves with the existing physical conditions, restrictions, and operational limitations.

Outside of the scheduled site inspection, the Proposer may request access to the site to conduct additional evaluations, studies, inspection, measurements, or other site assessments deemed necessary to prepare its Proposal. Any such access must be coordinated in advance with Procurement Division via email subastascompras@asem.pr.gov or through the link provided by the J.E.D.I. platform, https://jedi.asg.pr.gov/#/Repository?Identifier=27DJ-00415. The Proposer shall be solely responsible for all costs, liabilities, safety requirements, and security protocols associated with any independent site evaluation, study or inspection.

REQUEST FOR CLARIFICATION: Any questions or Requests for Clarification regarding the documents of this Request for Sealed Proposals process shall be submitted to the Procurement in writing via email to subastascompras@asem.pr.gov or through the link provided by the J.E.D.I. platform, https://jedi.asg.pr.gov/#/Repository?Identifier=27DJ-00415 on or before October 8, 2026, at 2:00p.m. The email subject line should include the Request for Sealed Proposals number, **27DJ-00415**.

PROPOSAL SUBMISSION: Proposals must be submitted on or before December 1, 2026, at 2:00 p.m., in the following two (2) ways:

1. Physically (Hard Copy), at ASEM's Procurement Division Office, First Floor, Services and Supply Building, Puerto Rico's Medical Center, located in the Bo. Monacillos, San Juan, Puerto Rico

2. Electronically, using the link https://jedi.asg.pr.gov/#/Repository?Identifier=27DJ-00415, and uploading your Proposal in the section identified as "Suplidor or Supplier"

PROPOSALS OPENING: The opening of proposals will be on December 1, 2026, at 2:30p.m. in Puerto Rico's Medical Center, ASEM's Central Laundry Conference Room, located in the Bo. Monacillos, San Juan, Puerto Rico. The Proposal Opening will also be streamed live via Microsoft Teams, as posted on the website https://www.asem.pr.gov/administrativo#Subastas The Proposals Opening will be open to the public, and any interested person may attend. However, the proposal contents will not be read aloud. Only the name of the Proposers will be announced.

GENERAL NOTES:

1. In accordance with 48 CFR Part 6 Subpart 6.203 to 6.208, it is the policy of the Government of Puerto Rico and ASEM to stimulate the growth of small commercial businesses, including M/W/VBE, by encouraging their participation in this Request for Proposals process.

2. ASEM will observe compliance with the provisions set forth in 2 CFR § 200.318-327 and any other provisions applicable to this process.

3. ASEM shall fully observe and comply with all antidiscrimination laws, regulations, and policies in effect in Puerto Rico and with applicable federal laws in accordance with the requirements of the CDBG MIT program including, but not limited to, Title VI of the Civil Rights Act, the Fair Housing Act, Title VII as interpreted by the EEOC, the ADA, the ADEA, and any guidelines or requirements issued by HUD regarding equal opportunity in effect as of the date of publication of this Request for Sealed Proposal.

4. This project will be financed, partially or completely, with funds from ASEM and CDBG-MIT program (Healthcare Strengthening Set-Aside). ASEM has executed a Subrecipient Agreement (SRA) with the Puerto Rico's Department of Housing (PRDOH) to receive funding from CDBG-MIT Program.

5. The Procurement Division Office's hours of operation are Monday though Friday, from 8:00a.m. to 3:00p.m.

In San Juan, Puerto Rico, today September 2, 2026.

Celeste Robles Batolomei
Procurement Manager
Puerto Rico Medical Services Administration

ADMINISTRACIÓN DE SERVICIOS MÉDICOS DE PUERTO RICO

ASEM

GOBIERNO DE PUERTO RICO

CDBG-MIT FUNDS

REQUEST FOR SEALED PROPOSALS

27DJ-00415

FOR

DESIGN-BUILD OF PUERTO RICO'S NEW TRAUMA HOSPITAL

UNDER THE

COMMUNITY DEVELOPMENT BLOCK GRANT

INFRASTRUCTURE MITIGATION PROGRAM HEALTH STRENGTHENING SET-ASIDE

Puerto Rico Medical Services Administration

REGINO COLÓN ALSINA, MD, MHSA

Executive Director I ASEM & Adult University Hospital
Puerto Rico Medical Services Administration

INFRASTRUCTURE MITIGATION PROGRAM HEALTHCARE

[INSERT DATE]
RFP Issued

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7	Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion
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1.0 DEFINITIONS/ACRONYMS

1. **ACME**: refers to the Spanish acronym for the Emergency Care and Management Environment.
2. **Action Plan**: refers to the Puerto Rico Mitigation Action Plan, as may be amended, that outlines the uses for the approximately $9.2 billion CDBG-MIT funds allocated to Puerto Rico.
3. **Addendum or Addenda:** refers to a written or graphic document issued by the Procurement Manager prior to the deadline for submitting proposals that modify or interpret the Request for Sealed Proposals (RFP) through additions, deletions, clarifications, or corrections.
4. **Administration**: refers to the General Services Administration of the Government of Puerto Rico.
5. **Allowance**: refers to a budget item intended to cover estimated costs of goods, materials, equipment or services whose selection, final quantity or final specifications are not fully determined at the time of the RFP process.
6. **Area of Benefit (AOB)**: Represents the total beneficiaries or persons receiving · a mitigation benefit from the project. An AOB could be the service area of a wastewater treatment plant, neighborhoods served by an elevated roadway, or a residential neighborhood benefiting from community-level flood mitigation. The geographic area represented by the AOB is then used to determine the Risk Benefit Area. The Area of Benefit for the New Trauma Hospital Project is Islandwide.
7. **ASEM**: refers to the Spanish acronym for the Puerto Rico Medical Services Administration.
8. **ASG**: refers to the Spanish acronym for the General Services Administration of the Government of Puerto Rico.
9. **Authority to Use Grant Funds (AUGF)**: The formal written response from HUD allowing PRDOH to proceed with funding the project.
10. **Authorized Representative:** refers to the person authorized to bind the Proposer in matters related to the RFP and the contract.
11. **Best and Final Offer (BAFO)**: process through which the Bid Board requests from the Proposer (Technically Qualified) a final offer with the best price that they are willing to offer, prior to issuing a notice or resolution of award.
12. **Bid Board**: Bid Board of any Exempt Entity, appointed or constituted, pursuant to Act 73-2019 acts as an administrative entity for the study, evaluation, and award of Formal Bids, Requests for Sealed Proposals, and Requests for Qualifications.
13. **Bid Review Board**: an independent entity, for administrative purposes assigned to the ASG, with jurisdiction to review administrative appeals regarding the determinations or awards made by the ASG's Bid Board or the Bid Board an Exempt Entity, with such exceptions and limitations as may be provided in current legislation.
14. **Bidder or Proposer**: natural or legal person registered in the Single Registry of Bidders of the ASG, that is available and interested in attending and submitting quotations, offers, or proposals in any procurement process held by the Government of Puerto Rico.

15. **Builder:** refers to the entity or team member responsible for the construction execution of the Project under the Design-Build framework. The Builder shall plan, manage, supervise, coordinate, and perform the construction work, including labor, materials, equipment, subcontractors, means and methods, safety, quality control, sequencing, scheduling, and site logistics. The Builder shall collaborate with the Designer and other Design-Builder team members to support constructability, cost, schedule, phasing, commissioning, and compliance with the RFP Documents, Contract Documents, applicable permits, codes, standards, and all federal, state, and local requirements. The Builder does not assume responsibility for professional design services except to the extent expressly required by the Contract Documents or applicable law.
16. **CAAPR:** refers to the Spanish acronym for the College of Architects and Landscape Architects of Puerto Rico.
17. **CDBG-MIT:** refers to the Community Development Block Grant-Mitigation Program administered by the Puerto Rico Department Housing (PRDOH), as the grantee, representing a unique opportunity to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses.
18. **Diagnostic and Treatment Center (CDT)**: is an outpatient health center that offers primary medical care, diagnostic services, and treatment without hospitalization. In Puerto Rico, CDTs are an important part of the health system, as they allow for rapid patient care and referrals to hospitals when necessary.
19. **CFR**: refers to the Code of Federal Regulations.
20. **CIAPR:** refers to the Spanish acronym for the College of Engineers and Surveyors of Puerto Rico.
21. **Community Development Block Grant (CDBG):** a federal grant program administered by HUD which provides grant funds to local and state governments. The CDBG Program works to ensure decent, affordable housing, to provide services to the most vulnerable in communities, and to create jobs through the expansion and retention of businesses.
22. **Collusion**: an agreement between several Proposer, with or without the participation of public officials or employees, for the purpose of restricting competition, manipulating procurement or quotation processes, fixing prices, sidestepping legal restrictions or committing fraud to the detriment of the public interest.
23. **Contract**: obligation in writing and agreed upon by virtue of legal provisions and requirements, between any public entity and a Proposer that ensures the procurement of goods, works or services, according to minimum current standards for public contracting. Each contract shall set forth the terms under which the Proposer will offer the goods, works or services under the procurement.
24. **Contractor**: a Proposer who has been awarded procurement process for any goods, works, or nonprofessional service through the issue of a Purchase Order and/or contract, with any public entity.
25. **Covered Project:** Notice 84 FR 45838 defines a Covered Project as an infrastructure project having a total project cost of $100 million or more, with at least $50 million

of CDBG funds (CDBG-DR, CDBG-MIT or CDBG State). HUD defines "infrastructure project" as an activity or group of related activities that develop the physical assets that are designed to provide or support services to the general public in the following sectors: surface transportation, including roadways, bridges, railroads, and transit; aviation; ports, including navigational channels; water resources projects; energy production and generation, including from fossil, renewable, nuclear, and hydro sources; electricity transmission; broadband; pipelines; stormwater and sewer infrastructure; drinking water infrastructure; and other sectors as may be determined by the Federal Permitting Improvement Steering Council. Further, consistent with HUD's National Environmental Policy Act (NEPA) Implementing requirements at 24 C.F.R. §58.32(0), a grantee must group together and evaluate as a single infrastructure project all individual activities which are related to one another, either on a geographical or functional basis, or are logical parts of a composite of contemplated infrastructure-related actions.

26. **Department of Housing and Urban Development (HUD)**: Federal department through which CDBG, CDBG-DR, and CDBG-MIT programs funds are distributed to recipients.
27. **Design-Builder:** refers to the Proposer that submits a proposal as a result of this Request for Sealed Proposals.
28. **Design-Build (DB) Project Delivery Method:** A construction project delivery method in which a single legal entity, referred to as the Design-Builder, is contractually responsible for providing both professional design services and construction services under one contract. The Design-Builder assumes responsibility for the design, engineering, permitting, coordination, scheduling, and construction of the Project, and is accountable for delivering the completed facility in accordance with the ASEM's requirements, performance criteria, budget, and schedule. This method promotes integration of design and construction activities, collaboration among project team members, and a single point of responsibility for project delivery.
29. **Designer:** refers to the duly qualified and licensed professional design entity or design team member responsible for providing, coordinating, signing, sealing, and certifying, as applicable, the architectural, engineering, and other professional design services required for the Project under the Design-Build framework. The Designer shall develop, validate, and coordinate the design, drawings, specifications, calculations, technical criteria, permit documents, construction documents, and other professional deliverables necessary to satisfy the ASEM's requirements, RFP Documents, Contract Documents, applicable permits, codes, standards, healthcare facility requirements, and all federal, state, and local laws and regulations. The Designer shall collaborate with the Builder and other Design-Builder team members to support constructability, cost, schedule, phasing, commissioning, regulatory approvals, and integration of construction means and methods, while retaining professional responsibility for the adequacy, coordination, and code compliance of the design within the scope of its professional services. The Designer shall not assume responsibility for construction

means, methods, techniques, sequences, procedures, or site safety, except to the extent expressly required by the Contract Documents or applicable law.

30. **Disqualification**: action by which the Bid Board excludes a Proposer from a public procurement process due to non-compliance with one or more mandatory requirements, conditions, terms, or specifications for participation. Consequently, any offer, proposal, or statement of qualifications submitted by the Proposer will not be considered or evaluated in the process.
31. **Environmental Review Record (ERR)**: A record of all documents and decisions required to complete the environmental review process.
32. **Evaluation Committee**: a committee constituted by the ASEM's Executive Director thereof, for a particular procurement process, whose principal function will be to evaluate compliance by the Proposer with the requirements established in the RFP documents and issue a non-binding recommendation to the Bid Board.
33. **Evaluation Criteria**: criteria set forth in the procurement notice of a public procurement which are used to evaluate, classify, and recommend offers or proposals for the award of the procurement.
34. **Exempt Entity**: an entity that does not have the obligation to conduct its procurement through the ASG, but that must carry out its procurement process under the procurement methods established in Act No. 73-2019 and must abide by previously bid categories and contracts executed by the ASG.
35. **Federal Government:** means any of the departments of the Executive Branch of the United States of America, or any department, corporation, agency or instrumentality created, or which may be created, designated or established by the United States of America.
36. **First-tier subcontractor**: an entity subcontracted directly by the prime contractor to provide supplies, materials, equipment, or services of any kind required under the prime contractor a first-tier subcontract.
37. **Functional Operation:** refers to the condition achieved when the Project, or an approved phase of the Project, has been designed, constructed, installed, tested, commissioned, inspected, certified, and turned over in a manner that allows the ASEM to use and operate the applicable facilities, systems, equipment, spaces, utilities, life-safety components, clinical support areas, and related infrastructure for their intended purpose, in accordance with the RFP Documents, Attachment 1 [Scope of Work], Contract Documents, applicable permits, codes, healthcare facility requirements, regulatory approvals, and all federal, state, local, HUD, PRDOH, CDBG-MIT, and ASEM requirements. Functional Operation does not necessarily constitute Final Completion, but requires that all work necessary for safety, compliance, coordinated, and effective use of the applicable phase or facility area has been completed, accepted, and made available for ASEM occupancy, activation, operations, training, and use.
38. **Healthcare**: a comprehensive system encompassing all activities, institutions, and professionals working to prevent, diagnosis, treat, and maintain health. This includes Diagnostic and Treatment Centers (CDT), but also clinics, public health,

prevention, telemedicine, pharmaceuticals, insurance, therapies, rehabilitation, and community programs.

39. **Hospital**: It is a physical institution primarily dedicated to the diagnosis, treatment, and management of complex medical conditions, with the capacity for intensive care, surgeries, emergencies, and 24/7 hospitalization.
40. **Low-to-Moderate Income (LMI)**: Low to moderate income people are those who have incomes not more than the 'moderate income' level (80% Area Median Family Income) set by the federal Government for HUD-assisted housing programs. This income standard changes annually and varies by household size, county, and the metropolitan statistical area.
41. **Mitigation:** Through notice 84 FR 45838, 45840, HUD defines mitigation "as those activities that increase resilience to disasters and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship, by lessening the impact of future disasters."
42. **Minority-Owned Business**: an entity whose day-to-day management and operations are controlled by, and in which at least fifty-one percent (51%) of the voting shares are owned by a person(s) belonging to a racial, ethnic, or cultural group.
43. **Owner**: the Puerto Rico Medical Services Administration.
44. **POC:** refers to the Point of Contact.
45. **PRDOH:** refers to the Puerto Rico Department of Housing.
46. **Project:** The total undertaking to be accomplished for ASEM by Design-Builder, consultants, subcontractors, and others, including planning, study, design, construction, testing, start-up, and commissioning, and of which the Work to be performed under the Contract Documents is a part.
47. **Proposal**: document that a Proposer submits in response to this RFP, including all required forms, certifications, technical information, pricing and supporting documentation.
48. **Proposer:** natural or legal person registered in the ASG's Single Registry of Bidders, available and interested in appearing and submitting quotes, offers or proposals in any procurement process held by the Government of Puerto Rico.
49. **Recipient:** a non-federal legal entity that receives a federal award directly from a federal awarding agency which is accountable for the use of funds to carry out an activity under a federal program. The term recipient does not include subrecipients.
50. **Redacted Copy of Proposal:** A redacted copy of the Proposal means a complete copy of the Proposal from which the Proposer has removed or obscured only those portions that the Proposer, in good faith, considers confidential, proprietary, trade secret, or otherwise exempt from public disclosure under applicable law. The redacted copy shall be submitted for public inspection or records-request purposes and shall not replace the unredacted Proposal submitted for evaluation. The Proposer must ensure that any redactions are limited, clearly marked, and accompanied by a brief written explanation identifying the basis for each redaction. Information relating to prices, required certifications, compliance with

mandatory requirements, and other information subject to disclosure under applicable procurement or public records laws may not be withheld solely because the Proposer designates it as confidential. ASEM reserves the right to determine, in accordance with applicable law, whether any information identified by the Proposer as confidential may be withheld from disclosure.

51. **Regulation No. 8823:** Regulations of the Bid Board of the ASEM. These regulations are promulgated for the purpose of establishing the responsibility and jurisdiction of the Bid Board of the ASEM and the policy to be followed in procurement.
52. **Regulation No. 8824:** Regulations of the ASEM's procurement. Establishing the administrative policy regarding purchase and sale procedures and the creation and operation of the Bid Board that will have direct involvement in the several procurement activities that require its participation.
53. **Regulation No. 9301**: ASG Regulation Governing the Single Registry of Bidders for the Government of Puerto Rico.
54. **Regulation No. 9302**: ASG Regulation Governing the Single Registry of Professional Service Providers for the Government of Puerto Rico.
55. **Regulation No. 9734**: ASG Uniform Regulations on Procurement, Bidding, and Contracting for Goods, Construction Work, and Non-Professional Services of the General Services Administration of the Government of Puerto Rico.
56. **Rejection**: a formal decision by the Bid Board not to accept a bid or proposal submitted by a Proposer, for administrative, technical, or legal reasons, or due to noncompliance with the requirements set forth in this Request for Sealed Proposals.
57. **Request for Sealed Proposals (RFP)**: requests that allow for the negotiated procurement, modification, and updating of Proposers' proposals while they are being evaluated, and that authorize the Bid Board to request a Best and Final Offer.
58. **Responsible Entity (RE)**: The governmental entity responsible for conducting, approving and maintaining the environmental review process and ERR, and for certifying compliance with applicable HUD environmental requirements
59. **RFP**: means this Request for Sealed Proposals.
60. **RFP Documents**: Refers collectively to this Request for Sealed Proposals, including all instructions, terms, conditions, procurement requirements, forms, exhibits, attachments, technical information, scope documents, drawings, specifications, data, reference materials, addenda, clarifications, and any other documents issued, incorporated, or made available by the Procurement Manager or Procurement Division in connection with this procurement. The RFP Documents establish the requirements for preparing, submitting, evaluating, and awarding proposals for the Design-Build services for Puerto Rico's New Trauma Hospital and shall be read together as a complete procurement package.
61. **RPT:** is the Spanish acronym for Technology Provider Regulations.
62. **Section 3**: provision of the Housing and Urban Development Act of 1968, 12 U.S.C. § 1701u (HUD Act). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by certain financial assistance provided

by the Department of Housing and Urban Development (HUD), to the greatest extent possible and in accordance with existing federal, state, and local laws and regulations, are directed toward low- and very low-income individuals, particularly those who are recipients of government housing assistance, and to businesses that provide economic opportunities to low- and very low-income individuals.

63. **Section 3 Business**: a business that meets at least one (1) of the following criteria, as documented over the past six (6) months: (i) at least fifty-one percent (51%) of the business is owned and controlled by individuals with low or very low incomes; (ii) more than seventy-five percent (75%) of the work hours performed for the business during the preceding three (3) months were performed by Section 3 workers; or (iii) the business is owned and controlled, at least fifty-one percent (51%), by public housing residents or residents currently living in Section 8-subsidized housing.
64. **Section 3 Worker**: any worker who currently meets, or who, at the time of hire within the last five (5) years, met at least one of the following categories, as documented; (i) the worker's income during the previous calendar year or on an annualized basis is below the income limit established by HUD; (ii) the worker is employed by a Section 3 business; or (iii) the worker is a "YouthBuild" participant.
65. **Single Bids Registry (RUS)**: an electronic registry of the Government of Puerto Rico, located on the ASG website, where documents related to the processes of conducting and awarding public bids are stored and published.
66. **Single Register of Bidders (RUL)**: a register administered by the ASG that contains the information of individuals or legal entities that have been evaluated and authorized to bid in procurement processes for goods, construction projects, and non-professional services, and to enter contract with the Government of Puerto Rico.
67. **Single Registry of Professional Service Providers (RUP)**: a registry administered by the ASG that contains information on individuals and legal entities authorized to provide professional services to the Government of Puerto Rico.
68. **Team Member**: means a member of the Proposer to execute the works.
69. **Veterans Business Enterprise (VBE)**: is an entity that is owned, operated, and controlled by veterans of the United States Armed Forces.
70. **Vertical Construction Project**: any construction project focused on the development of vertical structures, such as buildings, multi-level facilities, towers, commercial, institutional or residential complexes, as well as any work that involves the creation, rehabilitation or expansion of buildings that are predominantly developed at height.
71. **Women-Owned Small Businesses**: an entity whose management and day-to-day business operations are controlled by, and in which at least fifty-one percent (51%) of the shares are owned by, one or more women; or a small business eligible under the Small Business Program pursuant to 13 C.F.R. Part 127.

2.0 INTRODUCTION

The Puerto Rico Medical Services Administration (ASEM) has identified the need to contract planning, design, permitting, procurement, construction, commissioning, activation, and operational readiness of Puerto Rico's New Trauma Hospital (the Project) using the Design-Build Project Delivery Method. These services will be contracted following the issuance notice for interested Proposers to participate in the Request for Sealed Proposals for Design and Construction. The Project shall be developed in accordance with available CDBG-MIT funding and eligible cost principles. The Design Builder shall strictly adhere to the environmental requirements set forth in the Scope of Works and RFP Documents.

Due to its geographic location, Puerto Rico faces significant vulnerability to various natural disasters, including intense hurricanes, severe storms, floods, and earthquakes. These events have highlighted the fragility of the healthcare system, particularly its limited capacity to address high-severity medical emergencies and trauma. Puerto Rico's New Trauma Hospital will be an essential component of the critical infrastructure needed to ensure the optimization of health services in emergency situations and to reduce mortality associated with traumatic injuries.

Furthermore, Puerto Rico has limited infrastructure to care for its citizens in situations involving physical trauma, whether caused by natural disasters, serious accidents, violence, or emergencies requiring immediate and specialized care. This limitation leads to significant delays in medical care and increases the risk of complications that threaten the patient's health and life. In the event of high-impact incidents, the population is exposed to higher rates of morbidity and mortality, especially citizens living in rural areas or with limited access to specialized medical care facilities.

To mitigate these consequences, it is necessary to strengthen the existing infrastructure by creating and optimizing a specialized trauma hospital, which must incorporate essential teams and technologies. This will increase the health system's response capacity, reduce the negative impact of traumatic events, and ensure more timely and effective care for all citizens.

Currently, the island relies on a Tertiary and Supra-tertiary Trauma Hospital located in the metropolitan area, which operates with structural limitations, reduced capacity, and buildings were not designed according to modern resilience standards. Its location and lack of adequate facilities for the landing of patient transport aircraft cause significant delays in the treatment of patients, who sometimes come from remote regions of the island. Furthermore, our island requires the development of a hospital with modern, state-of-the-art infrastructure to ensure the provision of adequate medical services for the immediate care of patients. We are referring to electrical, technological, water supply, and communications infrastructure, among others, required for this type of facility.

These facilities for immediate care and specialized medical treatment must be designed and built in strict compliance with applicable regulations and the highest standards, to provide our citizens with peace of mind and assurance that the essential, one-of-a-kind resources are available to serve the entire population in the event of any medical emergency.

Furthermore, Hurricanes Irma and Maria, as well as the 2020 earthquakes, due to the large number of medical emergencies treated, highlighted the need to expand the hospital to include additional operating rooms, physical therapy areas, and access points for transporting patients via emergency vehicles. Furthermore, the lack of adequate equipment and infrastructure delayed and/or otherwise affected patient care, as well as the operations of the facility where essential medical services are provided. These events confirmed the urgent need to develop a modern, resilient trauma facility to mitigate risk and strengthen the response to emergency situations.

The significant impact of these events on infrastructure, housing, the energy system, and essential services led to Puerto Rico receiving a historic allocation of funds, including funds under the Community Development Block Grant—Mitigation (CDBG MIT) Program. CDBG-MIT funds were allocated by the U.S. Department of Housing and Urban Development (HUD) to support mitigation activities in jurisdictions affected by natural disasters. These funds are intended to reduce future risks, increase the resilience of vulnerable communities, and protect lives and critical infrastructure in the face of severe natural events. In addition, the CDBG MIT program provides funding for infrastructure designed to reduce future risks and increase community resilience.

This project will be financed, partially or completely, with funds from the CDBG-MIT program. ASEM has executed a Subrecipient Agreement (SRA) with the Puerto Rico Department of Housing (PRDOH) to receive funding from CDBG-MIT Program. Hence, the Proposer must comply with and adhere to all applicable standards, provisions and requirements of all applicable federal, state and local laws, codes, ordinances, rules and regulations, and policies, including those that govern the use of the CDBG-MIT funds.

The design and construction of Puerto Rico's New Trauma Hospital, awarded through a Request for Sealed Proposals under the Design-Build model, aligns with the mitigation objectives set forth by the Program (CDBG-MIT), and involves a hospital facility that incorporates advanced seismic-resistant design, flood protection, redundant power systems, critical communications, water supply, and clinical spaces with surge capacity.

The need for this project stems from a combination of factors related to:

1. the increase in the incidence of accidents and traumatic emergencies;
2. the condition of the existing hospital infrastructure;
3. the centralization of services, which limits access;

4. exposure to natural hazards that disrupt critical services; and
5. the need for a safe hospital facility that ensures the continuity of operations.

The development of Puerto Rico's New Trauma Hospital represents a significant investment that reaffirms the Government of Puerto Rico's commitment to the health and well-being of its citizens, as it is considered a resilient facility designed to withstand, adapt to, and recover quickly from disasters, power outages, or extreme weather events. Furthermore, it is a facility that ensures continuity of operations and access to essential services in emergency situations.

Therefore, the Procurement Division is issuing this Request for Sealed Proposals to contract for design and construction services for Puerto Rico's New Trauma Hospital.

This project will not only address current needs for trauma services in Puerto Rico but will also strengthen operational capacity and the quality of care, ensuring a more efficient and effective response to future challenges. It will help prevent future impacts while fully complying with the objectives of the CDBG MIT program and the risk mitigation goals for critical infrastructure.

3.0 CDBG-MIT PROGRAM OVERVIEW

3.1 Program Overview

Throughout history, Puerto Rico endured and had to recover from numerous past hurricanes, earthquakes, landslides, and other natural disasters. The most devastating were hurricanes Irma and Maria (hereinafter, the "Hurricanes"), both in September 2017. These Hurricanes impacted all seventy-eight (78) municipalities of the Island causing massive islandwide damage and destruction to public and private housing and other facilities. Specific areas were impacted by surges, flooding, standing water, wind, and rain or mudslides. Significant damage to buildings and vacant facilities presented as a public health and safety risk for the community. Hurricanes Irma (DR-4336-PR) and Maria (DR-4339-PR) were declared the worst natural disasters in U.S. history and left millions without power, the ability to communicate, and many without food, water, or homes.

On January 6, 2020, a 5.8 magnitude earthquake shook the Island, followed by a 6.4 magnitude earthquake the next day. The regions most impacted by these earthquakes were declared disaster impact areas under presidential emergency declaration DR-4473. Afterwards, the Island continued to experience aftershocks. These events severely affected the southwestern region of the Island displacing thousands of people from their homes and resulting in extensive damage to individual homes and critical infrastructure.

Puerto Ricans constantly face climate-sensitive and catastrophic weather events, climate-induced erosion, landmass-threatening sea level rise and coastal flooding, and earthquakes and tremors from shifting tectonic plates. Recently, the people of Puerto Rico have also faced the Coronavirus Pandemic (COVID-19).

The U.S. Department of Housing and Urban Development (HUD) has allocated $8.3 billion to Puerto Rico for mitigation activities. These funds will help mitigate disaster risk while providing grantees the opportunity to transform state and local planning. The Community Development Block Grant - Mitigation (CDBG-MIT) Program, administered by the Puerto Rico Department of Housing (PRDOH), as the grantee, represents a unique opportunity to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses. The rules for administering these funds are outlined in the Federal Register Vol. 84, No. 169 (August 30, 2019), 84 FR 45838, and the Federal Register Vol. 85, No. 17 (January 27, 2020), 85 FR 4676, except where the terms of the Grant Agreement between PRDOH and HUD supersede high risk criteria. Rules and requirements have been incorporated into these Program Guidelines, where applicable.

3.2 Program Summary

The Program Guidelines set forth the requirements for the Infrastructure Mitigation Program and Healthcare Strengthening Set-Aside, as approved by HUD in the PRDOH CDBG-MIT Action Plan. HUD approved a total of $4,566,451,166.00 for the Infrastructure Mitigation Program, which includes a $1 billion set-aside for Healthcare Strengthening, and a $1 billion set-aside for the non-federal match to Puerto Rico's HMGP.

The Design-Builder shall ensure that all design and construction activities align with the mitigation objectives of the CDBG-MIT program, including risk reduction, resilience enhancement, and continuity of operations.

4.0 LEGAL BASIS

In accordance with the provisions of Act 66 of June 22, 1978, as amended—the Puerto Rico Medical Services Administration Act—ASEM has its own legal personality and is autonomous in its operations and management. ASEM provides specialized health services to patients, consumer and educational institutions, medical and hospital institutions, and faculty and researchers.

This project is based on the current legal and regulatory framework designed to protect the health, safety, and well-being of the population. Applicable state and federal provisions establish the obligation to develop, strengthen, and maintain

emergency response capabilities, as well as to ensure the continuity of essential services in critical situations. In this context, the proposed initiative complies with legal mandates related to emergency management, preparedness, and risk mitigation, as well as the uninterrupted provision of critical medical services, thereby ensuring compliance with the principles of resilience and operational continuity required by current regulations.

Furthermore, the allocation of funds under the CDBG-MIT program requires ASEM to fully comply with the competitive procurement process within the federal procurement framework set forth in 2 CFR Part 200, Subpart D, sections 200.318–200.327, which establishes, among other parameters, the obligation to observe and ensure transparency, competition, and the efficient use of public resources. In accordance with applicable regulatory provisions, the project will be implemented in strict compliance with the HUD General Provisions and other Federal Statues, Regulations, and PRDOH Requirements of Healthcare Strengthening Set-Aside, which includes adherence to the requirements set forth in Section 3 and the policies regarding the participation of certified Minority, Women, and Veteran-Owned Businesses (M/W/VBE).

Likewise, the CDBG-MIT program stipulates that grant administrators are responsible for ensuring that all projects are carried out in compliance with laws and regulations, including manuals, guidelines, policies, circular letters, and other applicable provisions.

Additionally, this Request for Sealed Proposals process is conducted in accordance with the provisions of Act 73 of July 19, 2019, as amended, the General Services Administration Act for the Centralization of Government Procurement of the Government of Puerto Rico of 2019, and Regulation No. 9734 of 2026, the Uniform Regulation on Procurement, Bidding, and Contracting for Goods, Construction Work, and Non-Professional Services of the General Services Administration of the Government of Puerto Rico. In addition, Regulation No. 8823, Regulations of the Bid Board of the ASEM. These regulations are promulgated for the purpose of establishing the responsibility and jurisdiction of the Bid Board of the ASEM and the policy to be followed in procurement; Regulation No. 8824, Regulations of the ASEM's procurement. Establishing the administrative policy regarding purchase and sale procedures and the creation and operation of the Procurement Division and Bid Board that will have direct involvement in the several procurement activities that require its participation; and Administrative Procedure Manual.

Also, this Request for Sealed Proposals process will ensure compliance with the provisions of Act 173 of August 12, 1988, the Act on the Examining Board of Engineers, Architects, Surveyors, and Landscape Architects of Puerto Rico, as amended, as well as the provisions of Act 164 of December 16, 2009, as amended, the Puerto Rico Corporations Act. In addition, compliance with the provisions of Act 102 of August 1,

2025, the Act on Universal Recognition of Occupational and Professional Licenses in Puerto Rico, will be ensured.

5.0 LEGAL ENTITIES

Any proposing entity, whether domestic or foreign, must be registered and/or incorporated and listed as active in the Registry of Corporations of the Puerto Rico Department of State as a requirement for submitting its proposal.

This requirement applies to ALL entities created under Act 164 of December 16, 2009, as amended, better known as the "General Corporations Act," including any "Joint Venture," as well as any partnership formed under the provisions of Act 154 of August 20, 1996, as amended, better known as the Puerto Rico Limited Liability Companies Act, or any other entity created under special legislation.

In addition, every entity must submit a "Good Standing" certificate and/or Certificate of Compliance duly issued by the Puerto Rico's Department of State, as applicable, as a requirement for submitting its bid or proposal. Failure to comply with the foregoing will result in the disqualification or rejection of the proposal.

Furthermore, all Proposers must be registered and have eligible status in the RUL. However, if a Proposer: 1) is not registered in the Single Registry of Bidders (RUL); or 2) is not eligible in the RUL at the time of the Proposals Opening, will have a non-extendable period of five (5) business days, beginning on the date of the Proposals Opening, to comply with the requirements established by the ASG's Registry Office and be registered in the RUL. It is the Proposer's sole responsibility to update its information and submit the corresponding documentation within the established timeframe. Failure to do so will be sufficient basis for disqualification or rejection of the proposal. If the Proposer fails to update its records in the RUL within the specified timeframe, it will be disqualified, or its bid or proposal will be rejected. Therefore, the Procurement Division clarifies that it will not accept any documents from the Proposer after the Proposals Opening, except for the RUL Certificate of Eligibility, which must be submitted within the timeframe or documents that are request by the Evaluation Committee or Bid Board through an official request for information or clarification.

Additionally, the project designer must be registered in the General Services Administration's Single Registry of Professional Service Providers (RUP). All designers must be registered with eligible status in the RUP at the time of proposal submission. The proposal must include current proof of such registration with eligible status. Failure to register or the submission of incomplete or expired proof may constitute sufficient basis for the disqualification or rejection of the proposal.

Prior to awarding a Contract, ASEM must obtain Contractor and First Tier Sub-Contractor clearance. To obtain clearance, ASEM will search https://www.sam.gov/SAM/ to verify whether the Contractor and First Tier Sub-Contractor are debarred or not. Therefore, the Proposer(s) and First Tier Sub-Contractor must be registered in the System for Award Management (SAM) at the time of the Proposal submission or initiate the registration process upon Proposal submission. For more information about SAM go to https://www.sam.gov/SAM/. Awards will only be issued to entities which are cleared and not ineligible for award of a Contract due to suspension, debarment, or HUD imposed limited denial of participation.

Please be advised that all subcontractors must strictly comply with the requirements applicable to government contracting, as well as with all provisions, regulations, and obligations related to the CDBG-MIT program to which the contracting party is subject.

6.0 ANTI-DISCRIMINATION CLAUSE

The ASEM shall fully observe and comply with all antidiscrimination laws, regulations, and policies in effect in Puerto Rico and with applicable federal laws in accordance with the requirements of the CDBG MIT program, including but not limited to Title VI of the Civil Rights Act, the Fair Housing Act, Title VII as interpreted by the EEOC, the ADA, the ADEA, and any guidelines or requirements issued by HUD regarding equal opportunity in effect as of the date of publication of this Request for Sealed Proposal.

7.0 SCOPE OF WORKS

The Design-Builder will have the responsibility to comply with, but not limited to, all applicable provisions of federal, state and local laws, codes, ordinances, rules and regulations, and policies that govern the use of the CDBG-MIT funds, including the Program Guidelines, in complying with its obligations under the Infrastructure Mitigation Program (Healthcare Strengthening Set-Aside) for Scope of Work and RFP Documents, ASEM, and HUD and/or PRDOH provisions. The Design-Builder is responsible for the information (or lack of information), being provided.

Also, the Proposer must examine thoroughly the RFP Documents and other related data, site inspection, and promptly notify the Procurement Division in writing of all conflicts, errors, ambiguities, or discrepancies which the Proposer has discovered in or among the RFP Documents and any other related data or documents.

Before submitting a proposal, the Proposer is responsible for obtaining any additional or supplemental examinations, investigations, explorations, tests, studies, and data it

deems necessary regarding conditions at or adjacent to the site, including surface, subsurface, and underground utility conditions. This includes information that may affect cost, progress, performance or furnishing of the work, as well as matters related to proposed construction means, methods, techniques, sequences, procedures, safety precautions and safety programs. The Proposer shall use such information to determine its Proposal for performing and furnishing the work in accordance with the specifications, terms, and conditions of the RFP.

The ASEM and PRDOH INFRA-MIT program is not responsible for discipline/plan coordination, nor for the information being provided. Any criteria/determination or comments/observations included in the proposal evaluation does not constitute automatically that the submission follows all the applicable provisions under the Infrastructure Mitigation Program.

Specific activities for design-build services are included in **Attachment 1** (Scope of Works). The Scope of Work describes the general work to be performed.

7.1 Location

The proposed location for the Puerto Rico's New Trauma Hospital is in La Plazoleta, Pedro Arzuaga at coordinates 18.394292, -66.074302.



7.2 Deliverables

The Project shall be delivered using an integrated Design-Build approach under which the Design-Builder is responsible for coordinating and delivering all design, BIM, construction, commissioning, activation, operational readiness, and closeout deliverables required by the RFP Documents, **Attachment 1** (Scope of Work), and the Contract Documents.

The Design-Builder shall be responsible for coordinating all disciplines, consultants, subcontractors, specialty consultants, equipment vendors, and suppliers necessary to deliver a complete Project, as described in **Attachment 1** (Scope of Works).

General Coordination Considered in the Scope of Works

- Architectural review design
- Medical planning
- Civil engineering
- Structural engineering
- Mechanical engineering
- Electrical engineering
- Plumbing engineering
- Fire protection and life safety
- Medical gas systems
- Information technology infrastructure
- Security systems
- Building automation
- Hospitaller and Medical equipment and/or coordination
- Site development
- Utility infrastructure
- Construction
- Testing and inspections
- Commissioning
- Regulatory approvals
- Licensing support
- Staff training
- Activation and operational readiness

The deliverables shall include all design, construction, commissioning, activation, operational readiness, closeout, record documentation, training, warranties, turnover materials, and regulatory approval support necessary to place the Project, or each approved phase of the Project, into functional operation in accordance with the RFP Documents, **Attachment 1** (Scope of

Work), the Contract Documents, applicable permits, codes, standards, healthcare facility requirements, and all federal, state, local, HUD, PRDOH, CDBG-MIT, and ASEM requirements.

BIM and Design Coordination Approach

The Design-Builder shall implement a coordinated BIM and design management process to support interdisciplinary coordination, constructability, phasing, code compliance, commissioning, facility turnover, and integration of hospital systems. The BIM process shall be used as a project delivery and coordination tool and shall not relieve the Design-Builder, Designer, Builder, consultants, subcontractors, or specialty consultants from their professional, contractual, code, permitting, quality control, and coordination responsibilities.

At a minimum, the Design-Builder shall prepare and maintain a BIM Execution Plan that identifies the proposed software platforms, model uses, level of development or level of information need, modeling responsibilities, coordination schedule, model exchange procedures, naming conventions, quality control procedures, clash detection process, issue tracking workflow, approval responsibilities, and requirements for model updates at each design, construction, commissioning, and closeout milestone.

The Design-Builder shall develop, coordinate, and maintain discipline-specific and federated BIM models for architectural, structural, civil, mechanical, electrical, plumbing, fire protection, medical gas, information technology, security, building automation, hospitaller and medical equipment, site, utility, and other systems necessary for the Project. The federated model shall be used to identify, track, resolve, and document spatial, functional, access, clearance, maintenance, constructability, and interdisciplinary coordination issues before the affected work is released for fabrication, procurement, or construction.

The Design-Builder shall conduct regular design coordination and BIM coordination meetings with the Designer, Builder, consultants, subcontractors, specialty consultants, equipment vendors, and other required parties. Coordination meetings shall include review of design progress, owner requirements, phasing, construction sequencing, logistics, utility interfaces, hospitaller and medical equipment requirements, infection control and operational impacts, permit and regulatory requirements, clash detection results, unresolved design issues, decision logs, assigned action items, and schedule impacts.

BIM deliverables shall include, as applicable, the BIM Execution Plan, discipline models, federated coordination models, clash detection reports, issue logs,

coordination meeting records, model-based design review materials, model extracts or documents required to support permitting and regulatory approvals, as-built or record models, and model information necessary to support ASEM's operation, maintenance, training, asset management, commissioning, and turnover requirements. The final BIM and record deliverables shall be consistent with the Contract Documents and shall be submitted in the formats and at the milestones required by ASEM.

Execution Period

The Base Bid for the Project shall consist of delivery of the Project in accordance with the Scope of Work and the RFP Documents in two phases, within an overall execution period not to exceed **54 months**, divided as follows:

- First Phase not to exceed **21 months**
- Second Phase not to exceed **33 months**

Work on the Second Phase may commence prior to completion of the First Phase, provided that such early commencement is consistent with the approved schedule, phasing plan, permits, site logistics, safety requirements, operational requirements, and all applicable Contract Documents.

Project Phasing

The First Phase consists of the development of the basement and first floor through functional operation, including the building enclosure, but excluding the helipad.

The Second Phase consists of developing the second through ninth floors and the helipad through functional operation, as well as completing all remaining Project areas through final completion and close-out.

7.3 Local Participation

ASEM encourages the Contractor to engage local subcontractors, professionals and relevant service providers headquartered in Puerto Rico ("Local Parties") as Team Members and Key Personnel or Staff to the greatest extent possible. Contractor is encouraged as part of this RFP to provide descriptions of its current and/or anticipated business arrangements with Local Parties and Local Parties who are Team Members, Key Personnel, and Staff for the Project, as applicable.

7.4 CDBG-MIT Requirements

Any Proposer participating in this Request for Sealed Proposals process must be familiar with the current guidelines, manuals, laws, policies, directives, and

regulations issued by HUD that are applicable to this procurement process. Lack of knowledge of these provisions does not exempt the Proposer from compliance.

As part of this Request for Sealed Proposals process, the Proposer is required to comply with all requirements, restrictions, initiatives, objectives, and regulations applicable to the CDBG-MIT grant, as well as with any supplementary provisions governing this Request for Sealed Proposals process.

It is the sole responsibility of the Contractor to verify the CDBG-MIT grant requirements have been amended, revised, or updated by HUD or the Administering Entity. Any activity performed by the Contractor that is not eligible under the CDBG-MIT grant or program may not be included on the invoice, will not be reimbursed, and must be borne entirely by the Contractor.

The Contractor must adhere to applicable requirements of the CDBG-MIT grant initiatives, goals, and regulations, including Federal Register Notices 83 FR5844, 83 FR40314, 84 FR4836 and 85 FR 4681. If the Contractor performs ineligible activities under the CDBG-MIT Program, the Contractor cannot include them in the invoice for payment. The selected Design-Builder agrees to comply with all the requirements included in **Attachment 7** (HUD General Provisions and other Federal Statues, Regulations, and PRDOH Requirements of Healthcare Strengthening Set-Aside).

7.4.1 Minority, Woman, and Veteran-Owned Businesses (M/W/VBE)

ASEM recognizes its obligation to promote opportunities for the greatest possible participation of M/W/VBEs, as well as the employment of members of minority groups and women in the performance of all federally funded contracts, including the CDBG-MIT. Therefore, ASEM is committed to ensuring that businesses certified as M/W/VBEs receive incentives to submit proposals in response to this Request for Sealed Proposals.

Furthermore, ASEM commits to demonstrating an acceptable good-faith effort to meet the M/W/VBE subcontracting targets, which consist of 20% of the total contract value, allocated as 10% for MBE participation and 10% for WBE participation.

The work to be performed under the contract resulting from this Request for Sealed Proposals process will be subject to the regulations set forth on 2 C.F.R. § 200.321. This regulation requires, among other things, that the non-federal entity (ASEM) take the necessary measures to ensure that all sub-recipients, contractors,

subcontractors, and/or developers, funded in whole or in part by CDBG-MIT financial assistance, ensure that, whenever possible, contracts and other economic opportunities are directed toward small businesses and minority-owned businesses (MBEs), women-owned businesses (WBEs), veteran-owned businesses (VBE), and businesses in areas with a labor surplus. In accordance with Executive Orders 11625, 12138, and 12432, ASEM will make every effort to ensure that small businesses, M/W/VBE, and businesses in labor-surplus areas participate in contracting.

Therefore, by submitting a proposal, the Proposer acknowledges and agrees that, if awarded the contract, it will provide the duly completed M/W/VBE Utilization Plan template during the term of the contract as part of its overall efforts to comply with the M/W/VBE policy. Please refer to the following link to access and review the details of the M/W/VBE Utilization Plan template https://recuperacion.pr.gov/en/section-3/enterprise-woman-minority mwbe/utilization-plan/

NOTE: For more information, you can access the PRDOH M/W/VBE Policy via the following link https://recuperacion.pr.gov/en/section-3/enterprise woman-minority-mwbe/m-wbe-policy/

7.4.2 Section 3

By submitting its proposal, the Proposer acknowledges and agrees that the work to be performed under the contract resulting from this solicitation will be subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. §1701u, and its implementation in 24 C.F.R. Part 75 (Section 3).

HUD's current benchmark standards for Section 3 projects, established in accordance with the provisions of 24 C.F.R. § 75.23, are:

Regulations on Working Hours	Proportion Formula	Reference percentage *
Section 3 Workers	Working Hours for Section Workers 3 ÷ Total hours worked	25%
Section 3 workers to whom this is addressed	Work Schedule for Workers Selected for the Section 3 Program ÷ Total hours worked	5%

* Federal Register Vol. 85, No. 189 (September 29, 2020), 85 FR 60907

1. For a worker to qualify as a Section 3 worker, he or she must meet one of the following requirements:

    a. Self-certification by the worker that his or her income is below the income limit for the previous calendar year;
    b. Self-certification by the worker of participation in a means-tested program, such as public housing or Section 8 subsidized housing;
    c. Certification by the Department of Public Housing, or by the owner or manager of a project-based Section 8 housing unit, or by the manager of a tenant-based Section 8 housing unit, when the worker participates in one of its programs;
    d. Certification by the employer that the worker's income from that employer is below the income limit, as calculated by the employer based on the worker's annualized full-time wage rate; or
    e. Certification by the employer that the worker is employed by a Section 3 company.

2. For a worker to qualify as a Section 3 Targeted Worker under eligible financial assistance from the Department of Housing and Community Development:

    a. Confirmation from the employer that the worker's residence is located within one mile of the workplace or, if fewer than 5,000 people live within one mile of the workplace, within a circle centered on the workplace that is large enough to encompass a population of 5,000 people according to the most recent U.S. Census;
    b. Certification by the employer that the worker is employed by a Section 3 company; or
    c. Self-certification by the worker that he or she is participating in the YouthBuild program.

NOTE: For more information regarding the requirements, please refer to the PRDOH Section 3 Policy at the following link https://recuperacion.pr.gov/en/download/section-3-Policy/ and in Spanish at: https://recuperacion.pr.gov/download/politica-sobre-seccion-3/.

Specifically, for this contract, if selected Proposer, shall submit a Section 3 Plan to meet the Section 3 minimum goals: (i) for non-construction contracts at least three percent (3%) of the total dollar

amount of the proposal; and (ii) new hiring goals of at least thirty percent (30%) of new hires to be Section 3 Residents.

7.4.3 Davis Bacon and Related Acts

By submitting its proposal, the Proposer acknowledges and agrees that the project that is the subject of this Request for Sealed Proposals receives funding from the CDBG-MIT program. Consequently, the Proposer must fully comply with all applicable federal, state, and local labor standards, as well as with relevant laws and regulations. These provisions include, but are not limited to, the following:

1. The Davis-Bacon Act of 1931 and Related Acts (DBRA), as amended (40 U.S.C. §§ 3141–3148);
2. The Fair Labor Standards Act (FLSA), as amended (29 U.S.C. § 201 et seq.);
3. Contracts Work Safety and Hours Standards Act (CWHSSA), (40 U.S.C. § 3701 et seq.); and
4. Copeland Anti-Bribery Act, (40 U.S.C. § 3145).

The Procurement Division informs you that these laws are intended to ensure that workers on federally assisted construction projects receive: (1) wages no less than the prevailing local wages (including additional benefits), as determined by the U.S. Department of Labor; (2) protection against unfair labor practices, such as unauthorized deductions or bribes; (3) adequate overtime pay; and (4) safe working conditions and reasonable working hours.

The Proposer acknowledges and agrees that, if awarded the contract, it will be responsible for including the following documents in all applicable contracts and subcontracts to ensure full compliance with Federal Labor Standards.

1. Wage Determination: The "wage determination" is the list of wages and fringe benefits for each classification of laborers and tradespeople that the Administrator of the Wage and Hour Division (WHD) has determined to be in effect in a specific area (generally a county) for a specific type of construction. Davis-Bacon wage determinations are available at www.sam.gov (**Attachment 3**: Wage Determination)

2. HUD Form 4010 - Federal Labor Standards Provisions (**Attachment 4**: HUD Form 4010) This document describes the applicable federal labor requirements, including the Davis-Bacon provisions, and must be included in all construction contracts subject to the Davis-Bacon Reform Act (DBRA). This form is a crucial document used in federal contracts to ensure compliance with labor standards. It includes labor provisions that require contractors to comply with Davis-Bacon wage determination and reporting requirements, and it establishes remedies and penalties for noncompliance.

7.4.4 Preference Laws

The preference for acquiring goods produced in the United States, established in 2 CFR § 200.322, applies to all acquisitions financed with CDBG-MIT funds. This provision requires that, whenever possible and in accordance with the law, preference be given to goods and materials of U.S. origin. HUD has confirmed that this requirement is equally applicable to funds under the CDBG-MIT program; therefore, all procurement or purchases made under these programs must comply with this domestic preference. For this project, the provisions of 2 CFR § 200.322 apply.

7.4.5 Others

The Design-Builder acknowledges that the Project is funded, in whole or in part, with CDBG-MIT funds awarded to ASEM pursuant to the Subrecipient Agreement executed between ASEM and the Puerto Rico Department of Housing (PRDOH). Accordingly, the Design-Builder shall comply with, and shall cause its subcontractors, consultants, suppliers, and lower-tier subcontractors to comply with, all applicable terms, conditions, requirements, policies, procedures, and obligations imposed on ASEM under the Subrecipient Agreement, including all exhibits and attachments thereto, to the extent applicable to the Work.

Without limiting the generality of the foregoing, the Design-Builder shall comply with all applicable federal, state, local, HUD, PRDOH, and CDBG-MIT requirements, including procurement, eligibility, cost allowability, financial management, reporting, monitoring, audit, inspection, recordkeeping, labor standards, Section 3, M/W/VBE, environmental review, URA, nondiscrimination, conflict of interest, debarment and suspension, insurance, bonding, safety, and closeout requirements. The Design-Builder shall also comply with any

additional written guidance, directives, determinations, procedures, or corrective actions issued by ASEM, PRDOH, HUD, or any other governmental authority with jurisdiction over the Project.

The Design-Builder shall cooperate fully with ASEM, PRDOH, HUD, the Comptroller General of the United States, the Government of Puerto Rico, and their authorized representatives in connection with any monitoring, compliance review, audit, site inspection, investigation, reporting request, document request, or corrective action related to the Project. The Design-Builder shall maintain complete and accurate records sufficient to demonstrate compliance with the Contract Documents, the RFP Documents, the Subrecipient Agreement, and all applicable CDBG-MIT requirements, and shall make such records available upon request.

The Design-Builder acknowledges that failure to comply with applicable Subrecipient Agreement requirements, CDBG-MIT requirements, PRDOH requirements, or HUD requirements may result in withholding of payment, disallowance of costs, rejection of work, corrective action, suspension of work, termination for cause, recapture or repayment of funds, or any other remedy available to ASEM under the Contract Documents or applicable law. The Design-Builder shall be solely responsible for any costs, damage, disallowed costs, ineligible costs, repayment obligations, penalties, or delays resulting from its failure, or the failure of its subcontractors or consultants, to comply with such requirements.

8.0 RFP PROCESS

This procurement process began with the publication of the RFP's notice for Design-Build services. This document outlines the details of the process and its milestones. The Procurement Manager has structured a procurement process designed to achieve the desired outcomes described in this document, while establishing a competitive environment to ensure that each Proposer has an equal opportunity to submit a proposal in response to this Request for Sealed Proposals. Proposals will be reviewed and evaluated by the Procurement Division, Bid Board or Evaluation Committee; however, the Bid Board with the approval of the ASEM's Executive Directo will make the final determination regarding which proposal offers the best value, taking into consideration the price and other evaluation factors, as set forth in this Request for Sealed Proposals. Before the Technical Evaluation being evaluated, each proposal will be reviewed to determine if it meets the Mandatory Requirements established in this Request for Sealed Proposals. Proposals that meet the Mandatory Requirements will then undergo the Technical Evaluation.

The issuance of this Request for Sealed Proposals does not constitute, nor will it in any way constitute a formal agreement between the parties, nor will it confer any rights on the Awarded Proposer, even if a Notice of Award has been issued.

8.1 Schedule

The timeline for this Request for Sealed Proposals process is detailed below:

September 2, 2026	**Publication of the Request for Sealed Proposals**
immediately following the publication of the Request for Sealed Proposals	**Availability of Documents for the Request for Sealed Proposals**
September 24, 2026 10:00a.m.	**Pre-Proposal Meeting**
immediately after the pre-proposal meeting ends	**Site Inspection**
After the orientation meeting was completed. to December 1, 2026 at 2:00p.m.	**Timeframe for coordinating the additional site inspection**
October 8, 2026 2:00p.m.	**Last day to submit Request for Clarifications**
December 1, 2026 2:00p.m.	**Submission deadline for proposal**
December 1, 2026 2:30p.m.	**Proposals Opening**

The Procurement Manager reserves the right to change the date and time of any event scheduled in the Request for Sealed Proposals. Any changes will be published via addenda in the RUS and on the website, https://www.asem.pr.gov/administrativo#Subastas and through the link provided by the J.E.D.I. platform, https://jedi.asg.pr.gov/#/Repository?Identifier=27DJ-00415

8.2 Publication of the Request for Sealed Proposals

The Procurement Division will publish this Request for Sealed Proposals on the ASEM's website, https://www.asem.pr.gov/administrativo#Subastas, on the RUS platform, and other print and digital media outlets.

8.3 Availability of the Request for Sealed Proposals Documents

The documents for this Request for Sealed Proposals must be downloaded (free of charge), starting from the date of publication of the Request for Sealed Proposals notice, from the website https://www.asem.pr.gov/administrativo#Subastas or through the link provided by the J.E.D.I. platform, https://jedi.asg.pr.gov/#/Repository?Identifier=27DJ-00415.

8.4 Request for Clarifications

Any questions or Requests for Clarification regarding the documents of this Request for Sealed Proposals process must be submitted to the Procurement Division in writing via email to subastascompras@asem.pr.gov or through the link provided by the J.E.D.I. platform, https://jedi.asg.pr.gov/#/Repository?Identifier=27DJ-00415, on or before the date and time established in the Request for Sealed Proposals documents. The email subject line should include the Request for Sealed Proposals number, 27DJ-00415.

The Request for Clarification must be submitted by the Proposer using the document titled "Request for Clarification," included as **Exhibit 1** (Request for Clarification) to this document. The question must be clearly identified and indicate the section(s) and page number of this document or other document that serves as the basis for the question. The question may be written in English or Spanish. Responses to questions will be published on the website https://www.asem.pr.gov/administrativo#Subastas and through the link provided by the J.E.D.I. platform, https://jedi.asg.pr.gov/#/Repository?Identifier=27DJ-00415

Procurement Division reserves the right to determine not to answer any question or Request for Clarification submitted after the established date and time. The Procurement Manager and Procurement Division will not respond to verbal requests, except those made during the pre-proposal meeting.

8.5 Pre-Proposal Meeting

A pre-proposal meeting will be held on the date and time specified in section 8.1 of this RFP documents. The pre-proposal meeting will be conducted in person at Puerto Rico's Medical Center, Auditorium B and C at Cardiovascular Center of Puerto Rico and the Caribbean, First Floor, located in the Bo. Monacillos, San Juan, Puerto Rico, and will be also streamed lice via Microsoft Teams, as posted on ASEM's website https://www.asem.pr.gov/administrativo#Subastas. Proposers are strongly encouraged to attend. Representatives from ASEM will be present to discuss the project scope, evaluation criteria, proposal requirements, terms, and conditions.

Attendance at the pre-proposal meeting is not mandatory. Therefore, attendance by the Proposer or its authorized representative is not a requirement for submitting a proposal. Under no circumstances will absence from the pre-proposal meeting constitute basis for a subsequent appeal to the award, a claim for additional compensation, or an extension of the project execution deadline.

During the pre-proposal meeting the following will not be permitted: (1) loud or disruptive comments, (2) addressing the Procurement Manager, ASEM officials, or any other meeting attendee in an aggressive or offensive manner, and (3) interruptions (talking out of turn), or (4) any other conduct that disrupts the ordinary course and purpose of the meeting. Any instance of inappropriate or disruptive conduct by any Proposer or interested party participating in this Request for Sealed Proposals process during the pre-proposal meeting will be documented and constitute sufficient basis for the disqualification or rejection of its proposal.

Verbal statements made during the pre-proposal meeting shall not be binding or legally valid. Any changes, additions, or clarifications to the Request for Sealed Proposals or related documents resulting from the pre-proposal meeting, or otherwise deemed necessary by the Procurement Division, shall be issued through a written addenda formally approved and issued by the Procurement Division. All addenda will be posted at ASEM's website https://www.asem.pr.gov/administrativo#Subastas Proposers are responsible for regularly monitoring the website to remain informed of any posted responses, addenda or other RFP related document.

8.6 Site Inspection

An opportunity will be provided to conduct a site inspection immediately following the pre-proposal meeting. **Although attendance at the site inspection is not mandatory**, Proposers and other Key Personnel or Staff on its team are strongly encouraged to examine the site. The site will be open to all interested parties to familiarize themselves with the existing physical conditions, restrictions, and operational limitations.

Outside of the scheduled site inspection, the Proposer may request access to the site to conduct additional evaluations, studies, inspection, measurements, or other site assessments deemed necessary to prepare its Proposal. Any such access must be coordinated in advance with Procurement Division via email subastascompras@asem.pr.gov or through the link provided by the J.E.D.I. platform, https://jedi.asg.pr.gov/#/Repository?Identifier=27DJ-00415 The Proposer shall be solely responsible for all costs, liabilities, safety requirements, and security protocols associated with any independent site evaluation, study or inspection.

Any evaluation, study, inspection, or site access conducted by the Proposer shall not modify the Request for Sealed Proposals or any of its items, conditions, requirements, or documents, nor shall it relieve the Proposer's of its obligation to review and rely on the complete Request for Sealed Proposals documents.

Since the project will be developed within a complex with various continuously operating medical facilities, it is essential that Proposers have prior knowledge of the area's physical, functional, operational, and logistical conditions. The complex contains essential services operating 24/7 that cannot be interrupted or affected by the project activities. Therefore, the Proposer must carefully evaluate access points, patient and clinical staff flows, supply routes, critical areas, operational restrictions, and any other element that could impact the safe execution of the work.

Lack of knowledge of physical conditions, operational, functional, and logistical conditions will not exempt the Proposer from its responsibility to comply with the project requirements, nor will it justify subsequent claims. For the Proposer's information and to facilitate its understanding of the operations carried out in the facilities located within the project area, this document includes a detailed graphic representation illustrating the location, distribution, and functional relationship of the existing facilities, operations, and activities within the project area. This representation is intended to support the evaluation of the operational environment, identify critical elements that could influence project execution, and ensure that the Proposer considers,

from the proposal preparation stage, the physical, logistical, operational, and functional conditions that characterize the site. See **Attachment 2** (Representation of the physical, logistical, operational, and functional conditions that characterize the site).

The Procurement Division will not be responsible for incorrect interpretations arising from the site inspection or the graphic representation provided in this document; each Proposer is responsible for properly evaluating the information.

As part of the information gathering process and solely for use in the Request for Sealed Proposals process, the Procurement Division authorizes the Proposers to take photographs, videos, and/or measurements of the site.

The Proposer is expected to ensure they are aware of all local conditions, physical limitations, and site characteristics that may affect the cost, schedule, or performance of the required work. Under no circumstances will the failure to inspect the site constitute basis for a post-award dispute, a claim for additional compensation, or an extension of the project execution deadline.

Verbal statements made during the site inspection(s) will not be legally valid. Any changes, additions, or clarifications to the Request for Sealed Proposals documents resulting from this event will be formally issued by the Procurement Division through addenda.

Communications with ASEM personnel regarding the proposed project is not permitted during the site inspections. Any questions related to the site inspection must be submitted in writing, following the instructions provided herein.

8.7 Proposal Submission

Proposals must be submitted in the following two (2) formats. Refer to Section 8.1 to know the deadline.

1. Physically (Hard Copy), at ASEM's Procurement Division Office, First Floor, Services and Supply Building, Puerto Rico's Medical Center, located in the Bo. Monacillos, San Juan, Puerto Rico

2. Electronically (digital), using the link https://jedi.asg.pr.gov/#/Repository?Identifier=27DJ-00415, and uploading your Proposal in the section identified as "Suplidor or Supplier"

Proposers who fail to submit its proposal in both (2) required formats (Physically and Electronically) may be disqualified.

The envelope containing the proposal that will be physically (hard copy) submitted must be identified as Section 9.2.1 of this document.

The document physically (hard copy) submitted to the Procurement Office will be considered the official proposal. Upon receipt of the envelope containing the proposal at the Procurement Office, it will be marked with the exact date and time of receipt, which will constitute the official date and time of submission of the proposal.

Documents submitted via the link provided here must include a true and exact copy of the physically (hard copy) submitted proposal documents. The date and time of receipt of the electronically submitted proposal will be those printed on the document. As an exception, the Procurement Manager may authorize the physical submission of supplementary attachments that, due to their size, exceed the space available for submitting the electronic proposal.

In the event that, for any reason, a Proposer's proposal has been received in physical form, but the electronic proposal has not been received by the deadline indicated above, the Proposer will be notified during the Proposals Opening and will have until the end of the Proposals Opening to send the proposal.

The submission of a duly completed proposal constitutes the Proposer's acceptance of all the terms, specifications, and conditions communicated in this Request for Sealed Proposals. The obligations, duties, and limitations arising from mandatory federal and state clauses duly disclosed herein, and those that may arise from competent authorities, constitute binding regulations that shall not, under any circumstances, be recognized as basis for refusing to enter into a contract to provide the goods, works, and services tendered herein.

Furthermore, the Proposer agrees to comply with all applicable federal and Puerto Rico laws and regulations, including, but not limited to, those related to the practice of regulated professions and those that may affect its ability to perform the scope of work under this contract. The Proposer certifies that it possesses all necessary licenses, certifications, permits, authorizations, and approvals to perform the work, which must be valid and current throughout the term of the contract. The Proposer and each of its employees, agents, subcontractors, and subconsultants must possess all certifications, licenses, permits, authorizations, consents, and approvals necessary for the execution of the scope of work under this contract. Therefore, the Proposer must always ensure that professional, architectural, or engineering service is performed by

qualified professionals with the appropriate training, knowledge, experience, and licenses to perform such service, in accordance with applicable federal and local laws and regulations. As part of the evaluation process, the Procurement Division, Bid Board or Evaluation Committee will conduct a validation process to verify the Proposer's compliance with these requirements.

Likewise, by submitting a proposal, the Proposer acknowledges that: (a) it has read and understood the Request for Sealed Proposals; (b) the proposal is made in accordance with the requirements of the Request for Sealed Proposals; (c) the proposal is based on labor, materials, equipment, and any other associated costs required for the Design-Build, without exception; and (d) the proposal will remain valid for a period of one hundred eighty (180) calendar days from the deadline for submitting the proposal. Therefore, any proposal that establishes a validity period shorter than one hundred eighty (180) calendar days from the deadline for submitting the proposal will be disqualified or rejected.

The Procurement Division will only accept the proposal until the date and time specified in the Request for Sealed Proposals documents. The exact date and time of receipt will be stamped on Proposal's envelope or package. Evidence of receipt of the stamped envelope or package will be retained in the official procurement process file.

Proposals submitted after the deadline established in the Request for Sealed Proposals will not be accepted. Therefore, the proposal will be returned to the Proposer informing them of its disqualification from participating in the Request for Sealed Proposals process for having failed to comply with the delivery requirements established in the RFP documents.

Should any natural event or special circumstance occur that causes the ASEM headquarters to close, preventing the receipt of proposals by the deadline established in the RFP documents, the proposals will be accepted when the Procurement Division resumes its operations, at a time duly notified.

The Procurement Division will not assume any responsibility for a Proposer's failure to submit its Proposal within the timeframe established in the Request for Sealed Proposals. It is the Proposer's sole responsibility to ensure compliance with all submission requirements, including proper identification, use of the correct submission method, and strict adherence to the deadline stipulated in the RFP documents. The Procurement Division will not be liable for errors or omissions attributable to the Proposer, third parties, or technical, logistical, or administrative failures that prevent the timely submission of the bid or proposal.

Each Proposer is entitled to submit only one (1) bid or proposal. If the Proposer submits multiple proposals through different legal entities, subsidiaries, or affiliates, resulting in an unfair advantage, this will be basis for its disqualification or rejection of the proposal.

8.7.1 Handling Open or Damaged Envelopes or Packages

If, before the Proposals Opening, the Procurement Division receives a proposal with an open, tampered, or damaged envelope or package, the Procurement Manager, as applicable, will contact the Proposer so that they:

1. Personally verify the envelope or package and the documents it contains; and
2. Formally submit the sealed proposal.

In this circumstance, the delivery date will be the date of the original receipt. The Procurement Manager will prepare an incident report documenting the condition of the envelope or package, which will be attached to the proposal. The Proposer will certify the date and time of the inspection, ensuring transparency in the process; otherwise, the proposal will not be accepted.

8.8 Proposals Received and Registered

All proposals received on or before the established deadline for proposal's submission will be recorded by the Procurement Division in the Proposals Register using the method established by the Procurement Manager for this purpose.

8.9 Corrections to the Offer or Proposal by the Proposer

Any corrections to offer or Proposal resulting from apparent errors must be confirmed by the Proposer's authorized representative for this RFP through its signature or initials before the deadline for submission and Proposals Opening. Failure to comply with this requirement shall render the offer or Proposal invalid for the affected item(s), unless an exception is expressly permitted under the RFP documents or applicable ASG's regulations.

8.10 Modification to the Offer or Proposal Prior to the Proposals Opening

Any modification that alters the terms of the previously submitted offer or proposal must be made in writing and submitted to the Procurement Division, provided that the deadline established in the RFP documents for its submission

has not expired. This modification must be submitted in the same manner as the original offer or proposal, as established in the RFP documents. It must also be properly identified with the same information required for the original offer or proposal and clearly include the word "modification" and signed by the Proposer's authorized representative.

Changes to a submitted Proposal will not be accepted after the established deadline for Proposal submission.

All modifications to the Proposal shall be opened together with the original Proposal at the date, time, and location established for the Proposals Opening.

8.11 Withdrawal of Proposal

The withdrawal of a proposal may be requested in writing and submitted to the Procurement Division at any time prior to the date established for Proposals Opening. The request must be delivered in hard copy to the ASEM's Procurement Division Office, in Puerto Rico's Medical Center, located in the Bo. Monacillos, San Juan, Puerto Rico.

Once a proposal has been withdrawn, the Proposer may not submit a substitute proposal. Under no circumstances will the withdrawal of a proposal be permitted after the Proposals Opening.

8.12 Amendment to the Request for Sealed Proposals (Addenda)

The Procurement Manager may amend the terms of this Request for Sealed Proposals if: (1) it discovers a substantial and irremediable error therein, (2) it is necessary to modify its terms, conditions, specifications, or scope of work, (3) it is desired to increase or decrease terms or quantities, or to change conditions or specifications, and (4) or other circumstances warrant it.

The terms may be amended within the following timeframes:

1. Up to five (5) business days before the Proposals Opening, if the amendment involves changes or additional requests that must be included in the proposal; or
2. One (1) business day before the Proposals Opening when the amendment does not affect the submission of proposals.
3. The Procurement Division will publish Addenda in the RUS, and on the ASEM website, https://www.asem.pr.gov/administrativo#Subastas

All Addenda will become part of the RFP documents, and this RFP and interested Proposers must consider them when submitting proposals.

Proposers should continuously monitor the site to ensure they are aware of and take note of any posted Addenda.

8.13 Cancellation of the Request for Sealed Proposals Process

The Procurement Division may partially or completely cancel the Request for Sealed Proposals, even after the Proposals Opening has been held, provided that a contract has not been formalized or a purchase order has not been issued, if the cancellation of the Request for Sealed Proposals is in the best interest of the Government of Puerto Rico. After the process is canceled, the Procurement Division will notify the Proposer of the Cancellation Notice through https://www.asem.pr.gov/administrativo#Subastas and in the RUS.

Prior to the execution of a contract for the services requested here, this RFP may be canceled and terminated at its discretion without liability by ASEM, PRDOH, the Government of Puerto Rico and HUD.

8.14 Proposals Opening

The Procurement Manager will open the proposals on the date and at the time specified in Section 8.1 of this Request for Sealed Proposals in Puerto Rico's Medical Center, ASEM's Central Laundry Conference Room, located in the Bo. Monacillos, San Juan, Puerto Rico. The Proposal Opening will also be streamed live via Microsoft Teams, as posted on the website https://www.asem.pr.gov/administrativo#Subastas The Proposals Opening will be open to the public, and any interested person may attend. However, the proposal contents will not be read aloud. Only the name of the Proposers will be announced.

All proposals, evaluations, discussions, and negotiations will remain confidential throughout the evaluation and negotiation process until the contract is signed. During this period, only personnel from the Procurement Division, members of the Bid Board and the Evaluation Committee, will have access to the proposals and the evaluation results.

The submitted proposals will remain in the custody of the Procurement Division and will not be opened under any circumstances until the date and time for the Proposals Opening.

8.15 Ownership of Documents and Proposal

All documents and materials submitted as part of the Proposer's proposal in response to this Request for Sealed Proposals process shall become the

property of the Procurement Division. Cancellation, selection, rejection, or disqualification shall not affect this provision.

8.16 Cost of Proposal Documents

The costs associated with preparing the proposal are the sole responsibility of the Proposer. The Procurement Division shall not pay any costs associated with preparing the Proposer's proposal or any additional documents, materials, or samples, if any, as requested in the Request for Sealed Proposals process.

8.17 Blackout Period

Any verbal communication related to the content of this Request for Sealed Proposals from its publication until its award with personnel of Procurement Division, members of the Bid Board, Evaluation Committee members, buyers, liaisons, and specialists involved in the Request for Sealed Proposals is strictly prohibited. Failure to comply with this requirement may result in the disqualification or rejection of the proposal that does not comply with the provisions of this section.

In order to guarantee transparency, integrity, and uniformity in the Request for Sealed Proposals process, *ex parte* communications, outside of the mechanisms contemplated in the acquisition methods, between ASEM and PRDOH officials, employees, or consultants, including personnel of Procurement Division, members of the Evaluation Committee, the Bid Board, with one (1) or more Proposers, regarding matters related to this RFP are categorically prohibited.

This prohibition is in effect at all stages from the publication of this RFP and continuing through the issuance of the notification of an award or resolution. This prohibition does not apply to communications that must take place during public meetings, interviews with Proposers, requests for information, and any other procedures that may be requested by the Procurement Division, Evaluation Committee or Bid Board.

8.18 Proposer's responsibility

It is the responsibility of each Proposer before submitting a Proposal to:

1. Carefully read and examine the RFP documents, including all appendices, reference documents, reports, drawings addenda, and other information make available by the Procurement Division.

2. Review, understand, and comply with all applicable federal, state, and local laws, regulations, codes, ordinances, permits, and requirements

that may affect cost, schedule, design, construction, operation, or performance of the project.

3. Review and evaluate the RFP documents; and all site-related investigations, reports, studies, surveys, geotechnical documents, drawings, and other data identified in or made available with the RFP documents, and determine their impact on (1) the cost, schedule, and performance of the works; (2) the proposed project design and achievement of the project; (3) the means, methods, techniques, sequences, and procedures of design and construction; and (4) Proposer's safety plans, precautions and programs.

4. Request from the Procurement Division, prior to submission of its Proposal, any additional information that the Proposer reasonably considers necessary for the preparation of its Proposal. Failure to request such information shall not relieve the Proposer of responsibility for submitting a complete and responsive Proposal.

5. Promptly notify the Procurement Division in written of any conflicts, errors, ambiguities, or discrepancies that Proposer identifies in the RFP documents.

6. Satisfy itself that the RFP documents are generally sufficient to convey the requirements, terms, conditions, risks, and obligations associated with the project prior to submitting its Proposal.

7. Review all Environmental Review documentation provided by the ASEM and consider such documentation in the development of its Proposal. The Proposer shall be responsible for complying with all applicable environmental review requirements and conditions associated with the Project.

8. ASEM has provided the ERR, and any related environmental review documentation available at the time of issuance of this RFP. If the environmental review process has not been completed before the Proposal Submission Deadline, the Proposers shall review and consider the provided ERR in preparing Proposals.

9. The Proposer acknowledges and agrees that the environmental review documents made available by the ASEM are based on the project scope and conceptual design developed to date. Following contract award, the Design-Builder shall be responsible, at no additional cost to the ASEM unless otherwise expressly provided in the Contract, for identifying any modifications to the Project scope, design, construction

methods, site impacts, or operational characteristics that may require supplemental environmental analysis, environmental reevaluation, updates to the Environmental Review Record, or additional environmental clearances.

10. The Design-Builder shall prepare, support, coordinate, and obtain all information, studies, analyses, technical documentation, and design revisions required to facilitate any environmental reevaluation, amendment, supplementation, or re-approval necessitated by the Design-Builder's final design, means and methods, value engineering proposals, construction sequencing, or other changes introduced after contract award. The Design-Builder shall not proceed with any activity requiring additional environmental approval until such approval has been obtained through the applicable process.

11. By submitting a Proposal, the Proposer represents that it has exercised reasonable diligence in evaluating the information provided and has considered the requirements of the environmental review process in the preparation of its Proposal price and schedule.

8.19 Proposal and Quoted Prices

The Procurement Division and Bid Board will not consider proposals that add to, remove from, alter, modify, or change specifications or conditions required in the RFP documents. Proposals containing ambiguous, incomplete, or undefined phrases, paragraphs, or comments, or that undermine the certainty of the proposal, will also not be considered.

All Proposers must quote fair and reasonable prices for the services, goods, or works included in this RFP process.

8.20 Code of Ethics

All Proposers must comply with the following:

A. CODE OF ETHICS FOR CONTRACTORS

All Proposers must comply with the provisions of Act 2 of January 4, 2018, as amended, known as the "Anticorruption Code for the New Puerto Rico". It is an essential requirement for contracting with the Government all entities committed to abiding by the provisions of the Code of Ethics established in the law.

In addition, any natural or legal person wishing to participate in a bidding process or the awarding of any contract with any government agency or instrumentality, public corporation, municipality, or with the Legislative or Judicial Branch, for the performance of services or the sale or delivery of goods, shall submit a sworn statement before a notary public, in which they shall report whether the natural or legal person or any president, vice president, director, executive director, or member of a board of officers or board of directors, or persons performing equivalent functions for the legal person, has been convicted or has pleaded guilty to any of the crimes listed in Act 8 of February 4, 2017, as amended, known as the "Administration and Transformation of Human Resources in the Government of Puerto Rico Act", or for any of the crimes contained in said Code.

Any person, whether natural or legal, who has been convicted of: violating Articles 4.2, 4.3, or 5.7 of Act 1 of January 4, 2012, as amended, known as the "Puerto Rico Government Ethics Office Organic Act"; violating any of the serious crimes against the exercise of public office or against public funds contained in Articles 250 through 266 of Act 146 of July 30, 2012, as amended, as amended, known as the "Puerto Rico Penal Code"; violating any of the crimes defined in the Code; or violating any other serious crime involving the misuse of public funds or property, including, but not limited to, the crimes mentioned in Section 6.8 of Act 8, supra, shall be disqualified from contracting or bidding with any executive agency of the Government of Puerto Rico for the applicable term. When no term is specified, the person shall be disqualified for ten (10) years from the date on which they complete serving their sentence.

Every contract shall include a termination clause if the person contracting with the executive agencies is convicted, in state or federal court, of any of the offenses that disqualify them from contracting under the preceding paragraph. The contracts certify that the person has not been convicted, in state or federal court, of any of the offenses. The duty to inform shall be ongoing throughout all stages of contracting and contract performance.

All Proposers are subject to the sanctions and penalties established in Article 3.7. — Sanctions and penalties of Act 2-2018, supra.

B. CANONS OF PROFESSIONAL ETHICS

Every person must observe the maxims and principles of excellence and honesty that govern their profession, in addition to the ethical standards or canons of the association or professional college to which they belong, and which regulate their trade or profession, both in relation to their competitors and to the Government of Puerto Rico.

In the case of individuals who do not belong to a professional association or college, or in the case of associations and colleges that do not have a Code of Ethics for their members, they must observe the general principles of ethical conduct that are considered reasonable in their profession or trade.

8.21 Investigation Collaboration

Every person, Proposer, or Contractor will cooperate with any investigation initiated by the state or federal government regarding business transactions, the awarding of contracts, or the granting of government incentives, in which they participated or from which they directly or indirectly benefited.

8.22 Reproduction or distribution

All information provided as part of this RFP process including, but not limited to, scopes of work, drawings, technical specifications, plans, reports, and photographs, is for the exclusive use of this RFP process. Any reproduction or distribution of the material for other purposes is not permitted.

9.0 PROPOSAL FORMAT

9.1 Instructions for the Proposer's Proposal Format

Each Proposer is responsible for the accuracy and completeness of its proposal. The proposal must demonstrate a clear understanding of the requirements of this Request for Sealed Proposals and present a precise description of the proposed services and work, and the offered price. The Proposer must provide as much detail as possible in its proposal, as well as clear and direct descriptions of their capabilities and the members of its team. The Proposer must submit its proposal in a written, legible, clear, complete, and accurate format.

The Proposal must be signed, and each page must be initiated by the Proposer's representative authorized registered in the RUL, as required.

On documents requiring initials and signatures, **the Proposer's authorized representative must handwrite all required initials and signature in blue ink pen (electronic, digital or scanned signatures will not be allowed)**, in the space provided. Any cross-out or revision made to the proposal documents must be initiated by the Proposer's authorized representative next to the change. The use of "correction tape", correction fluid, "liquid paper" or similar products is not permitted.

All fields in forms and any other relevant information must be completed by the Proposer or its authorized representative. In fields where the requested information is not applicable, the Proposer shall indicate this by writing "N/A" (not applicable) in the designated field.

The Proposer must submit its Proposal using the official forms provided by the Procurement Division and must comply with the terms, conditions, and specifications established in RFP documents.

The Proposer may include additional pages to clarify or provide further details about its Proposal; however, such pages may not modify, revise, or alter the Proposal.

Any document authorized by a notary public outside the jurisdiction of Puerto Rico must be authenticated and include an official certificate or apostille from the Secretary of State, the County Clerk, or the corresponding state government entity.

The Proposer must submit their proposal using the official forms provided by the Procurement Division and must comply with the terms, conditions, and specifications established in RFP documents.

The proposal must contain the physical and postal address of the Proposer's main business office in Puerto Rico, and the name and address of the Proposer's resident agent, as applicable.

9.2 Content of the Proposal

The proposer must submit their proposal in both Physically (hard copy/printed) and Electronically (digital) formats. The digital proposal must include a true and exact copy of the physically submitted proposal documents, one (1) redacted copy, and the Cost Breakdown in Excel format.

The proposal submitted by the proposer in hard copy/printed format must be submitted in a sealed envelope or package. It is optional to submit the Price Proposal and Cost Breakdown forms in a separate sealed envelope (within o inside) the Proposal's Sealed Envelope or Package. The proposal must include all documents, forms, and attachments.

9.2.1 Proposal's Sealed Envelope or Package

The Proposer must submit its Proposal in a sealed envelope or package containing the original document and copies (printed and PDF), properly identified with the following:

1. Number of this Request for Sealed Proposals;

2. Title of this Request for Sealed Proposals;

3. Proposer's name, address, and telephone number; and

4. Any other information specified in the RFP documents, as applicable

The Proposal's sealed envelope or package must contain a separate sealed envelope that contains the Price Proposal and Cost Breakdown. The Price Proposal and Cost Breakdown sealed envelope should be identified with the following:

1. Number of this Request for Sealed Proposals;

2. Title of this Request for Sealed Proposals;

3. Identified with "Price Proposal and Cost Breakdown"

4. Proposer's name, postal address and telephone number; and

9.2.2 Front Page

The Proposer shall submit as part of their proposal a front page that includes:

1. Number of the Request for Sealed Proposals;
2. Title of the Request for Sealed Proposals;
3. Date of issuance of the proposal;
4. Name of the Proposer, as registered in the Puerto Rico's Department of State and RUL;
5. Mailing address of the Proposer's main office;
6. Telephone number of the Proposer;
7. Email address of the Proposer; and
8. Name of the Proposer's authorized representative, as registered in the RUL.

9.2.3 Checklist

Proposal documents shall be organized, including the documents indicated on the Proposal Checklist (**Exhibit 2**), as applicable.

As part of the proposal documents, the Proposer must verify the presentation of the documents in accordance with the Proposal Checklist, as applicable, which must be completed and signed by the Proposer's authorized representative.

9.2.4 Table of Contents

The Proposer shall submit, as part of their proposal, a Table of Contents that clearly identifies the documents included, by section and page number, in a continuous manner. This includes the identification of the appendices.

9.2.5 Statement of Proposer

The Proposer will complete the form provided as **Exhibit 3** (Statement of Proposer) of this document, including the following documents, as applicable:

9.2.5.1 Organizational Chart of Proposer's Team Members

The Proposer shall submit an Organizational Chart through a simple graphic presentation that clearly and easily depicts the structure of the Team Member's organization, including:

1. Design-Build Project Manager
2. Safety Manager
3. Scheduler
4. Cost Estimator
5. Commissioning Authority / Agent
6. Design Lead
7. Civil Engineer, P.E.
8. Civil Engineer, P.E. – "Structural Engineer"

9. Environmental Engineer, P.E. or Registered Environmental Manager
10. Electrical Engineer, P.E.
11. Mechanical Engineer, P.E.
12. Technology / IT/ System Engineer, P.E.
13. Construction Manager or Superintendent
14. BIM Manager / BIM Coordinator
15. Quality Control Manager
16. Healthcare Facilities Subject Matter Expert
17. Designer's Staff
18. Builder's Staff
19. Subcontractors
20. Consultants

The chart must depict the levels of authority and relationship between the different roles, departments or positions, for the execution of the activities on the Design Build project.

9.2.5.2 Proposer's Organizational Documents

Every entity must submit a "Good Standing" certificate and/or Certificate of Compliance duly issued by the Puerto Rico's Department of State, as applicable.

In addition, if the Proposer is a partnership, it must submit the Partnership Agreement along with its proposal or if the Proposer is a Joint Venture, it must submit the Joint Venture Agreements along with its proposal. The Partnership Agreement and Joint Venture Agreement must contain, at minimum, the following:

- Parties to the agreement
- Purpose and scope of the joint venture
- Capital contributions and funding obligations

- Profit and loss allocation
- Governance and management structure
- Roles and responsibilities
- Intellectual property provisions
- Confidentiality obligations
- Dispute resolution procedures
- Exit strategy and buyout provisions
- Governing law and execution details

9.2.5.3 Designer's Organizational Documents

Every entity must submit a "Good Standing" certificate and/or Certificate of Compliance duly issued by the Puerto Rico's Department of State, as applicable.

Every legal entity that is a professional corporation of architecture, engineering or surveying must submit the credentials of all its shareholders as a licensed professional.

9.2.5.4 RUL's Eligibility Certificate

If the Proposer has eligible status in the RUL, a copy of the RUL's Eligibility Certificate issued by ASG must be submitted.

Any Proposer who, at the time of the Proposals Opening, is not active or eligible in the RUL will have a non-extendable period of five (5) business days, counted from the Proposals Opening, to comply with the requirements established by the ASG and become registered.

It will be the sole responsibility of the Proposer to update their information and submit the corresponding documentation within the established timeframe. Failure to do this will result in the disqualification of their proposal.

9.2.5.5 Single Provider Certificate

The Designer must submit a copy of the Single Provider Certificate of the RUP issued by ASG.

9.2.5.6 System Award Management (SAM)

The Proposer and Designer must submit evidence demonstrating that, as of the deadline for the proposal submission, it has an active and eligible status or has initiated registration in the System Award Management.

9.2.5.7 Designer's Qualifications

The Proposer must submit the Designer's Qualifications.

9.2.5.8 Professional License(s) and/or Certification(s)

In compliance with regulatory requirements and applicable provisions, the Proposer must submit copies of all current professional licenses and certifications of the Key Personnel and Staff of the Design Team or First-Tier Subcontractors, as applicable.

The purpose of submitting the professional license and/or certification is to evidence the Design Team's legal authority to practice and to demonstrate compliance with the standards and requirements established under applicable laws and regulations.

9.2.5.9 Financial Statements

The Proposer shall submit its Financial Report for the last 2 tax years, according to its circumstances (volume of business), as established in Section 1061.15 of the "Internal Revenue Code for a New Puerto Rico," or "Puerto Rico Internal Revenue Code of 2011," Act 1 of January 31, 2011, as amended. The Financial Report is required to include:

1. Current Assets: Cash, accounts in joint ventures, accounts receivable, notes receivable, accrued interest in deposits of documents and materials, prepaid expenses, net fixed assets, and other assets; and

2. Current Liabilities: Accounts payable, promissory notes, accrued interest in promissory notes, provisions for income taxes, advances received, payroll taxes, other liabilities and equity (share capital, authorized and outstanding shares, retained earnings).

9.2.5.10 Line of Credit and/or Letter of Cash Available

The Design-Builder shall demonstrate that it has liquid assets available for the Project in an amount of not less than sixteen million dollars ($16,000,000.00). To satisfy this requirement, the Proposal shall include an original letter issued by a duly authorized banking or financial institution confirming that the Design-Builder has either: (i) cash available in an amount not less than $16,000,000.00; or (ii) an available line of credit in an amount not less than $16,000,000.00 that may be used for the Project.

The letter from the banking or financial institution, issued on the institution's official letterhead, shall also contain the following:

1. Contact information (name, surname, telephone number, and email address) of the authorized representative of the banking or financial institution issuing the document;

2. Indicate, to the best of their knowledge, the service Proposer is free of encumbrance;

3. Be dated within 30 calendar days of the Proposal Opening of this RFP process;

4. Be duly signed by the authorized representative of the banking or financial institution issuing the document;

5. The amount must be expressed in figures (numbers) and words.

6. Confirmation that the funds or credit capacity are currently available and not subject to conditions that would prevent their use for the project.

9.2.7 Non-Conflict of Interest Certification

The Proposer shall use **Exhibit 4** of this document to submit the Non-Conflict of Interest Certification.

9.2.8 Non-Conflict of Interest Certification on Existing or Pending Contracts

The Proposer shall use **Exhibit 5** of this document to submit the Non-Conflict of Interest Certification on Existing or Pending Contracts.

9.2.9 Limited Denial of Participation (LDP) / Suspension or Debarment Status Affidavit

The Proposer shall use **Exhibit 6** of this document to submit the Limited Denial of Participation (LDP) / Suspension or Debarment Status Affidavit.

9.2.10 Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion

The Proposer shall use **Exhibit 7** of this document to submit the Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion.

9.2.11 Non-Collusive Affidavit

The Proposer shall use **Exhibit 8** of this document to submit the Non-Collusive Affidavit.

9.2.12 Sworn Statement (Act 2-2018, as amended, Anticorruption Code for the New Puerto Rico)

The Proposer shall use **Exhibit 9** of this document to submit the Sworn Statement (Act 2-2018, as amended, Anticorruption Code for the New Puerto Rico).

9.2.13 Anti-Lobbying Certification or Disclosure of Lobbying Activities

The Proposer shall use **Exhibit 10** of this document to submit the Anti-Lobbying Certification or **Exhibit 11** of this document to submit the Disclosure of Lobbying Activities, as applicable.

9.2.14 Authorization for Background and/or Other Information

The Proposer shall use **Exhibit 12** of this document to submit the Authorization for Background and/or Other Information.

9.2.15 Entities Prior Performance Certifications

The Proposer shall use **Exhibit 13** of this document to submit the Entities Prior Performance Certifications.

9.2.16 Certification Regarding Compliance of Act 173-1988

The Proposer shall use **Exhibit 14** of this document to submit the Certification Regarding Compliance of Act 173-1988.

9.2.17 Certification of Compliance with the Prevailing Federal Wage Rule Davis Bacon Act 40 USC 276A – 276A-71

The Proposer shall use **Exhibit 15** of this document to submit the Certification of Compliance with the Prevailing Federal Wage Rule Davis Bacon Act 40 USC 276A – 276A-71.

9.2.18 Technical Proposal

The Proposer shall submit a Technical Proposal (**Exhibit 16**) demonstrating his knowledge and capability in this type of Design Build project. The Technical Proposal shall describe the Proposer approach to complete the project within the required schedule and quality standard. Also, shall provide their approach to meet the milestones requested on this RFP and maintain the time for substantial completion. The Proposer must include a Design-Build Schedule (Project Schedule) and Resource Loaded Schedule, including the monthly cash flow projections. The Project Schedule shall be computer produced using the Critical Path Method ("CPM") format. The schedule shall contain sufficient activities to clearly show the sequence and interdependencies of the Work. Activity durations shall be expressed in whole day. Work that is to be performed by Subcontractor shall be clearly defined.

The Technical Proposal shall be organized in a manner that allows the Evaluation Committee or Bid Board to evaluate the Proposer's qualifications, experience, project team, and proposed delivery approach in accordance with Section 10.0 of this RFP. The Technical Proposal shall include, at a minimum, the following information.

9.2.18.1 Design-Builder Experience and Past Performance

The Proposer shall provide detailed information demonstrating the Design-Builder's experience and past performance of projects on similar size, scope, complexity, delivery method, and operational risk. At a minimum, the Proposer shall identify and describe projects that demonstrate compliance with the minimum experience.

As a minimum the Proposer shall meet the following requirements:

1. At least one (1) completed hospital construction project within the last twenty years;

2. At least one (1) completed Design-Build healthcare or hospital project by the designer or builder (can be the

hospital construction project required in the first item herein or an additional project);

3. Experience involving critical healthcare environments, including emergency departments, operating rooms, intensive care units, trauma facilities, or comparable critical care environments;

4. Experience delivering projects within active healthcare campuses, mission-critical facilities, or operational environments requiring strict coordination of access, safety, logistics, utilities, and continuity of operations;

5. Experience with vertical construction projects.

6. Demonstrated safety, quality, schedule, regulatory compliance, stakeholder coordination, and risk-management performance.

7. Experience with federally funded projects.

For each submitted project, the Proposer shall include, at a minimum: project name and location; owner/client; contract value; delivery method; project size and relevant scope; completion date; role of the Proposer and major team members; description of hospital or mission-critical components; schedule and budget performance; change order history, if applicable; safety record; quality performance; and owner reference contact information. Refer to Minimum Healthcare / Hospital Experience Form (**Annex III**).

9.2.18.2 Design Firm Experience and Past Performance

The Proposer shall provide information demonstrating the Design Firm's relevant experience and past performance on healthcare or hospital facility planning, design, permitting, regulatory coordination, construction document development, and design support during construction. The Technical Proposal shall specifically address experience with:

1. Acute care hospitals and trauma, emergency, surgical, intensive care, or comparable critical healthcare environments;

2. Hospital facility planning, programming, and clinical workflow coordination;

3. Resilient and mission-critical building systems, including structural, electrical, mechanical, plumbing, medical gas, IT, communications, life safety, and utility infrastructure;

4. Design-Build delivery, fast-track design packages, multidisciplinary coordination, constructability reviews, and support of phased construction;

5. Knowledge of American College of Surgeons (ACS) regulations and requirements.

6. Compliance with applicable healthcare codes, standards, licensing requirements, accessibility requirements, environmental requirements, including Federal Aviation Administration (FAA) requirements, and Puerto Rico professional practice requirements.

9.2.18.3 Organizational Structure and Design-Build Team Integration

The proposed Design-Build organizational structure and explanation of how the Design-Builder, Designer, Builder, subcontractors, specialty consultants, suppliers, vendors, and Key Personnel will be integrated to deliver the Project. The Proposal shall include an organizational chart consistent with Section 9.2.5.1 and shall describe lines of authority, decision-making responsibilities, communication protocols, issue-escalation procedures, design-construction coordination, and the method for managing scope, schedule, quality, safety, cost, risk, commissioning, activation, and operational readiness.

The Proposer shall identify any prior collaboration among major Design-Build team members and describe how such prior collaboration supports efficient project delivery, risk reduction, and accountability.

9.2.18.4 Key Personnel Minimum Qualifications and Commitments

The Technical Proposal shall identify and commit the Key Personnel proposed for the Project. At a minimum, the Proposer shall identify the following Key Personnel:

1. Design-Build Project Manager

2. Safety Manager
3. Scheduler
4. Cost Estimator
5. Commissioning Authority / Agent
6. Design Lead
7. Civil Engineer, P.E.
8. Civil Engineer, P.E. – "Structural Engineer"
9. Environmental Engineer, P.E. or Registered Environmental Manager
10. Electrical Engineer, P.E.
11. Mechanical Engineer, P.E.
12. Technology / IT/ System Engineer, P.E.
13. Construction Manager or Superintendent
14. BIM Manager / BIM Coordinator
15. Quality Control Manager
16. Healthcare Facilities Subject Matter Expert

The Proposer must certify these personnel as committed to the project.

For each Key Personnel position, the Proposer shall provide the following information in **Annex I** (Key Personnel Qualifications and Commitments Form):

- Qualification statement demonstrating relevant education;
- Professional registration or certification, as applicable;
- Years of experience;

- Hospital or mission-critical project experience, as applicable;
- Design-Build experience, as applicable;
- Role on comparable projects, as applicable;
- Availability for the Project; and
- Proposed percentage of time to be committed to the Project.

At a minimum, Key Personnel shall demonstrate qualifications appropriate to their proposed role and shall possess the required professional licenses, registrations, or certifications under applicable federal and Puerto Rico law.

The Healthcare Facilities Subject Matter Expert shall demonstrate experience in planning, design, construction, commissioning, activation, or operation of acute care hospitals or critical healthcare facilities.

The Design Lead and discipline professionals responsible for professional design services shall be duly licensed or otherwise authorized to practice in accordance with applicable Puerto Rico professional practice requirements.

The Proposal shall include resumes, qualifications, licenses, certifications, relevant healthcare and Design-Build experience, role descriptions, proposed level of effort, and availability for each Key Personnel.

Procurement Division, Evaluation Committee or Bid Board shall evaluate all Key Personnel qualifications, but will only score the following during the Technical Evaluation phase of this RFP process:

KEY PERSONNEL'S MINIMUM QUALIFICATIONS	
HUMAN RESOURCE	**MINIMUM QUALIFICATIONS**
Design-Build Project Manager (DBPM)	**Academic Preparation**
	Bachelor's Degree of Engineering Science or Bachelor's Degree in Engineering; or Bachelor's Degree in Architecture or Bachelor's Degree in Landscape Architecture or Master's Degree in Architecture; or Master's Degree in Construction Management or Master's Degree in Project Management
	Professional License
	Professional Engineer; or Professional Architect
	Membership
	Active CIAPR or CAAPR
	Years of experience
	7+ years in vertical construction projects; 7+ years in hospital projects; and 5+ years in Design-Build projects

Safety Manager	**Academic Preparation**
	Bachelor's Degree in Occupational Safety and Health; or Bachelor's Degree of Engineering Science or Bachelor's Degree in Engineering; or Bachelor's Degree in Architecture or Bachelor's Degree in Landscape Architecture or Master's Degree in Architecture; or Bachelor's Degree in Environmental Science or Environmental Management; or Bachelor's Degree in Business Administration with a concentration in Safety; or Associate's Degree in Occupational Safety (accepted for medium-sized projects; a bachelor's degree is recommended for hospitals)
	Professional Certification
	OSHA 30 Construction; and ICRA (Infection Control Risk Assessment); or HAB (Healthcare Construction Safety)
	Years of experience
	5+ years as a construction safety officer; 2+ years of specific experience in construction projects for hospitals, laboratories, or critical facilities; and 2+ years of specific experience in implementing ICRA and ILSM (Interim Life Safety Measures) for health projects

Scheduler	**Academic Preparation**
	Bachelor's Degree of Engineering Science or Bachelor's Degree in Engineering; or Bachelor's Degree in Architecture or Bachelor's Degree in Landscape Architecture or Master's Degree in Architecture
	Professional Certification
	Primavera Certification; or Microsoft Project Advanced Certification
	Years of experience
	5+ years programming vertical construction projects; and 5+ years in Design-Build projects
Cost Estimator	**Academic Preparation**
	Bachelor's Degree of Engineering Science or Bachelor's Degree in Engineering; or Bachelor's Degree in Architecture or Bachelor's Degree in Landscape Architecture or Master's Degree in Architecture; or Bachelor's Degree in Finance or Bachelor's degree in Economics or Bachelor's degree in Business Administration with a concentration in Accounting or Finance
	Professional Certification
	CEP – Certified Estimating Professional; or CCP – Certified Cost Professional; or CPE – Certified Professional Estimator; or BIM Cost Integration Credentials.

	Years of experience
	5+ years in vertical construction estimation; and 3+ years in healthcare projects, hospitals, or laboratories
Commissioning Authority	**Academic Preparation**
	Bachelor's Degree of Engineering Science or Bachelor's Degree in Engineering
	Professional Certification
	CxA – Certified Commissioning Authority; or BCxP – Building Commissioning Professional (ASHRAE); or NABx – NEBB Certified Professional in Building Systems Commissioning
	Years of experience
	5+ years (MEP systems); and 3+ year (healthcare facilities)
Designer Lead (Architect Licensed or Engineer Professional)	**Academic Preparation**
	Bachelor's Degree of Engineering Science or Bachelor's Degree in Engineering; or Bachelor's Degree in Architecture or Bachelor's Degree in Landscape Architecture or Master's Degree in Architecture
	Professional License
	Professional Engineer; or Professional Architect
	Membership
	Active CIAPR or CAAPR
	Years of experience
	7+ years in architectural or engineering design, after obtaining a license as a professional engineer

	5+ years as Design Lead on Design-Build projects, after obtaining a license as a professional engineer 3+ years of specific experience in hospitals or health facilities, including interdisciplinary coordination (MEP, structural, clinical, commissioning), after obtaining a license as a professional engineer
Civil Engineer, P.E.	**Academic Preparation** Bachelor's Degree of Science in Civil Engineering or Bachelor' Degree in Civil Engineering **Professional License** Professional Engineer **Membership** Active CIAPR **Years of experience** 5+ years of professional experience after obtaining the license as a professional engineer
Civil Engineer, P.E. ("Structural Engineer")	**Academic Preparation** Master's Degree of Science in Civil Engineering or Master's Degree in Civil Engineering, specializing in the area of structures **Professional License** Professional Engineer **Membership** Active CIAPR **Years of experience** 10+ years of professional experience after obtaining a license as a professional engineer
Environmental Engineer, P.E. or Registered Environmental Manager (REM)	**Academic Preparation** Bachelor's Degree of Science in Environmental Engineering; or Bachelor's degree in Environmental

		Engineering; or Bachelor's Degree of Science in Environmental Science
		Professional License
		Professional Engineer, only for engineer
		Membership
		Active CIAPR, only for Environmental Engineer P.E.
		Years of experience
		5+ years in environmental engineering matters, only for engineer, after obtaining a licenses as a professional engineer; 3+ years in EPA, PRDNER, OGPe, and SHPO compliance; 2+ years in environmental assessment, permitting, mitigation, waste management, or emissions control
	Healthcare Facilities Subject Matter Expert (SME)	**Academic Preparation**
		Bachelor's degree in architecture, engineering, healthcare administration, public health, clinical healthcare, construction management, facilities management, or another relevant discipline; or Master's degree in architecture, engineering, healthcare administration, public health, clinical healthcare, construction management, facilities management, or another relevant discipline
		Years of experience
		10+ years of pr progressively responsible experience in healthcare facility planning, design, construction, operations, commissioning, activation, regulatory compliance, or facilities management, including at least five (5) years involving acute care hospitals, trauma centers, emergency departments, surgical departments,

	critical care units, or comparable complex healthcare facilities.
Electrical Engineer, P.E.	**Academic Preparation**
	Bachelor's Degree of Science in Electrical Engineering or Bachelor's Degree in Electrical Engineering
	Professional License
	Professional Engineer
	Membership
	Active CIAPR
	Years of experience
	10+ years of professional experience after obtaining a license as a professional engineer
Mechanical Engineer, P.E.	**Academic Preparation**
	Bachelor's Degree of Science in Mechanical Engineering or Bachelor's Degree in Mechanical Engineering
	Professional License
	Professional Engineer
	Membership
	Active CIAPR
	Years of experience
	10+ years of professional experience after obtaining a license as a professional engineer
Technology / IT / System Engineer	**Academic Preparation**
	Bachelor's Degree of Science in Electrical Engineering with a specialization in systems or telecommunications; or Bachelor's Degree of Science in Electrical Engineering with a specialization in systems or telecommunications; or Bachelor's Degree of Science in Information Systems Engineering; or Bachelor's Degree of Science in Computer Engineering; or

		Bachelor's Degree of Science in Telecommunications Engineering; or Bachelor's Degree of Science in Information Technology (IT); or Bachelor's Degree of Science in Computer Science
		Professional License
		Professional Engineer
		Membership
		Active CIAPR, only for engineer
		Years of experience
		10+ years of professional experience after obtaining a license as a professional engineer
	Construction Manager / Superintendent	**Academic Preparation**
		Bachelor's Degree of Science in Civil Engineering or Bachelor's Degree in civil engineering; or Bachelor's Degree of Science in Electrical Engineering or Bachelor's Degree in electrical engineering; or Bachelor's Degree of Science in Mechanical Engineering or Bachelor's Degree in Mechanical Engineering; or Bachelor's Degree of Science in Industrial Engineering or Bachelor's Degree in Industrial Engineering; or Bachelor's Degree in Architecture or Bachelor's Degree in Landscape Architecture or Master's Degree in Architecture
		Years of experience
		10+ years as Construction Manager / Superintendent in vertical construction projects
	BIM Manager / BIM Coordinator	**Academic Preparation**
		Bachelor's Degree of Science in Civil Engineering or Bachelor's Degree of Science in Civil Engineering; or

	Bachelor's Degree in Civil Engineering or Bachelor's Degree in Mechanical Engineering; or Bachelor's Degree in Electrical Engineering or Bachelor's Degree in Industrial Engineering; or Bachelor's Degree in Architecture or Bachelor's Degree in Architecture or Bachelor's Degree in Landscape Architecture or Master's Degree in Architecture; or Master's Degree in Construction Management or Master's Degree in Project Management
	Professional Certification
	BIM Management Professional Certificate (AGC or equivalent); or CM-BIM (AGC); or Navisworks Manage Certified User/Professional
	Years of experience
	5+ years working with BIM in construction projects
Quality Control Manager	**Academic Preparation**
	Bachelor's Degree of Science in Civil Engineering or Bachelor's Degree of Science in Mechanical Engineering or Bachelor's Degree of Science in Electrical Engineering or Bachelor's Degree of Science in Industrial Engineering; or Bachelor's Degree in Civil Engineering or Bachelor's Degree in Mechanical Engineering or Bachelor's Degree in Electrical Engineering or Bachelor's Degree in Industrial Engineering or Bachelor's Degree in Architecture; or

	Bachelor's Degree in Architecture or Bachelor's Degree in Landscape Architecture or Master's Degree in Architecture; or Master of Business Administration or Master of Science in Quality Management or Master of Science in Quality Management; or Master's Degree in Construction Management or Master's Degree in Project Management
	Years of experience
	10+ years of professional experience as Quality Control Manager in construction project

Table 1: Key Personnel's Minimum Qualifications

The Proposer shall not replace Key Personnel identified in the Proposal after submission or award without prior written approval from ASEM. Any proposed replacement shall possess qualifications equal to or greater than those of the originally proposed individual and shall be subject to review and acceptance by ASEM.

9.2.18.5 Key Personnel, Major Subcontractors, and Letters of Commitment

The Technical Proposal shall identify all Key Personnel and Major Subcontractors proposed for the successful performance of the Project (refer to section 9.2.18.4 for the list of Key Personnel).

The Proposer shall provide a signed, unequivocal Letter of Commitment for each Key Personnel and each Major Subcontractor identified in the Proposal (**Refer to Annex I and Annex II**). Each Letter of Commitment shall state that the individual or entity: (i) has agreed to be named in the Proposal; (ii) has reviewed the role, scope, anticipated level of effort, and duration of services applicable to the Project; (iii) will be available to perform the services for the duration of the Project, or for the portion of the Project for which the individual or entity is proposed; and (iv) acknowledges that such commitment is a material representation upon which Bid Board may rely in evaluating the Proposal and awarding the Contract.

For Major Subcontractors, the Proposal shall include a description of the scope to be performed, relevant qualifications, past performance, applicable professional licenses or certifications, and

relevant experience on projects of similar size, scope, complexity, and delivery method. Refer to **Annex II** (Major Subcontractor Experience, Past Performance and Commitment Form.

Proposals submitted without signed Letters of Commitment for Key Personnel and Major Subcontractors identified in the Proposal may be deemed non-responsive, rejected, or adversely evaluated, at ASEM's discretion.

If the Design-Builder proposes to change or replace any major subcontractor identified in its Proposal or otherwise approved for the Project, the Design-Builder shall submit the proposed replacement subcontractor to ASEM for review and prior written approval before such subcontractor initiates any work on the Project. The submission shall include information sufficient for ASEM to verify the replacement subcontractor's qualifications, licensing, certifications, eligibility, capacity, and compliance with all applicable federal, state, local, CDBG-MIT, HUD, PRDOH, and ASEM requirements. No replacement major subcontractor may perform work on the Project unless and until ASEM has issued its written approval.

9.2.18.6 Minimum Technical Qualification Crosswalk

The Proposer shall include a concise crosswalk or matrix identifying where the Proposal demonstrates compliance with the minimum healthcare experience, Key Personnel, bonding, technical capacity, past performance, and technical approach requirements established in Section 10.0. The crosswalk shall reference the applicable Proposal section, page number, and supporting documentation.

9.2.18.7 Work Approach / Technical Proposal

The Proposer shall provide a detailed Work Approach demonstrating a comprehensive understanding of the Project, the Design-Build delivery requirements, and the active Medial Center Campus environment. The Work Approach shall describe the Proposer's integrated strategy for delivering the Project from design through close-out and shall address, at a minimum, the following:

1. **Project delivery strategy:** Integrated approach for design, permitting, procurement, construction, commissioning, activation, turnover and closeout;

2. **Schedule strategy**: Critical path management, resource loading, long-lead procurement, early work packages, recovery planning, and milestone achievement and Substantial Completion;

3. **Campus logistics and site utilization:** Construction access, traffic control, emergency access, pedestrian and vehicular circulation, staging, laydown, temporary facilities, contractor parking, delivery routing protection, and coordination with adjacent facilities;

4. **Operational continuity:** Measures to minimize impacts to clinical, administrative, public, parking, support, emergency response, and existing medical service operations within and around the Project area;

5. **Safety and infection control:** Worker safety, public protection, pedestrian and vehicular safety, site security, emergency access, infection control coordination, and continuity of healthcare operations throughout design and construction;

6. **Environmental protection:** Controls for dust, noise, vibration, air quality, erosion and sedimentation, stormwater management, waste management, and protection of adjacent facilities and operations;

7. **Procurement and materials management:** Delivery, storage, protection, and installation of materials and equipment in accordance with the proposed schedule, including coordination of deliveries to avoid disruption to adjacent medical and support facility operations;

8. **Quality assurance and Quality Control**: Design reviews, coordination, code review, constructability reviews, inspections, testing, commissioning coordination, document control, corrective action procedures, operational continuity planning, and verification of compliance with the RFP and Contract Documents. Including description of the BIM Execution Plan, model uses, Level of Development by phase, clash detection, issue tracking, healthcare-system coordination, record-model requirements, and integration

of BIM information with commissioning, operations, and maintenance;

9. **Risk management:** Methodology for identifying, assessing, mitigating, monitoring, and controlling project risks throughout design and construction;

10. **Commissioning activation:** Approach for commissioning, operational readiness, facility activation, staff training, turnover, and closeout; and

11. **Regulatory compliance:** Compliance with all applicable federal, Puerto Rico, Puerto Rico's Department of Health, ACS, FAA, CDBG-MIT, HUD, PRDOH, ASEM, healthcare, environmental, safety, accessibility, professional licensing, permitting, and Design-Build requirements.

9.2.19 Price Proposal Form

The Proposer shall submit a Price Proposal Form on a stipulated price (lump sum) basis as set forth in the Price Proposal Form **Exhibit 17**.

The Design-Builder will be required to provide a Cost Breakdown (**Exhibit 18**) for each of the line items included.

Every offer submitted will include a detailed Cost Breakdown of the offered price, encompassing the price per unit of the good, service or work, transportation costs, delivery, assembly, warranty, training, maintenance or services, replacements, among others.

In addition to the Base Bid, each Proposer shall provide separate pricing for the alternate bid for *Water Storage Reservoir*. Alternate bid pricing shall be submitted in the format required by the Price Proposal Form and shall be clearly identified as additive, as applicable, so that Evaluation Committee or Bid Board may evaluate and exercise any alternate bid in accordance with the RFP Documents.

9.2.20 Bid Bond and related documents

For this Request for Sealed Proposal process, a Bid Bond of five percent (5%) of the total price of the proposal (Base Bid + Allowances+ Alternate) submitted by the Proposer is required. The Procurement Division will not accept a Bid Bond for an amount less than that required in this section or in the name of any entity other than the Puerto Rico Medical Services Administration (ASEM). Failure

to comply with this requirement will result in the disqualification or rejection of the proposal.

The Bid Bond shall be submitted through a surety company authorized by the Insurance Commissioner of Puerto Rico and through the document provided in **Exhibit 19**. The Bid Bond shall be accompanied by:

1. Acknowledgement of Surety (**Exhibit 20**);
2. Certificate of Appointment of Attorney-in-Fact, as copy;
3. Attorney-in-Fact Licensed, as copy;
4. Certification of the Bonding Entity, as copy; and
5. Contact information of the Attorney-in-Fact.

The Bid Bond must be submitted in original form. If it includes the Attorney-in-Fact's electronic signature, it must be accompanied by a certification from the Bonding Entity confirming that the signature belongs to an authorized representative. With such certification, the electronic signature will be deemed valid and binding, with the same legal effect as a handwritten signature. The Proposer assumes full responsibility if the Bonding Entity indicates that the signature is not that of an authorized representative or if the certification is not provided, which will result in the disqualification or rejection of the proposal.

If the Request for Sealed Proposals process is canceled by the Procurement Manager, all Bid Bonds will be returned within three (3) business days following the date of notification of the cancellation. If the contract resulting from this Request for Sealed Proposals process is executed, as applicable, the Procurement Division will return all Bid Bonds submitted, including the Bid Bond of the Proposer to whom the contract was awarded.

9.2.21 Bond Capacity Letter

The Proposer shall submit a Bond Capacity Letter stating in dollars and cents, Proposer's available bonding capacity for the individual project (single) and in the aggregate. The bonding capacity letter shall meet the following requirements:

1. Must be issued by an entity authorized by the Insurance Commissioner of Puerto Rico;

2. Must be dated and duly signed by authorized representative of the issuing entity; and

3. Be issued within thirty (30) calendar days of the proposal submission deadline submission.

The Proposer must demonstrate sufficient bonding capacity, both for the individual project (single) and in aggregate, as of the proposal. submission date.

For this procurement, the Proposer's single project Bond Capacity must be equal to or greater than cost proposal amount (Base Bid + Allowances+ Alternate). If the Proposer's single project Bond Capacity is less than cost proposal amount (Base Bid + Allowances+ Alternate), the Proposal will be disqualified or rejected.

9.2.22 Preference for Section 3 Business Concern or M/W/VBE Business

If the Proposer seeking Section 3 preference, they should provide one of the following: (1) evidence of business ownership (e.g. Articles of Incorporation, By Laws, proof of 51% company ownership, Partnership Agreement or Joint Venture Agreement); (2) evidence of employees of the business (e.g. roster of permanent full time employees Section 3 Resident Self Certification Form for each employee who qualifies as newly hired Section Resident employee); or (3) duly signed letter evidencing subcontracting at least 25% of the dollar amount.

If the Proposer is seeking M/W/VBE preference, they should provide a copy of their M/W/VBE certification to evidence their status.

10.0 PROPOSAL EVALUATION

10.1 Evaluation

The Procurement Division, Bid Board or Evaluation Committee shall conduct a comprehensive, fair, and impartial evaluation of the proposals in accordance with the specifications, terms and conditions established in the RFP Documents to identify the proposal that offers the best value.

The Project consists of the design and construction of a new acute care hospital facility within the Medical Center Campus. Although the Project is not located within an occupied healthcare building, it will be constructed within an active medical campus that includes hospitals, healthcare facilities, emergency services, ambulance routes, pedestrian circulation

areas, public access roads, parking facilities, and critical utility infrastructure that must remain operational throughout the duration of the Project.

Accordingly, particular emphasis shall be placed on the Proposer's demonstrated ability to successfully execute a complex healthcare project while minimizing impacts to emergency services, healthcare operations, public circulation, campus accessibility, utility systems, and overall site operations.

The evaluation process shall be conducted in the following seven (7) steps, as follows:

1. Mandatory Requirements;
2. Technical Evaluation;
3. Technical Qualification Threshold;
4. Oral Presentation;
5. Final Technical Evaluation Score;
6. Price Proposal Evaluation; and
7. Best Value Determination and Award.

The Procurement Division or Bid Board reserves the right to request clarifications regarding any Proposal. Any clarification shall be limited to information already submitted and shall not be used to materially modify or supplement the Proposal.

Price Proposals and Cost Breakdown sealed envelope shall remain sealed and shall not be opened until completion of the Technical Evaluation process.

10.1.1 Mandatory Requirements

The Evaluation Committee or Bid Board shall review each Proposal to determine compliance with all Mandatory Requirements established in this RFP (section 10.1.1.1 through 10.1.1.9). Mandatory Requirements shall be evaluated on a Pass/Fail basis.

If the Proposer is constituted as a Joint Venture or Partnership, the evaluation will be in accordance with what is established in the Joint Venture Agreement or Partnership.

Any Proposal failing to satisfy one (1) or more Mandatory Requirements of this RFP will result in the disqualification of the Proposer or rejection of the proposal. However, the Bid Board reserves its right to request additional information to address minor irregularities and minor instances of non-compliance.

If the Proposal meets all Mandatory Requirements of this RFP, the Proposal will "Pass" the Mandatory Requirements evaluation and the Proposer becomes a Proposer (Technically Qualified). The Mandatory Requirements are as follows:

10.1.1.1 Proposal Submission

The proposal must be submitted before the deadline established in the RFP documents.

10.1.1.2 Legal Entity

The Proposer's entity is registered and/or incorporated and listed as active in the Puerto Rico Department of State's, as applicable.

10.1.1.3 Active or Eligible Status

1. The Proposer has eligible status in the RUL.
2. The Designer has eligible status in the RUP.
3. The Proposer and Designer has active and eligible status or has initiated registration in SAM.

10.1.1.4 Pre-proposal Meeting

During the pre-proposal meeting, the Proposer's authorized representative did not engage in any inappropriate or disruptive conduct.

10.1.1.5 Validity Period of the Proposal

The proposal states a validity term of one hundred eighty (180) calendar days from the deadline for submitting the proposal.

10.1.1.6 Blackout Period

The Proposer did not violate the Blackout Period as set forth in Section 8.17 of this document.

10.1.1.7 Proposal Documents

1. The Proposer submitted only one (1) offer or proposal.
2. The proposal contains the following duly completed, signed, initiated, and completed documents, as applicable:

   a. Non-Conflict of Interest Certification (**Exhibit 4**)

   b. Non-Conflict of Interest Certification on Existing or Pending Contracts (**Exhibit 5**)

   c. Limited Denial of Participation (LDP) / Suspension or Debarment Status Affidavit (**Exhibit 6**)

   d. Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion (**Exhibit 7**)

   e. Non-Collusive Affidavit (**Exhibit 8**)

   f. Sworn Statement (Act 2-2018, Anti-Corruption Code for New Puerto Rico) (**Exhibit 9**)

   g. Anti-Lobbying Certification or Disclosure of Lobbying Activities (**Exhibit 10**)

   h. Price Proposal Form (**Exhibit 17**)

   i. Cost Breakdown (**Exhibit 18**)

   j. Bid Bond (**Exhibit 19**) and Acknowledgement of Surety (**Exhibit 20**)

      - Bid Bond is five percent (5%) of the total price of the proposal (Base Bid + Allowances+ Alternate).
      - If the Bid Bond includes the Attorney-in-Fact's electronic signature, it is accompanied by a certification from the Bonding Entity confirming that the signature belongs to an authorized representative.
      - As part of the evaluation process the Procurement Division, Bid Board or Evaluation Committee verify the amount of the Bid Bond

with Surety Company or other related matters of the Bid Bond.

k. Credit and/or Liquidity

- The Proposer must demonstrate and have a line of credit or economic liquidity of $16,000,000.00 or more.

l. Bond Capacity Letter, according to section 9.2.21 of this document.

- Bond Capacity per project (single) is equal or greater than the amount of the price of their proposal (Base Bid + Allowances + Alternate).

10.1.1.8 Minimum Healthcare/Hospital Experience

The Proposer shall demonstrate successful experience in the delivery of healthcare facilities of similar complexity and scope.

At a minimum, the Proposer shall demonstrate:

1. At least one (1) completed hospital construction project within the last twenty years;

2. At least one (1) completed Design-Build healthcare or hospital project by the designer or builder (can be the hospital construction project required in the first item herein or an additional project);

3. Experience involving critical healthcare environments, including emergency departments, operating rooms, intensive care units, trauma facilities, or comparable critical care environments;

4. Experience delivering projects within active healthcare campuses, mission-critical facilities, or operational environments requiring strict coordination of access, safety, logistics, utilities, and continuity of operations;

5. Experience with vertical construction projects;

6. Demonstrated safety, quality, schedule, regulatory compliance, stakeholder coordination, and risk-management performance; and

7. Experience with federally funded projects.

Refer to Minimum Healthcare / Hospital Experience Form (**Annex III**).

In the event that the Proposer is constituted as a Joint Venture or Partnership, the evaluation of Past Performance and Experience will be carried out considering the expertise, role and responsibilities assumed by each of the entities that comprise it, in accordance with the considerations established in the corresponding Joint Venture Agreement or Partnership Agreement.

10.1.1.9 Key Personnel Requirements

The Proposer shall identify and commit the following Key Personnel to the Project:

1. Design-Build Project Manager
2. Safety Manager
3. Scheduler
4. Cost Estimator
5. Commissioning Authority / Agent
6. Design Lead
7. Civil Engineer, P.E.
8. Civil Engineer, P.E. – "Structural Engineer"
9. Environmental Engineer, P.E. or Registered Environmental Manager
10. Electrical Engineer, P.E.
11. Mechanical Engineer, P.E.

12. Technology / IT/ System Engineer, P.E.

13. Construction Manager or Superintendent

14. BIM Manager / BIM Coordinator

15. Quality Control Manager

16. Healthcare Facilities Subject Matter Expert

Refer to **Exhibit 3** (Statement of Proposer)**.**

The <u>Healthcare Facilities Subject Matter Expert</u> shall possess demonstrated experience in the planning, design, construction, commissioning, activation, or operation of acute care hospitals and critical healthcare facilities.

All Key Personnel shall satisfy the minimum qualifications established in this RFP.

As part of the Mandatory Requirements Review, Evaluation Committee or Bid Board may review whether the Proposer submitted signed Letters of Commitment for all Key Personnel and Major Subcontractors identified in the Proposal (Refer to **Annex I** and **Annex II**). Failure to submit complete and signed Letters of Commitment may result in a finding that the Proposal is non-responsive or does not satisfy the Mandatory Requirements of this RFP.

The availability, qualifications, experience, licenses, certifications, and proposed level of effort of Key Personnel and Major Subcontractors are material elements of the Proposal and may be evaluated under the Technical Evaluation criteria, including Past Performance and Experience, Technical Capacity, Organizational Experience and Key Personnel, and Work Approach / Technical Proposal

If Evaluation Committee or Bid Board determines that the Proposer knowingly or negligently misrepresented the availability, commitment, qualifications, experience, role, or proposed level of effort of any Key Personnel or Major Subcontractor, Bid Board may disqualify the Proposer, reject the Proposal, adversely evaluate the Technical Proposal, refuse to award the Contract, or pursue any other remedy

available under the RFP Documents, Contract Documents, or applicable law.

10.1.2 Technical Evaluation

The Technical Evaluation shall assess the qualifications, experience, organizational capability, financial strength, and proposed delivery approach of the Proposer.

The maximum Technical Evaluation Score shall be one hundred (100) points.

Evaluation Criteria	Maximum Points
General Contractor Experience and Past Performance	25
Design Firm Experience and Past Performance	20
Organizational Experience and Key Personnel	20
Work Approach / Technical Proposal	25
Financial Capacity	10
Total Technical Evaluation Score	**100**

Table 2: Scoring Table – Technical Evaluation

NOTE: If the Proposer is constituted as a Joint Venture or Partnership, the evaluation will be in accordance with what is established in the Joint Venture Agreement or Partnership Agreement regarding the experience. If the Proposer is constituted as a Joint Venture or Partnership, the evaluation of Financial Capacity will be in accordance with what is established in the Joint Venture Agreement or Partnership Agreement regarding the contribution of capital.

All results are rounded to the nearest hundredth, meaning up to two (2) digits after the decimal point (hundredth).

10.1.2.1 General Contractor Experience and Past Performance

The Evaluation Committee or Bid Board shall evaluate the qualifications and past performance of the General Contractor with emphasis on healthcare and mission-critical facilities.

Evaluation factors may include:

- Experience in hospital construction;

- Design-Build experience;
- Experience with projects of similar size, scope and complexity;
- Experience involving critical healthcare infrastructure;
- Safety performance;
- Quality performance;
- Schedule performance;
- Regulatory compliance;
- Risk management capability; and
- Stakeholder coordination.

Consideration may be given to firms demonstrating successful execution of projects within active medical campuses requiring extensive traffic management, logistics coordination, and operational interface management.

10.1.2.2 Design Firm Experience and Past Performance

The Evaluation Committee or Bid Board shall evaluate the qualifications and experience of the Design Firm.

Evaluation factors may include:

- Hospital facility planning and programming;
- Hospital design experience;
- Trauma and emergency care facilities;
- Surgical and intensive care environments;
- Critical infrastructure and resilient systems;
- Design-Build delivery experience;
- Multidisciplinary coordination;

- Regulatory compliance;
- Past performance on projects of similar complexity; and
- Experience with resilient and mission-critical healthcare facilities

10.1.2.3. Organizational Experience and Key Personnel

The Evaluation Committee or Bid Board shall evaluate the organizational resources and project team proposed for the Project.

Evaluation factors may include:

- Organizational structure;
- Availability of dedicated resources;
- Qualifications and healthcare experience of Key Personnel;
- Qualifications of the Healthcare Facilities SME;
- Previous collaboration between Design-Build team members;
- Quality management capabilities;
- Safety management capabilities;
- BIM and digital delivery capabilities;
- Commissioning experience; and
- Facility activation and operational readiness experience.

Particular emphasis shall be placed on the ability of the proposed team to execute an accelerated healthcare Design-Build project.

10.1.2.4 Work Approach / Technical Proposal

The Technical Proposal shall demonstrate a comprehensive understanding of the Project and provide a detailed strategy for successful execution.

The Evaluation Committee or Bid Board shall consider the following elements.

10.1.2.4.1 Project Delivery Strategy

The Design-Builder shall describe how design and construction activities will be integrated to facilitate efficient project delivery, decision-making, schedule management, and coordination among disciplines.

10.1.2.4.2 Campus Logistics and Traffic Management

The Design-Builder shall describe the strategy for managing construction activities within the active Centro Médico Campus environment while maintaining safe and efficient operations.

This approach shall address:

- Ambulance circulation routes;
- Emergency vehicle access;
- Pedestrian circulation and safety;
- Public traffic management;
- Construction access routes;
- Site logistics;
- Utility protection;
- Coordination with adjacent facilities; and
- Temporary traffic control measures.

10.1.2.4.3 Accelerated Delivery Strategy

The Design-Builder shall provide a detailed strategy to achieve completion of the full hospital structural frame and operational readiness of the Emergency Department level within twenty-one (21) months of Notice to Proceed.

The Evaluation Committee or Bid Board may consider:

- Design acceleration methodologies;
- Fast-track delivery techniques;
- Early procurement packages;
- Long-lead equipment strategies;
- Construction sequencing;
- Critical path management;
- Resource loading methodologies; and
- Recovery planning measures.

10.1.2.4.4 Safety, Site Security, Infection Control, and Environmental Protection

The Design-Builder shall describe the safety-management approach for design and construction, including worker safety, public protection, pedestrian and vehicular safety, emergency access, high-risk work, site security, incident response, and coordination with ASEM and campus operations. Also, shall describe infection-control measures appropriate to an active medical campus and controls for dust, noise, vibration, air quality, erosion and sedimentation, stormwater, hazardous materials, construction and demolition waste, and protection of patients, staff, visitors, adjacent facilities, and ongoing healthcare operations.

10.1.2.4.5 Procurement, Materials, Equipment, and Delivery Management

The Design-Builder shall describe the approach for procurement, delivery, receipt, inspection, storage, security, protection, installation, start-up, and turnover of materials and equipment in accordance with the Project Schedule. Address long-lead and healthcare-critical equipment, Owner-furnished/Contractor-installed items, medical-equipment interfaces, delivery coordination, temporary storage, submittals, vendor participation, testing, warranties, spare parts, and measures to avoid disruption to adjacent medical and support operations.

10.1.2.4.6 Quality Assurance and Quality Control

The Design-Builder shall describe the proposed quality assurance and quality control program for design and construction, including design reviews, constructability reviews, multidisciplinary coordination, code reviews, inspections, testing, submittals, RFIs, nonconformance and corrective-action processes, records, document control, and verification of compliance with the RFP and Contract Documents. Describe the BIM Execution Plan, model uses, Level of Development by phase, clash detection, issue tracking, healthcare-system coordination, record-model requirements, and integration of BIM information with commissioning, operations, and maintenance.

10.1.2.4.7 Risk Management and Operational Continuity

The Design-Builder shall describe the methodology for identifying, assessing, assigning, mitigating, monitoring, and controlling risks throughout design and construction. Include schedule, cost, permitting, design coordination, procurement, safety, environmental, utility, campus-interface, clinical-operations, commissioning, and activation risks. Provide measures to minimize impacts to emergency response, existing medical services, utilities, traffic, parking, wayfinding, deliveries, and adjacent clinical, administrative, public, and support operations, including contingency and recovery procedures.

10.1.2.4.8 Commissioning, Activation, Training, Turnover, and Closeout

The Design-Builder shall describe the integrated approach for commissioning and operational readiness, including commissioning planning; pre-functional and functional testing; integrated systems testing; deficiency tracking and retesting; regulatory inspections and approvals; facility activation; staff training; O&M manuals; warranties; as-built and record drawings; record BIM model; asset and equipment information; final permits; occupancy and life-safety documentation; punch list; phased turnover; and final closeout. Address HVAC, electrical, emergency power, plumbing, fire protection, medical gas, BAS, IT/low-voltage, security, nurse-call, and other hospital-critical systems identified in Attachment 1.

10.1.2.4.9 Regulatory Compliance

The Design-Builder shall describe the approach for compliance with all applicable federal, Puerto Rico, CDBG-MIT, HUD, PRDOH, ASEM, healthcare, environmental, labor, safety, accessibility, professional licensing, permitting, and Design-Build requirements.

10.1.2.5 Financial Capacity

The Evaluation Committee or Bid Board shall evaluate the Proposer's financial strength and ability to successfully deliver the Project.

Evaluation factors may include:

- Liquidity;
- Solvency;
- Working capital;
- Available credit facilities;
- Audited financial statements;
- Financial stability;
- Capacity to support procurement activities; an

- Capacity to support construction operations throughout the Project duration.

10.1.3 Technical Qualification Threshold

Upon completion of the Technical Evaluation, each Proposal shall receive a Technical Evaluation Score.

To be considered Technically Qualified, a Proposer must obtain a minimum score of seventy (70) points out of the one hundred (100) points available under the Technical Evaluation. A minimum score of 70 must be obtained in order to proceed or otherwise qualify for further consideration; provided, however, that the Bid Board reserves the right to amend this threshold as necessary to ensure meaningful competition.

Any Proposal receiving less than seventy (70) points, or less than the amended threshold determined by the Bid Board, shall be deemed technically unacceptable and shall not advance to the Oral Presentation phase.

Only Technically Qualified Proposers shall be invited to participate in the Oral Presentation.

10.1.4 Oral Presentation

The Procurement Division shall invite only those Proposers that have achieved the Minimum Technical Qualification Threshold to participate in an Oral Presentation.

The purpose of the Oral Presentation is to validate the Evaluation Committee's or Bid Board's understanding of the Proposal, assess the integration of the Design-Build Team, evaluate the qualifications of Key Personnel, and confirm the Proposer's ability to successfully execute the Project.

The Oral Presentation shall not be used to modify, revise, or materially alter the Proposal.

The maximum Oral Presentation Evaluation Score shall be twenty-five (25) points.

Failure of required personnel to participate may adversely affect the Oral Presentation score.

The Oral Presentation shall not be used to modify, revise, supplement, or materially alter the Proposal. No statement, clarification, response, presentation material, or discussion made during the Oral Presentation shall change the terms, conditions, commitments, technical approach, price, schedule, or other material contents of the submitted Proposal, unless expressly permitted in writing by Procurement Division, Evaluation Committee or Bid Board through the applicable procurement process.

Procurement Division may establish the date, time, format, agenda, duration, presentation requirements, attendees required, and any limitations applicable to the Oral Presentation. At a minimum, the proposed Project Executive, Design-Build Project Manager, Design Lead, Construction Manager, Healthcare Facilities SME, Quality Control Manger, Safety Manager, Commissioning Authority, and other Key Personnel identified by ASEM shall attend and actively participate, unless otherwise authorized by ASEM in writing.

The Evaluation Committee or Bid Board will consider the Oral Presentation as part of its evaluation to the extent permitted by the evaluation criteria established in this RFP. Participation in an Oral Presentation does not guarantee award, selection for negotiations, or any other procurement outcome.

10.1.5 Final Technical Evaluation Score

Upon completion of the Oral Presentation, the Evaluation Committee or Bid Board shall calculate the Final Technical Evaluation Score.

The Final Technical Evaluation Score shall consist of:

- Technical Evaluation Score (Maximum 100 Points); plus
- Oral Presentation Score (Maximum 25 Points).

The maximum Final Technical Evaluation Score shall be one hundred twenty-five (125) points.

10.1.6 Price Proposal Evaluation

Only Proposers that: (1) Successfully satisfy all Mandatory Requirements; (2) Achieve the Minimum Technical Qualification

Threshold; and (3) Participating in the Oral Presentation; shall be eligible for Price Proposal Evaluation.

The maximum Price Proposal Score shall be twenty-five (25) points.

The Price Proposal shall be evaluated using the following formula:

Price Score = (Lowest Responsive Price Proposal ÷ Proposer's Price Proposal) × 25

The lowest responsive Price Proposal shall receive the maximum score of twenty-five (25) points.

All results are rounded to the nearest hundredth, meaning up to two (2) digits after the decimal point (hundredth).

10.1.7 Best Value Determination and Award

The Final Evaluation Score shall consist of:

- Final Technical Evaluation Score (Maximum 125 Points); plus
- Price Proposal Score (Maximum 25 Points).
- Preference Section 3 or M/W/VBE (Maximum 5 Points)

Evaluation Component	Maximum Points
Final Technical Evaluation Score	125
Price Proposal Score	25
Preference Section 3 or M/W/VBE	5
Maximum Final Evaluation Score	**155**

Table 3: Final Evaluation Score

10.1.7.1 Preference Section 3 or M/W/VBE

If the Proposer submits verifiable evidence of Section 3 or M/W/VBE participation that can be validated during the evaluation period, the Procurement Division, Bid Board, or Evaluation Committee will award a 5 points preference.

If the Proposer does not submit such evidence, or if it cannot be validated during the evaluation period, 0 points will be awarded.

Section 3 Business Concern or M/W/VBE preference points apply only after the Proposer meets all Mandatory Requirements and the minimum Technical Qualification Threshold established in this RFP.

Only responsive, responsible, and technically qualified Proposers may receive preference points. Proposers that fail to meet the minimum Technical Qualification Threshold will not advance, regardless of any claimed preference.

When valid, verifiable documentation confirms eligibility, Evaluation Committee or Bid Board will add the applicable preference points after the Technical Qualification Threshold determination and before the final Best Value determination.

The Contract shall be awarded to the Proposer whose Proposal achieves the highest Final Evaluation Score and represents the Best Value to the ASEM.

In determining Best Value, the Evaluation Committee or Bid Board shall consider the Proposer's technical qualifications, healthcare/hospital experience, Design-Build capabilities, organizational strength, project delivery strategy, financial capacity, oral presentation performance, and proposed cost.

The Bid Board reserves the right to award the Contract to a Proposer other than the lowest-priced Proposer when the Evaluation Committee or Bid Board determines that a higher-ranked Proposal provides superior value, lower execution risk, enhanced healthcare/hospital expertise, superior project delivery capability, or a greater probability of successful Project completion.

10.2 Permissible Deviations

The Bid Board may accept deviations in the proposals received, provided that the deviations do not affect the purpose of the process or substantially alter the quality, capacity or essential characteristics of the goods, work or service, and that the price offered is reasonable according to market conditions. Deviations that involve, after the proposal has been submitted, modifications to the essential terms and conditions, or irremediable defects that compromise the validity of the proposal, such as, but not limited to, the late submission of a payment and performance bond, will not be considered minor deviations.

10.3 Negotiations and Best and Final Offer

The Evaluation Committee may recommend, or the Bid Board may determine, that discussions and negotiations are necessary with one (1) or more Proposer(s) (Technically Qualified). Negotiations are exchanges between the Bid Board and Proposers undertaken with the intent of allowing Proposers to revise their Price Proposals or other proposal elements, as applicable and as permitted by the RFP.

The primary objective of discussions and negotiations is to maximize Bid Board's ability to obtain the best possible offers based on the requirements, terms, conditions, evaluation criteria, and objectives set forth in the RFP. Procurement Division or Bid Board may elect to request the submission of Best and Final Offers from one (1) or more of the highest Qualified Proposer(s).

The Bid Board reserves the right to request a Best and Final Offer (BAFO) regarding the terms, conditions, quality, solution, prices, or combination of factors, to obtain the best value for the ASEM and Government of Puerto Rico.

The Bid Board may, at its discretion, require Proposers (Technically Qualified) to submit a Best and Final Offer (BAFO) as part of the evaluation process for this RFP. The BAFO will constitute the Proposers' (Technically Qualified) final opportunity to review, adjust, and submit their final proposal, including price, terms, conditions, methodology, resources, and any other element the Bid Board deems pertinent.

The BAFO request will be issued in writing and will specify the scope of permitted revisions, the required format, evaluation criteria, and the submission deadline. Only Proposers (Technically Qualified) may submit a BAFO. BAFO proposals must comply with all the requirements of the RFP and with any additional instructions provided by the Procurement or Bid Board at their request.

The Evaluation Committee or Bid Board will evaluate the BAFOs according to the established criteria. The Bid Board reserves the right to accept, reject, or negotiate any submitted BAFO.

Once submitted, the BAFO will be final and cannot be modified, corrected, or withdrawn by the Proposer (Technically Qualified).

10.4 Ties

If, after completion of the evaluation process, two (2) or more Qualified Proposers receive the same final ranking, Evaluation Committee or Bid Board may use a tie-breaking procedure to determine which Proposal provides the best value and is most advantageous to ASEM. In resolving a tie, Evaluation Committee or Bid Board may consider, in the following order: (i) the results of any Best and Final Offer requested by Procurement Division or Bid Board, including price, proposed value enhancements, schedule, risk allocation, and other clarifications or improvements; and (ii) the Proposal that, in Bid Board's judgment, best satisfies the Project objectives, operational needs, resilience requirements, continuity-of-operations goals, and overall best interests of ASEM.

In such cases, the Procurement Division or Bid Board will notify the tied Proposers to submit a new RFP, within a period of no more than ten (10) business days from the date of notice.

The new proposals must maintain prices equal or lower than the original proposal. The new proposals will be opened on the date and time scheduled as established in the notice.

If the tie persists after this second round, the same procedure will be repeated until a tie is broken and the contract can be awarded in accordance with the criteria established in Regulation No. 9734.

Procurement Division or Bid Board reserves the right to request additional clarifications, conduct further discussions, request a Best and Final Offer from tied Proposers, or apply any other tie-breaking method permitted under applicable law and the RFP Documents, provided that such method is applied fairly and consistently. The final determination shall be made by the Bid Board based on the written record and the recommendation of the Evaluation Committee, as applicable.

10.5 Mathematician's Error

In case of a mathematical discrepancy between the total cost indicated on the Price Proposal Form (**Exhibit 17**) and the actual sum of the prices per item contained in the Cost Breakdown (**Exhibit 18**), the cost per item will prevail if the difference between the two amounts is not greater than zero point five percent (0.5%). The application of the above rule will only be made if, regardless of which of the two amounts is used, the offer remains the best value.

10.6 Award

The Bid Board will examine all proposals submitted before making any decision regarding the award. The Bid Board is not obligated to accept the recommendation of the Evaluation Committee or Procurement Division. If it does not accept the recommendation, the Bid Board will conduct its own evaluation and award the corresponding score, per the evaluation criteria and points established in the RFP documents.

Price will not necessarily be the most important factor in the award, and the award may be made without a negotiation or BAFO process.

If there is no agreement among the members of the Bid Board, the case must be submitted to the judgment and decision of the ASEM's Executive Director, through an explanatory report on the particularities of the case.

The Bid Board will award this RFP process to the Proposer who meets the requirements and whose proposal represents the best value for the Government of Puerto Rico. The award will be made in favor of the Proposer whose Proposal represents the best value to ASEM, considering the results of the Final Evaluation Score including, where applicable, the BAFO submitted, any applicable preference, and in compliance with the Mandatory Requirements established in the RFP documents. The award must be approved by the ASEM's Executive Director or their authorized representative.

The RFP process and award are directly contingent on availability of funds received from HUD. If the PRDOH or ASEM does not receive the proper fund allocation from HUD, this RFP process will be cancelled and terminated without any responsibility whatsoever for ASEM, the PRDOH, the Government of Puerto Rico and HUD for pre-agreement and non-contractual damages.

Awards will only be issued to entity which are cleared and not ineligible for the RFP due to suspension, debarment, or HUD imposed limited denial of participation.

10.7 Rejection of Proposals

The Bid Board may reject all proposals in any of the following situations:

1. If none of the proposals submitted meet any of the minimum requirements, specifications, terms, or conditions established in the RFP documents;

2. If the prices obtained from all the proposals submitted are unreasonable or the terms are onerous; and
3. If none of the proposals represents the best value for the Government of Puerto Rico.

10.8 Award Notification

The award notification for the RFP process will be duly sent via email to all Proposers who submitted a proposal. The notification will be sent simultaneously to all parties using the same method.

The award of this RFP process may be canceled at any time before the execution of a contract, without any responsibility whatsoever for ASEM, the PRDOH, the Government of Puerto Rico and HUD.

The notification does not constitute, nor will it in any way constitute a formal agreement between the parties, nor will it grant any rights to the Awarded Proposer, even if an Award Notice has been issued. It will be necessary to sign the contract between authorized representative Awarded Proposer and ASEM's Executive Director or their authorized representative.

11.0 ADMINISTRATIVE AND JUDICIAL REVIEW

11.1 Administrative Review

The Administrative Review procedure must be conducted pursuant to the provisions of Act 73-2019. Filing a petition for Administrative Review will not result in a stay of the award process. The award process will only be held by a court order or resolution from the competent administrative body.

11.2 Notice of Administrative Review

The petitioner must immediately send a copy of the request by certified mail with a return receipt requested or by email to the Bid Board. The petitioner must also simultaneously notify the Proposer who was awarded the contract and all Proposer who have been notified of the final decision.

Strict compliance with this requirement is required. The petitioner must certify to the Bid Review Board in the Administrative Review document that the petitioner has complied with this requirement.

Any Notice of Administrative Review must comply with the provisions of Article 8.3 of Regulation No. 9734

11.3 Notice of the Determination

Once the Review Board issues its decision on a matter under consideration, in writing by certified mail or email, the Review Board must notify the requesting Proposer or legal counsel thereof, if any; the Bid Board and all Proposer.

The determination of the Review Board must provide the basis and reasons supporting its determination. The determination must also notify the adversely affected party of the availability and deadline for filing an application for judicial review with the Court of Appeals.

11.4 Judicial Review

The party adversely affected by a determination of the Review Board may file a request for judicial review with the Court of Appeals in accordance with the provisions of the section on Judicial Review of Act 73-2019. A mere filing of a request for Judicial Review under this Section will not stay the award of the disputed public procurement.

12.0 CONTRACT

Prior to awarding a Contract, the ASEM must obtain Contractor and First Tier Sub-Contractor clearance. To obtain clearance, the ASEM will search https://www.sam.gov/SAM/ to verify whether the Contractor and First Tier Sub-Contractor are debarred or not.

The contract resulting from this RFP shall incorporate all applicable federal contract provisions required by 2 CFR Part 200, Appendix II, HUD requirements, and PRDOH CDBG-MIT requirements.

12.1 Bonds

All required bonds will be issued by an entity that is also on the provided list, https://www.fiscal.treasury.gov/surety-bonds/list-certified-companies.html#t. Likewise, the entity issuing the bond will be duly authorized by the Office of the Insurance Commissioner of Puerto Rico.

12.1.1 Performance Bond

The Awarded Proposer in this RFP must submit a Performance Bond to the Procurement Division no later than ten (10) business days after notification of the award. For this RFP, a Performance Bond equal to 100% of the awarded amount is required.

The Procurement Division will not accept a Performance Bond for an amount less than that specified herein or in the name of any entity other than the Puerto Rico Medical Services Administration.

12.1.2 Payment Bond

The Awarded Proposer in this RFP must submit a Payment Bond to the Procurement Division no later than ten (10) business days after notification of the award. For this RFP, a Payment Bond equal to 100% of the awarded amount is required.

The Procurement Division will not accept a Payment Bond for an amount less than that specified herein or in the name of any entity other than the Puerto Rico Medical Services Administration.

12.1.3 Wage Payment Bond

The Awarded Proposer in this RFP must submit a Payment Bond to the Procurement Division no later than ten (10) business days after notification of the award. For this RFP, a Payment Bond equal to twenty percent (20%) of the contract value, guaranteeing payment of wages to the laborers and employees, as required under Puerto Rico Law 111-1961. This bond is in addition to the Payment Bond and must meet all applicable statutory and regulatory requirements.

12.2 Insurance Requirements

The Proposer agrees and acknowledges that ASEM will require the awarded Proposer to provide the policies and insurance coverage as detailed in **Attachment 5** (Insurance Requirements and Bonding Specifications).

All endorsements or policies must be issued by an entity duly authorized by the Office of the Insurance Commissioner of Puerto Rico.

The Contractor must within ten (10) calendar days from contract execution, provide ASEM with the insurances, policies, and coverage required.

12.3 Construction Taxes and Patent Construction Fees

Pursuant to Article 7.206(a)(1) of Law 107 of 2020, any business or industry conducted or operated by and for any agency, subdivision, or instrumentality of the Federal Government, the State Government, or their municipalities is exempt from the payment of the licenses imposed under the provisions of this Code.

Likewise, pursuant to Article 2.110(f)(7)(ii), the exemption from the construction tax does not apply to construction work carried out by a natural or legal person acting on behalf of, representing, or through a contract or subcontract with a public agency, public corporation, or instrumentality of the State, Municipal, or Federal Government.

12.4 Model Contract

A Model Contract for Design-Build Services is included as **Attachment 6**. Please be aware that this Model Contract is a draft and may be subject to modifications before contract execution, at ASEM's discretion, by virtue of law or regulations, or any other event that may affect the dispositions therein contained.

12.4.1 Contract Term and Conditions

12.4.1.1 HUD General Provisions and other Federal Statues, Regulations, and PRDOH Requirements of Healthcare Strengthening Set-Aside

The contract resulting from this Request for Sealed Proposals process involves federal funds, for which HUD is the federal oversight agency. By submitting its proposal, the Proposer agrees to comply with all HUD requirements and general provisions. Refer to **Attachment 7**

12.4.1.2 Uniform General Conditions for Public Works

The Uniform General Conditions for Public Works will be part of the contract. Refer to **Attachment 8**

12.4.1.3 Additional Provisions

1. Throughout the duration of contract, Contractor must comply with Federal Non-Discrimination Policy and Drug-Free Workplace Policy.
2. If applicable the Fuel Oil and Gas (F.O.G.) shall be no more than 25% of the equipment charges.
3. If applicable the Fringe Benefits shall be no more than 30% of the payroll.

12.4.1.4 Supplementary Conditions

Refer to **Attachment 9**

12.4.1 First Tier Subcontractor

All First-Tier Subcontractors must be registered in the General Services Administration's RUL or RUP, as applicable, and have eligible and active status in the SAM.

It is the Contractor's responsibility to present to ASEM the corresponding evidence of registration, within a term of no less than ten (10) calendar days from the date on which the subcontracting is finalized.

12.4.2 Invoicing

1. ASEM will fully comply with the provisions, terms, and conditions established in the Uniform General Conditions of Public Works, Supplementary Conditions, and Additional Provisions related to the payment process.

2. ASEM will process payment for contracted and rendered services, as well as for work performed, in accordance with the respective applicable laws and regulations. The invoice must:

    a. contain, among other things, the name of the contracted entity;

    b. contract number;

    c. disaster designation number;

    d. CDBG-MIT grant number;

    e. information of the contracted entity, including postal address, telephone number, and email address;

    f. Billing period;

    g. invoice number;

    h. invoice issue date;

    i. amount due;

j. include a certification indicating that the services were rendered or work was performed but has not yet been paid;

k. certification of voidability;

l. certification of the accuracy of the invoice content;

m. Breakdown for Payment;

n. Certified payrolls (using the designated form);

o. Supporting documentation for any invoiced materials or equipment;

p. Photographs identifying the work performed;

q. Updated Project Schedule;

r. DBRA compliance certification;

s. Certification of affirmative steps regarding Section 3 or M/W/VBE; and

t. Certification of no debt issued by the corresponding government entities (only last invoice)

u. Other documents required by ASEM.

3. ASEM will withhold 5% of the total amount of each partial invoice, as submitted, for construction works. ASEM may withhold up to ten percent (10%) of the payment due to the Contractor for services rendered, as provided in Section 1062.03 of the 2011 Puerto Rico Internal Revenue Code, as amended, in accordance with the regulations approved by the Secretary of the Treasury, unless otherwise evidenced by the presentation of the corresponding Withholding Release Certificate (total or partial) issued by the Department of the Treasury. It is understood that this withholding will apply to the amount exceeding the first five hundred dollars ($500.00) paid during the calendar year.

4. Pursuant to Law No. 48-2013, if applicable, ASEM will withhold at source from each payment for professional services contracts (aggregate contracting) provided by the Contractor, a special

contribution equivalent to one and a half percent (1.5%) of the total amount of said contract, which will be allocated according to this Law. The calculation of aggregate contracting includes all agencies, instrumentalities of the Government of Puerto Rico, public corporations, as well as the Legislative Branch, the Office of the Comptroller, the Office of the Ombudsman, and the Judicial Branch, or any other entity created by state or federal law, whose funds originate, in whole or in part, from the General Fund. To claim this exemption, the Contractor must submit, along with the signed contract, a Sworn Statement to that effect, using Form SC 1350.

5. All invoices will be processed for payment only after review and approval by the designated ASEM representative. ASEM reserves the right to request additional information before proceeding with payment. The Fiscal Resources Office also reserves the right to review the accuracy of invoices and conduct any audits it deems necessary.

6. All invoices must include the following certification, indicating the absence of any interest on the part of the executive agency's officials and employees in the profits or benefits derived from the contract in question.

   "Under penalty of absolute nullity, I certify that no ASEM public servant is a party to or has any interest in the profits or benefits derived from the contract covered by this invoice, and if any such party or interest is involved, a prior waiver has been granted. The sole consideration for supplying the goods or services covered by the contract has been the payment agreed upon with the authorized representative of (name of the entity). The amount on this invoice is fair and correct. The construction work has been completed, the products have been delivered, and the services have been rendered, and no payment has been received for them."

7. All invoices must be submitted in original, including two (2) copies, to the Office of Engineering and Environmental Care or to the ASEM representative authorized for this purpose.

8. Prior to the approval of the Schedule of Value and Breakdown for Payment, the Contractor must submit to ASEM a formal request for its intention to invoice for materials on-site. This request must include a detailed narrative describing the

mitigation measures to avoid adverse impacts on other project activities, the safety and security measures applicable to the storage and handling of the materials, and the Contractor's acknowledgment and acceptance of any tests, inspections, or analyses that ASEM may require prior to installation or use. The Contractor must certify that the materials will be used exclusively for the project, that they are covered by the corresponding insurance, and that it accepts the obligation to reimburse the funds if installation is not completed. The Contractor must also detail the daily material inspection process and provide any other information or certification that ASEM may request.

Once the complete request is received, ASEM will issue its determination within a period not exceeding fifteen (15) calendar days. The determination issued will be final and not subject to reconsideration by ASEM.

12.4.4 Liquidated Damages

Time is of the essence in the performance of the Work. The Design-Builder acknowledges that failure to achieve Substantial Completion, Final Completion, or any Contract Milestone established in the Contract Documents within the required time may cause ASEM, PRDOH, the Government of Puerto Rico, HUD, patients, healthcare providers, emergency services, and the public to incur substantial damages, including, but not limited to, administrative costs, extended oversight and inspection costs, delayed availability of critical healthcare services, disruption to campus operations, extended project management costs, and other impacts that are difficult or impracticable to determine with precision at the time of contract execution.

Accordingly, if the Design-Builder fails to achieve Substantial Completion, Final Completion, or any Contract Milestone by the applicable date established in the Contract Documents, as such date may be adjusted only by an approved Change Order or written time extension issued in accordance with the Contract Documents, the Design-Builder shall be liable to ASEM for liquidated damages in the amounts set forth below. The parties agree that these amounts represent a reasonable estimate of damages likely to be incurred as a result of delay and are not intended as a penalty.

The following liquidated damages shall apply for each calendar day of delay beyond the applicable milestone date:

1. Failure to achieve Substantial Completion of Phase I: $25,000.00 per calendar day until Substantial Completion of Phase I is achieved.

2. Failure to achieve Substantial Completion of Phase II: $15,000.00 per calendar day until Substantial Completion of Phase II is achieved.

Liquidated damages may be assessed separately for each missed milestone; however, ASEM shall not impose duplicative liquidated damages for the same period of delay for the same portion of the Work unless the delay affects separate and independently required milestones. If delay to an interim milestone also delays Substantial Completion or Final Completion, ASEM may assess liquidated damages for the milestone that best reflects the impact of the delay, or as otherwise provided in the Contract Documents.

ASEM may deduct liquidated damages from any amounts due or to become due to the Design-Builder, including progress payments, retainage, final payment, or any other compensation payable under the Contract. Assessment or deduction of liquidated damages shall not constitute a waiver of ASEM's right to pursue any other remedy available under the Contract Documents or applicable law for separate breaches, defective work, noncompliance, fraud, misrepresentation, abandonment, default, or other damages not compensated by the liquidated damages.

The Design-Builder shall not be liable for liquidated damages to the extent the delay is caused by an excusable delay for which the Design-Builder is entitled to a time extension under the Contract Documents, provided that the Design-Builder gives timely notice, demonstrates the impact on the critical path, and obtains written approval of the time extension in accordance with the Contract Documents. No oral statement, field discussion, meeting note, schedule update, pay application, or informal communication shall modify a milestone date or waive liquidated damages unless expressly approved in writing by ASEM through a duly executed Change Order or other authorized written contract modification.

In addition to the provisions of Article 9.5 of Regulation No. 7998, Uniform General Conditions for Public Works, if the Contractor fails to

comply with federal statutes and regulations, ASEM may take one or more of the following actions:

1. Temporarily withhold cash payments pending correction of the deficiency by the Contractor.

2. Disallow all or part of the cost of the activity or action not in compliance.

3. Initiate suspension or debarment proceedings as authorized under 2 C.F.R. part 180.

4. Withhold further Federal awards for the project or program.

5. Take other remedies that may be legally available.

12.5 Termination of Contract

1. Failure to comply with the provisions of the RFP documents, as well as any breach of the terms and conditions of the awarded contract, will constitute sufficient cause for its termination without prior notice. Furthermore, the Executive Director of ASEM reserves the right to cancel any contract under this Request for Sealed Proposals at any time, when there is just cause and it is in the best interest of the public and/or the Government of Puerto Rico.

2. The Secretary of the Governor's Office of Puerto Rico will have the authority to terminate the awarded contract at any time, as provided in Administrative Bulletin OE-2021-003.

3. No head of a government agency or instrumentality of the Government, public corporation, municipality, or of the Legislative or Judicial Branch, shall award any bidding process or grant any contract to any natural or legal person who has been convicted or pleaded guilty in the state or federal forum, in any other jurisdiction of the United States of America or in any other country, of those crimes constituting fraud, embezzlement or illegal appropriation of public funds provided in Act 2-2018, *supra*, as amended. This prohibition on awarding contracts or conducting bidding processes extends to legal entities whose presidents, vice presidents, directors, executive directors, or members of their Board of Officers or Board of Directors, or any person performing equivalent functions, have been convicted or pleaded guilty in state or federal court, in any other jurisdiction of the United States of America, or in any other country, of the crimes constituting

fraud, embezzlement, or misappropriation of public funds, as listed in the aforementioned law.

The prohibition on contracting, subcontracting, or awarding contracts or conducting bidding processes contained in Act 2-2018, *supra*, shall have a duration of twenty (20) years from the date of the corresponding conviction in felony cases, and a duration of eight (8) years in misdemeanor cases.

A conviction or finding of guilt for any of the offenses listed in Act 2-2018, *supra*, shall entail, in addition to any other penalties, the automatic termination of all contracts in effect as of that date between the convicted or found guilty person and any agencies or instrumentalities of the State Government, public corporations, municipalities, the Legislative Branch, or the Judicial Branch. In addition to the termination of the contract, the Government shall have the right to demand the return of any payments made in connection with the contract or contracts directly affected by the commission of the offense.

12.6 Refusal to sign contract

An Awarded Proposer's refusal to sign a contract duly supported by a Notice or Award Resolution may result in sanctions, including exclusion from the RUL. In turn, the ASEM will be authorized to initiate the Performance Bond execution process. Submitting a Proposal implies informed acceptance of all the terms and conditions that will be established in a prior contract.

The obligations, duties, and bidding requirements under duly disclosed mandatory federal and state clauses, and those that may arise from the competent authorities, shall not under any circumstances be grounds for refusing to enter into a contract to provide the goods, works, and services described therein.

12.7 Contract Review by the Financial Oversight and Management Board for Puerto Rico

The contract resulting from this RFP is subject to review by the Puerto Rico Financial Oversight and Management Board (FOMB) in accordance with FOMB's contract review policy.

END OF RFP

Exhibit 1: Request for Clarifications

Request No. [ ]

Proposer must submit additional sheets of this Request for Clarifications form, if more than 5 questions are to be submitted. Any questions or Requests for Clarification must be sent via email at subastascompras@asem.pr.gov

Proposer:		**Date:**	

No.	**Question**	**RFP Document or Section**	**RFP Document Page No.**
1			
2			
3			
4			
5			

Printed name of the authorized representative

Signature of the authorized representative

Exhibit 2: Checklist

Submitted proposals shall incorporate the following documents, including the annexes, in the order provided. The forms included as part of the RFP must be completed and incorporated as part of the proposal. The Proposer's Authorized Representative shall mark their initials in the space provided below to indicate compliance with the Checklist.

Proposer:		**Date:**	

Initials	**Documents Description**
	Checklist
	Proposal's Sealed Envelope or Package, identified as Section 9.2.1 of this RFP
	(1) Printed original of the proposal
	(1) Printed copy of the proposal
	(1) Digital copy of the proposal (PDF and saved on a USB drive without password or permission), including the Cost Breakdown in Excel and PDF format
	(1) Redacted copy (PDF and saved on a USB drive without password or permission)
	Separate sealed envelope that contains the Price Proposal and Cost Breakdown, as part of the Proposal's sealed envelope and as identified Section 9.2.1 of this RFP
	Front Page, identified as Section 9.2.2 of this RFP
	Exhibit 2: Checklist, as Section 9.2.3 of this RFP
	Table of Contents, as Section 9.2.4 of this RFP
	Exhibit 3: Statement of Proposer, as Section 9.2.5 of this RFP
	▪ Organizational Chart of the Proposer's Team Members, as Section 9.2.5.1 of this RFP
	▪ Proposer's Good Standing, issued by the Puerto Rico's Department of State, if applicable, if applicable, as Section 9.2.5.2 of this RFP
	▪ Proposer's Certificate of Compliance, issued by the Puerto Rico's Department of State, if applicable, as Section 9.2.5.2 of this RFP
	▪ Proposer's Partnership Agreement, if applicable, as Section 9.2.5.2 of this RFP
	▪ Proposer's Joint Venture Agreements, if applicable, as Section 9.2.5.2 of this RFP
	▪ Designer's Good Standing, issued by the Puerto Rico's Department of State, if applicable, if applicable, as Section 9.2.5.3 of this RFP
	▪ Designer's Certificate of Compliance, issued by the Puerto Rico's Department of State, if applicable, if applicable, as Section 9.2.5.3 of this RFP

Proposer's Initials: _____

Exhibit 2: Checklist

Initials	Documents Description
	▪ Credentials of all shareholders (Designer) as a licensed professional, as applicable
	▪ Professional Certification of Key Personnel, as applicable
	▪ Professional License of Key Personnel, as applicable
	Annex I: Key Personnel Qualifications and Commitment Form, for Design-Build Project Manager
	Annex I: Key Personnel Qualifications and Commitment Form, for Safety Manager
	Annex I: Key Personnel Qualifications and Commitment Form, for Cost Estimator
	Annex I: Key Personnel Qualifications and Commitment Form, for Commissioning Authority / Agent
	Annex I: Key Personnel Qualifications and Commitment Form, for Design Lead
	Annex I: Key Personnel Qualifications and Commitment Form, for Civil Engineer, P.E.
	Annex I: Key Personnel Qualifications and Commitment Form, for Civil Engineer, P.E. – "Structural Engineer"
	Annex I: Key Personnel Qualifications and Commitment Form, for Environmental Engineer, P.E. or Registered Environmental Manager
	Annex I: Key Personnel Qualifications and Commitment Form, for Mechanical Engineer P.E.
	Annex I: Key Personnel Qualifications and Commitment Form, for Technology / IT / System Engineer P.E.
	Annex I: Key Personnel Qualifications and Commitment Form, for Construction Manager or Superintendent
	Annex I: Key Personnel Qualifications and Commitment Form, for BIM Manager / BIM Coordinator
	Annex I: Key Personnel Qualifications and Commitment Form, for Quality Control Manager
	Annex I: Key Personnel Qualifications and Commitment Form, for Healthcare Facilities Subject Matter Expert
	Annex II: Major Subcontractor Experience, Past Performance, and Commitment Form (per each)

Proposer's Initials: _____

Exhibit 2: Checklist

Initials	Documents Description
	Proposer's Eligibility Certificate of the RUL, issued by ASG, as Section 9.2.5.4 of this RFP
	Designer's Single Provider Certificate, issued by ASG
	SAM (active and eligible status or has initiated registration) of the Proposer and Designer
	Designer's Qualification
	Proposer's Financial Statements for the last 2 years, as Section 9.2.5.9 of this RFP
	Proposer's Line Credit Letter and/or Cash Available Letter, as Section 9.2.5.10 of this RFP (not less than fifteen million dollars ($16,000,000.00)
	Exhibit 4: Non-Conflict of Interest Certification
	Exhibit 5: Non-Conflict of Interest Certification on Existing or Pending Contracts
	Exhibit 6: Limited Denial of Participation (LDP) / Suspension or Debarment Status Affidavit
	Exhibit 7: Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion
	Exhibit 8: Non-Collusive Affidavit
	Exhibit 9: Sworn Statement (Act 2-1018, as amended, Anticorruption Code for New Puerto Rico)
	Exhibit 10: Anti-Lobbying Certification, if applicable
	Exhibit 11: Disclosure of Lobbying Activities, if applicable
	Exhibit 12: Authorization Background and/or Other Information
	Exhibit 13: Entities Prior Performance Certifications
	Exhibit 14: Certification Regarding Compliance of Act 173-1988
	Exhibit 15: Certification of Compliance with the Prevailing Federal Wage Rule Davis Bacon Act 40 USC 276A – 276A-71
	Exhibit 16: Technical Proposal
	Design-Builder Experience and Past Performance, as Exhibit 16, item 2.0 of this RFP
	Annex III: Minimum Healthcare / Hospital Project Experience
	Design Firm Experience and Past Performance, as Exhibit 16, item 3.0 of this RFP
	Organizational Structure, Team Integration (Organizational Chart as Section 9.2.5.1 of this RFP

Proposer's Initials: _____

Exhibit 2: Checklist

Initials	Documents Description
	Describe lines of authority, decision-making responsibilities, communication protocols, issue-escalation procedures, design-construction coordination, and the method for managing scope, schedule, quality, safety, cost, risk, commissioning, activation, and operational readiness.
	Identify any prior collaboration among major Design-Build team members and describe how such prior collaboration supports efficient project delivery, risk reduction, and accountability.
	Crosswalk or matrix identifying where the Proposal demonstrates compliance with the minimum healthcare experience, Key Personnel, bonding, technical capacity, past performance, and technical approach requirements established in Section 10.0 of this RFP. crosswalk shall reference the applicable Proposal section, page number, and supporting documentation.
	Work Approach / Technical Proposal, as 9.2.18.7 and 10.1.2.4 of this RFP
	Project Delivery Strategy
	Schedule Strategy (Project Schedule, Resource Loaded Schedule, and Monthly cash flow projections), as Section 9.2.18 and provide accelerated strategy
	Campus Logistics, Maintenance of Traffic, and Site Utilization
	Safety, Site Security, Infection Control, and Environmental Protection
	Procurement, Materials, Equipment, and Delivery Management
	Quality Assurance and Quality Control
	Risk Management and Operational Continuity
	Commissioning, Activation, Training, Turnover, and Closeout
	Regulatory Compliance
	Exhibit 17: Price Proposal Form
	Exhibit 18: Cost Breakdown
	Exhibit 19: Bid Bond, as Section 9.2.20 of this RFP
	Certificate of Appointment of Attorney-in-Fact, copy
	Attorney-in-Fact Licensed, copy
	Certification of the Bonding Entity, copy
	Contact information of the Attorney-in-Fact
	If it includes the Attorney-in-Fact's electronic signature, it must be accompanied by a certification from the Bonding Entity confirming that the signature belongs to an authorized representative

Proposer's Initials: _____

Exhibit 2: Checklist

Initials	Documents Description
	Exhibit 20: Acknowledgment of Surety
	Proposer's Bond Capacity Letter, as Section 9.2.21 of this RFP
	Evidence of Section 3 or M/W/VBE, if applicable, as Section 9.2.22 of this RFP
	Proposer's authorized representative must handwrite all required initials and signature in blue ink pen (**electronic, digital or scanned signatures will not be allowed**) in the space provided.
	Any cross-out or revision made to the proposal documents must be initiated by the Proposer's authorized representative next to the change. **The use of "correction tape", correction fluid, "liquid paper" or similar products is not permitted**.
	If the information is not applicable, "n/a" is on the designed field

Printed Name of the Proposer's Authorized Representative

Signature of the Proposer's Authorized Representative

END OF CHECKLIST

Exhibit 3: Statement of Proposer

The undersigned, having familiarized himself/herself with the specifications, terms and conditions (including the RFP documents), the Addenda and the Notices issued by the Procurement Division, if any, understands that he/she has the qualifications and capacity to execute the project under this RFP process.

1.0 Proposer Identification

Legal Name

Year of Establishment

2.0 The Proposer is a:

☐ Individual ☐ Corporation ☐ Other (Specify): _____

☐ Partnership ☐ Joint Venture

If a corporation indicates all as applicable:

☐ Publicly Held ☐ Private Held ☐ Subsidiary

☐ Good Standing or Certificate of Compliance

☐ SAM Registry

☐ RUL Certificate

If the Proposer is a partnership, it submits the Partnership Agreement along with its proposal or if the Proposer is a Joint Venture, it submits the Joint Venture Agreements. ☐ Agreement

3.0 Officers and Director: Detail the name, telephone number, and email address of the officers, director, members, and any partner of the Proposer's entity

Name	Telephone	E-mail Address	Mark your selection with an **X**			
			Officer	Director	Member	Partner

Exhibit 3: Statement of Proposer

Name	Telephone	E-mail Address	Officer	Director	Member	Partner

Proposer must submit additional sheets of this document for Officers and Directors, if the field provided in this document is not sufficient. ☐ Annex ____

4.0 Proposer's Physical Address

Address Line 1

Proposer's Initials: _____

Address Line 2		
City	State	Zip Code
5.0 Proposer's Mailing Address		
Address Line 1		
Address Line 2		
City	State	Zip Code
6.0 Proposer's Contact Information		
Name		Email Address
7.0 Proposer's history and executive summary		

8.0 Organizational Chart, a simple graphic presentation that clearly and easily understands the structure of the Proposer's Team Member (including Design Team and Key Personnel) organization, including the levels of authority and relationship between the different roles, departments or positions, for the execution of the activities on the Design Build project.	Annex _____
9.0 Financial Statement, for the last tax 2 year, according to its circumstances (volume of business), as established in Section 1061.15 of the "Internal Revenue Code for a New Puerto Rico," or "Puerto Rico Internal Revenue Code of 2011," Act 1 of January 31, 2011, as amended	Annex ____
10.0 Cash Available Letter and/or Line Credit Letter from a bank or financial institution, as applicable, issued by a duly authorized banking or financial institution, as Section 9.2.5.10	Annex ____

11.0 Designer's Identification

Legal Name _____ Year of Establishment _____

12.0 The Designer is a:

☐ Individual ☐ Professional ☐ Other (Specify): _____

☐ Partnership ☐ Joint Venture

If a corporation indicates all as applicable:

☐ Publicly Held ☐ Private Held ☐ Subsidiary

☐ Good Standing or Certificate of Compliance

☐ RUP Certificate

If the Designer is a partnership, it submits the Partnership Agreement along with its proposal or if the Designer is a Joint Venture, it submits the Joint Venture Agreements. ☐ Agreement

If the Designer is a professional corporation of architecture, engineering or surveying must submit the credentials of all its shareholders as a licensed professional ☐ Licensed Professional

13.0 Officers and Director: Detail the name, telephone number, and email address of the officers, director, members, and any partner of the Designer's entity

Name	Telephone	E-mail Address	Mark your selection with an **X**			
			Officer	Director	Member	Partner

Exhibit 3: Statement of Proposer

Name	Telephone	E-mail Address	Officer	Director	Member	Partner

Proposer must submit additional sheets of this document for Officers and Directors, if the field provided in this document is not sufficient. ☐ Annex ____

14.0 Key Personnel. Identify the Key Personnel

Proposed Position / Role	Resource Name
Design-Build Project Manager	
Safety Manager	
Scheduler	
Cost Estimator	
Commissioning Authority / Agent	
Design Lead	
Civil Engineer, P.E.	
Civil Engineer, P.E. – "Structural Engineer"	
Environmental Engineer, P.E. or Registered Environmental Manager	

Proposer's Initials: _____

Exhibit 3: Statement of Proposer

Proposed Position / Role	Resource Name
Electrical Engineer, P.E.	
Mechanical Engineer, P.E.	
Technology / IT / System Engineer, P.E.	
Construction Manager or Superintendent	
BIM Manager / BIM Coordinator	
Quality Control Manager	
Healthcare Facilities Subject Matter Expert	

15.0 Major Subcontractors, Subcontractor and Consultant. Detail the names, telephone numbers, and email address of the Subcontractor and Consultant, and any partners of the Proposer.

Name	Task	Authorized Representative	Mark your selection with an **X**		
			Subcontractor	Consultant	Major Subcontractor
		Name: Telephone Number: Email Address:			
		Name: Telephone Number: Email Address:			

Proposer's Initials: _____

Exhibit 3: Statement of Proposer

Name	Role	Authorized Representative	Subcontractor	Consultant	Major Subcontractor
		Name: Telephone Number: Email Address:			
		Name: Telephone Number: Email Address:			
		Name: Telephone Number: Email Address:			
		Name: Telephone Number: Email Address:			
		Name: Telephone Number: Email Address:			
Proposer must submit additional sheets of this document for Team Members and/or First Tier Member Subcontractor, if the field provided in this document is not sufficient. ☐ Annex ____					

Proposer's Initials: _____

16.0 Understanding of the scope of work contained in this RFP

Proposer must submit additional sheets of this document for Understanding of the scope of work, if the field provided in this document is not sufficient. ☐ Annex ____

17.0 Project execution method
Proposer must submit additional sheets of this document for Project execution method, if the field provided in this document is not sufficient. ☐ Annex ____

18.0 Expected results and benefits

Proposer must submit additional sheets of this document for Expected results and benefits, if the field provided in this document is not sufficient. ☐ Annex ____

Proposer's Initials: _____

19.0 Statement of Bankruptcy

The Proposer represents he/she/they:

1. (___ has/have) (___ has/have not) filed, within the 60-day period, prior to the submission of proposal, in any court of jurisdiction a voluntary petition for bankruptcy or any petition or other pleading seeking as a remedy a readjustment and/or liquidation (under any title provided by law) with regard to its assets, and;
2. (___ has/have) (___ has/have not) been notified of any claim filed against it related to a bankruptcy adjudication, reorganization, composition, readjustment, liquidation or similar remedy under any current legal provision that in any way compromises its assets.

20.0 Has the Proposer been involved in any criminal, civil, or administrative suits, actions, investigations, litigations, sanctions and/or administrative complaints or proceedings that were commenced, pending, settled, threatened, resolved, or conducted during the five (5) year's period prior to the date of the Proposal Due Date?

☐ No ☐ Yes (See Annex _____)

If the answer to this question is "Yes", state for each such suit, action, investigation or proceeding the: (a) date of the suit, action, investigation or proceeding (or time period involved); (b) the specific nature of the suit, action, investigation or proceeding; (c) the amount of funds involved, if any; (d) the names of the parties; € the names and complete addresses of the courts and law enforcement agencies involved; (f) the title and file number of the suit, action, investigation or proceeding; (g) the disposition or current status; and (h) any sentence, fine or other penalty imposed on additional sheets attached to this Statement of Proposer. Also include an opinion from an attorney discussing whether the Proposer's work will be impacted by the litigation.

21.0 The Proposer represents he/she/they (___ has/have) (___ has/have not) participated in a previous contract or subcontract subject to the Equal Opportunity Clause herein or the clause originally contained in Section 310 of Executive Order Number 10925 or the clause in Section 201 if Executive Order Number 11114; that he/she/they (___ has/have) (___ has/have) filed all required compliance reports; and that representations indicating submission of required reports, signed by subcontractors, will be obtained prior to subcontract awards. The Proposer further represents that he will, if required, submit, and required subcontractors to submit a compliance report prior to the award of the contract or subcontract.

22.0 Workload Statement. Provide an of how the workload of the Key Personnel, Staff, and Subcontractors will be accommodated and what kind of priority it will be given.

Proposer must submit additional sheets of this document for Workload Statement, if the field provided in this document is not sufficient. ☐ Annex ____

Exhibit 3: Statement of Proposer

23.0 Undersigned oath certification:

The undersigned represents, warrants, and certifies on behalf of the Proposer that:

1. The information contained in the Statement of Proposer is true and complete;
2. The Proposal has been duly and properly authorized for submission by the Proposer, and
3. In its preparation and development of the proposal, the Proposer has not, directly or indirectly, solicited or received any advice, assistance, or information concerning the proposal from any representative of the ASEM or PRDOH, or its agents or contractors, which was not equally available to other Proposer, and which might contribute to an actual or potential competitive advantage for the Proposer.

In witness thereof, the Proposer has executed this Statement of Proposer this ____ day of _____, 20 _____.

If Proposer's entity is an individual:

_____
Signature of Individual

_____
Printed Name and Title of Individual

If Proposer's Entity is a sole partnership or operates under a trade name:

_____
Printed Name of Proposer

By: _____
Authorized Representative's Signature

If Proposer's Entity is a partnership or joint venture

_____
Printed Name of Proposer

By: _____
Authorized Representative's Signature

Exhibit 3: Statement of Proposer

If Proposer's Entity is a corporation

Printed Name of Corporation

By:

Signature of Officer

Printed Name and Title of Officer

Title of Officer

Attest:

Secretary

Corporate Seal

Jurisdiction of Incorporation

END OF EXHIBIT 3

Annex I

KEY PERSONNEL QUALIFICATIONS AND COMMITMENT FORM	SUBMIT ONE FORM PER KEY PERSONNEL

INSTRUCTIONS TO PROPOSERS

Complete one (1) form for each proposed Key Personnel member. All fields are required unless marked optional. Forms must be submitted as part of the Proposal. Incomplete or unsigned forms may result in disqualification. Information provided is subject to verification.

1. PERSONAL INFORMATION

Full Name (Last, First, Middle Initial)

Proposed Role / Position Title

Direct Phone Number

Firm / Organization Name

Email Address

Proposed Level of Effort

2. EDUCATION & QUALIFICATIONS

Provide a concise qualification statement demonstrating relevant education.

Degree / Diploma	Field of Study	Year	Institution

3. PROFESSIONAL REGISTRATION & CERTIFICATION

List all active professional licenses, registrations, and certifications relevant to the proposed role. Attach copies of current license certificates as required.

License / Certification Type	Issuing Authority / State	License No.	Issue Date	Expiration Date

4. YEARS OF EXPERIENCE

Total Years of Professional Experience _____ years	**Years in Current Firm / Organization** _____ years
Years of Healthcare / Hospital Project Experience _____ years	**Years of Design-Build Project Experience** _____ years

5. HOSPITAL / MISSION-CRITICAL PROJECT EXPERIENCE

List up to five (5) representative hospital or mission-critical projects completed within the last ten (10) years. Include only projects in which this individual had a direct, substantive role. Owner references may be contacted. As applicable to the individual

Project Name & Location	Owner / Client	Completion Year	Project Value (Approx.)	Individual's Role & Responsibilities

6. DESIGN-BUILD EXPERIENCE

List up to five (5) Design-Build projects in which this individual held a key role. Highlight any projects involving healthcare, mission-critical, or similarly complex facilities. As applicable to the individual

Project Name & Location	Owner / Client	Completion Year	Project Value (Approx.)	Design-Build Role & Scope

7. OTHER RELEVANT EXPERIENCE

List up to three (3) Design-Build projects in which this individual held a key role. Highlight any projects involving similarly complex facilities.

Project Name & Location	Owner / Client	Completion Year	Project Value (Approx.)	Design-Build Role & Scope

8. ROLE ON COMPARABLE PROJECTS

Describe the specific leadership or functional roles this individual has held on projects comparable in type, scale, and complexity to this Project. Focus on decision-making authority, team oversight, and client interface responsibilities. As applicable to the individual

Narrative Description (attach additional pages if needed):

9. AVAILABILITY & TIME COMMITMENT

Confirm this individual's availability for the Project and identify any known commitments or conflicts. Proposers must ensure that key personnel are available for the duration stated below.

Availability for This Project	**Proposed Percentage of Time Committed**
Available Start Date:	**Design Phase:** _____ %
Full-Time on Project? (circle one): Yes / No	**Construction Phase:** _____ %
Current Other Project Commitments:	**Commissioning / Closeout Phase:** _____ %
	Note: Personnel substitutions after award are subject to Owner approval.

NOTE: The Healthcare Facilities Subject Matter Expert shall possess demonstrated experience in the planning, design, construction, commissioning, activation, or operation of acute care hospitals and critical healthcare facilities.

10. CERTIFICATION & SIGNATURE

A. Certification of Commitment

I, the undersigned, hereby certify my strong and unconditional commitment during the period _____ (commitment dates) to participate in the project, Puerto Rico's New Trauma Hospital with _____,
(Proposer's Name)

To perform the functions described in the proposal and in accordance with the requirements, terms, and conditions established in the Request for Sealed Proposals (27DJ-00415).

1. Specific role within project: _____
2. Equipment and materials: _____
3. Funds: _____
4. Deliverables: _____

B. Certification Statement

I, the undersigned, hereby certify that the information provided in this Key Personnel Qualifications Form is true, accurate, and complete to the best of my knowledge. I understand that any misrepresentation or omission of material facts may result in disqualification of the Proposal and/or termination of any contract awarded. I further acknowledge that I have read and understood my proposed role on this Project and confirm my commitment to dedicating the stated percentage of time as described herein.

Printed Name: _____

Title: _____ Date: _____

Signature: _____

— END OF KEY PERSONNEL QUALIFICATIONS AND COMMITMENT FORM —

Annex II

MAJOR SUBCONTRACTOR EXPERIENCE, PAST PERFORMANCE AND COMMITMENT FORM

Per each Major Subcontractor

INSTRUCTIONS

Proposers must complete this form to demonstrate compliance with the Major Subcontractor Experience and Past Performance. Read all instructions carefully before completing the form.

- Attach supplemental sheets as needed using the same format.
- All information is subject to verification. The Evaluation Committee or Bid Board reserves the right to contact all listed references.
- Incomplete submissions may be deemed non-responsive. Ensure all fields are completed.
- Leave the checkbox fields blank; the Evaluation Committee or Bid Board will not accept pre-filled evaluations on their behalf.

PART I – MAJOR SUBCONTRACTOR'S INFORMATION

Entity Name:	
Authorized Representative:	
Title:	
Address:	
Phone:	
Email:	
Description of the scope to be performed:	

PART II – EXPERIENCE AND PAST PERFORMANCE

List projects in reverse chronological order (most recent first).

PROJECT 1					
Project Name:					
Owner / Client:					
City / State:		**Contract Value ($):**		**Completion Date:**	
Percentage of participation/responsibility:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____ Design-Bid-Build _____ CM at Risk _____ Other: _____				
Funds:	☐ FEMA (PA/ HMGP) ☐ CDBG-DR/MIT ☐ American Rescue Plan Act ☐ Other: _____				
Role in Design-Build:	☐ Designer (Architect / Engineer of Record) ☐ Builder (General Contractor / Construction Manager) ☐ Lead Design-Builder (Prime) ☐ Other: _____				
Please provide details of your participation:					
Critical Care Environment(s) Involved:	☐ Emergency Department (ED) ☐ Operating Rooms (OR) ☐ Intensive Care Unit (ICU) ☐ Trauma Facility ☐ Comparable Critical Care Environment ☐ Other: _____				
Complexity:					
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

PART III – PROFESSIONAL LICENSE OR CERTIFICATIONS

License / Certification Type	Issuing Authority / State	License No.	Issue Date	Expiration Date

PART IV – CERTIFICATION AND SIGNATURE

Certification of Commitment

I, the undersigned, hereby certify my strong and unconditional commitment during the period _____ (commitment dates) to participate in the project, Puerto Rico's New Trauma Hospital with _____,
(Proposer's Name)

To perform the functions described in the proposal and in accordance with the requirements, terms, and conditions established in the Request for Sealed Proposals (27DJ-00415).

1. Specific role within project: _____
2. Equipment and materials: _____
3. Funds: _____
4. Deliverables: _____

Certification Statement

The undersigned authorized representative of the Proposer hereby certifies, under penalty of disqualification, that:

- All information provided in this form is true, accurate, and complete to the best of the representative's knowledge and belief;
- The Proposer understands that the Evaluation Committee and Bid Board reserves the right to verify all submitted information and to contact listed references;
- Any material misrepresentation in this submission may result in disqualification from this procurement and may be grounds for contract termination if discovered after award;

Printed Name: _____

Title: _____ Date: _____

Signature: _____

— END OF MAJOR SUBCONTRACTOR EXPERIENCE, PAST PERFORMANCE AND COMMITMENT FORM —

Exhibit 4: Non-Conflict of Interest Certification Compliance

I, _____, of legal age, or marital status (married/single), and a resident of _____, have been designated as the authorized representative of _____ ("the Proposer") for the procurement process referenced in the title of this document ("RFP Process"). In such regard, I hereby certify that:

1. No public official or employee of the ASEM possesses any financial interest in any Proposer participating in this Procurement Process, and that, likewise, has had no direct or indirect financial interest in these for the past four (4) years.

2. No public official or employee of the ASEM has solicited or accepted, directly or indirectly, by means of any person or entity with interest in this RFP Process, including the Proposer, any goods of any value -including, gifts, gratuities, contributions, services, donations, loans, and/or any other item of monetary value- for themselves and/or for any member of their immediate family, and/or relatives, and/or for any person, as a form of compensation for performing the duties and responsibilities of their position in connection with this RFP Process.

3. No public official or employee of the ASEM has solicited or accepted, directly or indirectly, by means of any person or entity with interest in this RFP Process, including the Proposer, any goods of any value -including, gifts, gratuities, contributions, services, donations, loans, and/or any other item of monetary value- for themselves and/or for any member of their immediate family, and/or relatives, and/or for any person, in exchange for their actions being an influence in the end result of this RFP Process.

4. I do not have a kindred relationship within the fourth (4^{th}) degree of consanguinity and/or second (2^{nd}) degree of affinity with public official or employee of the ASEM that participates or influences -or has the capacity to do so- in the institutional decisions of the ASEM.

The ASEM is highly committed to management excellence and promotes the effective use of government resources to benefit the people of Puerto Rico. Thus, the ASEM will support and comply with the provisions of Act 2-2018, known as the Anti-Corruption Code

Proposer's Initials: _____

Exhibit 4: Non-Conflict of Interest Certification Compliance

for the New Puerto Rico, as amended, including Title III, Code of Ethics for Contractors, Suppliers and Applicants for Economic Incentives of the Government of Puerto Rico.

Considering the above, I, the Proposer's Authorized Representative, also certify that:

1. I agree to comply with the applicable provisions of Act 2-2018, known as the Anti-Corruption Code for the New Puerto Rico, as amended, including Title III, Code of Ethics for Contractors, Suppliers and Applicants for Economic Incentives of the Government of Puerto Rico and recognize that this is an essential requirement in order to execute transactions or to set up agreements with the ASEM.

In _____, _____ this _____ day of _____ of 20____.

_____
Name of the Proposer's Entity

_____
Printed Name and Title of the Proposer's Authorized Representative

_____ _____
Signature of Proposer's Authorized Representative Date

END OF EXHIBIT 4

Exhibit 5: Non-Conflict of Interest Certification on Existing or Pending Contracts

I, _____, of legal age, or marital status (married/single), and a resident of _____, have been designated as the authorized representative of _____ ("the Proposer") for the procurement process referenced in the title of this document ("RFP Process"). In such regard, I hereby certify that:

1. There are no relevant facts or circumstances that could give rise to an organizational or personal conflict of interest for the Proposer or its staff with respect to the RFP Process with the ASEM. Nonetheless, the Proposer recognizes that situations may arise that may appear to be, or are, conflicts -or potential conflicts- of interest. The term "potential conflict" means reasonably foreseeable conflict of interest.

2. The Proposer will disclose to the ASEM any relevant information of an apparent, potential, or actual conflict of interest that may appear to exist regardless of their opinion that such information would not impair their objectivity.

3. As per 2 C.F.R. § 200.318(c)(1), a conflict of interest would arise when "the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of the parties indicated herein, has a financial or other interest in or a tangible personal benefit from a firm considered for a contract". Therefore, I understand that conflicts of interest may arise in, but not limited to, the following situations:

    a. Unequal access to information. A potential contractor, subcontractor, employee, or consultant has access to non-public information through its performance on a government contract for disaster recovery services in Puerto Rico.

Proposer's Initials: _____

b. Biased ground rules. A potential contractor, subcontractor, employee, or consultant has worked with a government contract or program with the basic structure or ground rules of another government contract for disaster recovery services in Puerto Rico.

c. Impaired objectivity. A potential contractor, subcontractor, employee, or consultant, or member of their immediate family (spouse, parent, or child) has financial interests, or others, that would impair, or give the appearance of impairing, impartial judgment in the evaluation of government programs in offering advice or recommendations to the government, or in providing technical assistance or other services to recipients of Federal funds as part of its contractual responsibility.

4. In the case in which the Proposer discloses to the ASEM an apparent, potential, or actual conflict of interest, the ASEM will take the appropriate measures to address the disclosure by taking the following actions, which include but are not limited to, eliminating, mitigating or neutralizing the apparent, potential or actual conflict, when appropriate, through such means as ensuring a balance of views, disclosure with the appropriate disclaimers, or by restricting or modifying the work to be performed to avoid or reduce the apparent, potential, or actual conflict.

5. If an apparent, potential, or actual conflict of interest is discovered by the Proposer after the RFP Process concludes, it will make a full disclosure in writing to the contracting officer. This disclosure shall include a description of actions that the Proposer has taken or proposes to take to avoid, mitigate, or neutralize the apparent, potential, or actual conflict of interest.

6. The Proposer has no present or currently planned interests (financial, contractual, organizational, or otherwise) relating to the contract or task order that may result from this RFP Process that would create any apparent, actual, or potential conflict of interest (including conflicts of interest for immediate family members: spouses, parents, children) that would impinge on its ability to render impartial, technically sound, and objective assistance or advice or result in it being given an unfair competitive advantage.

Exhibit 5: Non-Conflict of Interest Certification on Existing or Pending Contracts

7. The Proposer has exercised, and will continue to exercise, due diligence in avoiding, identifying, removing or mitigating any apparent, potential or actual conflicts of interest to the ASEM's satisfaction.

In _____, _____ this _____ day of _____ of 20____.

_____
Name of the Proposer's Entity

_____
Printed Name and Title of the Proposer's Authorized Representative

_____ _____
Signature of the Proposer's Authorized Representative Date

END OF EXHIBIT 5

Exhibit 6: Limited Denial of Participation (LDP) / Suspension or Debarment Status Affidavit

By signing this Certification, the Proposer certifies that the firm, business or person submitting the proposal has not been LDP, suspended, debarred or otherwise lawfully precluded from participating in any public procurement activity with any Federal, State or local government. Signing this Certification without disclosing all pertinent information about a debarment or suspension shall result in rejection of the proposal or cancellation of a contract. ASEM or PRDOH also may exercise any other remedy available by law.

AND TO CERTIFY THIS, I swear and sign this declaration in _____, _____, this day of _____, _____ 20___.

_____
(Name of the Proposer's Entity)

By: _____
(Signature of the Proposer's Authorized Representative)

_____
(Printed Name ad Title of the Proposer's Authorized Representative)

_____
(Title of the Proposer's Authorized Representative)

Affidavit No: _____

Subscribed and sworn to before me in the city of _____, _____, this _____ day of _____, 20___, by _____ of legal age, _____ (civil status), _____ (occupation) and resident of _____, _____, in his/her capacity as _____ of Proposer. Who I personally know or have identified by his/her _____.

_____
Public Notary

State of _____

Exhibit 6: Limited Denial of Participation (LDP) / Suspension or Debarment Status Affidavit

County of _____

Signed and sworn to (or affirmed) before me on this _____ day of _____ ___, 20___, by _____in his/her capacity as _____ of Proposer. Who I personally know or have identified by his/her _____.

_____
Notary Public

My Commission Expires: _____

END OF EXHIBIT 6

Exhibit 7: Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion

The Proposer certifies, by submission of this Certification, that:

1. Neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency;
2. It will provide immediate written notice to whom this Certification is submitted if at any time the Proposer learns its certification was erroneous when submitted or has become erroneous by reason of changed circumstances;
3. It shall not knowingly enter any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated;
4. It will include the clause titled Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion—Lower Tier Covered Transactions, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions;
5. The certifications herein are a material representation of fact upon which reliance was placed when this transaction was entered into; and
6. Where the Proposer is unable to certify to any of the statements in this certification, such Proposer shall attach an explanation to this Certification

In _____, _____ this _____ day of _____ of 20____.

_____

Name of the Proposer's Entity

_____

Printed Name and Title of the Proposer's Authorized Representative

_____ _____

Signature of the Proposer's Authorized Representative Date

END OF EXHIBIT 7

Exhibit 8: Non-Collusive Affidavit

The Proposer certifies that in relation to the procurement process referenced in the title of this document:

1. The prices in the offer have been arrived at independently without directly or indirectly mediating any type of consultation, communication or agreement with any other competitor relating to i) prices, ii) intention to submit an offer, or iii) the methods or factors used to calculate the proceed offered;
2. Prices in the offer have not been and will not be knowingly disclosed by the Proposer, directly or indirectly, to any other Proposer or competitor before Proposal Opening or contract award unless otherwise required by law;
3. No attempt has been made or will be made by the Proposer to induce any other competitor to/not to submit an offer or proposal for the purpose of restricting competition.

The signatory below (select one):

☐ Is the person in the Proposer's organization responsible for determining the prices being offered and has not participated and will not participate in any action contrary to paragraphs (1) through (3) above.

☐ Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated and will not participate in any action contrary to paragraphs (1) through (3) above.

Name[1]	Position[2]	Name	Position

As authorized agent, the Signatory does certify that the principals named above have not participated and will not participate in any action contrary to paragraphs (1) through (3) above.

[1] Insert full name of person(s) in the Proposer's organization responsible for determining the prices offered in the bid or proposal.

[2] Insert the title of the person(s) in the Proposer's organization responsible for determining the prices offered in the bid or proposal.

Proposer's Initials: _____

Exhibit 8: Non-Collusive Affidavit

As an agent, the Signatory has not personally participated, and will not participate, in any action contrary to paragraphs (1) through (3) above.

AND TO CERTIFY THIS, I swear and sign this declaration in _____, _____, this day of _____, _____ 20___.

_____
(Name of the Proposer's Entity)

By: _____
(Signature of the Proposer's Authorized Representative)

_____
(Printed Name and Title of the Proposer's Authorized Representative)

_____
(Title of the Proposer's Authorized Representative)

Affidavit No: _____

Subscribed and sworn to before me in the city of _____, _____, this _____ day of _____, 20___ , by _____ of legal age, _____ (civil status), _____ (occupation) and resident of _____, _____, in his/her capacity as _____ of Proposer. Who I personally know or have identified by his/her _____.

_____
Public Notary

Exhibit 8: Non-Collusive Affidavit

State of _____

County of _____

Signed and sworn to (or affirmed) before me on this _____ day of _____ ___, 20___, by _____in his/her capacity as _____ of Proposer. Who I personally know or have identified by his/her _____.

_____
Notary Public

My Commission Expires: _____

END OF EXHIBIT 8

Exhibit 9: Sworn Statement (Act 2-2018, Anti-Corruption Code for New Puerto Rico)

I, _____, in my personal capacity and in representation of _____ ("Proposer"), of legal age, or marital status (married/single), with profession _____ and a resident of _____, do hereby solemnly swear as follows:

1. My name and personal circumstances are as stated above.

2. As of the date of execution of this sworn statement, neither the undersigned nor the Proposer, or its president, vice president, director, executive director, member of Board of officers or directors, or any persons performing equivalent functions on Offeror's behalf, has been convicted or has pleaded guilty in state or federal court, or in any other jurisdiction of the United States, for any of the following crimes:

   (a) aggravated misappropriation;

   (b) extortion;

   (c) sabotage of essential public services;

   (d) forgery of documents;

   (e) fraud;

   (f) electronic fraud;

   (g) construction fraud;

   (h) fraudulent use, possession or transfer of cards with electronic bands;

   (i) illicit enrichment;

   (j) illicit enrichment by public official;

   (k) unjustified enrichment;

   (l) illicit enrichment of public work or services;

   (m) improper intervention in government operations;

   (n) negotiation incompatible with the exercise of public office;

   (p) false certifications;

(q) bribery, in all its modalities;

(r) undue influence;

(s) embezzlement of public funds; or

(t) money laundering.

3. As of the date of execution of this sworn statement and **for the twenty (20) years** prior, neither the undersigned nor the Proposer, or any of its officers, including its president, vice president, director, executive director, member of board of officers or directors, or any person performing equivalent functions on Offeror's behalf, has been convicted or has pleaded guilty in the state or federal forum, or in any other jurisdiction of the United States, for any of the following crimes:

(a) aggravated damage;

(b) property retention;

(c) alteration or mutilation of property;

(d) filing of false documents or data;

(e) illegal possession and use of tax information, receipts and payment vouchers;

(f) illegal purchase and sale of goods for the payment of taxes;

(g) filing false writings;

(h) illegal possession of tax receipts;

(i) falsification of entries in registers;

(j) forgery of stamps;

(k) ideological falsehood;

(l) forgery of license, certificates and other documents;

(m) forgery in the exercise of professions or occupations;

(n) possession and transfer of forged documents;

(o) possession of counterfeit instruments;

(p) preparation of false writings.

4. As of the date of execution of this sworn statement and **for the eight (8) years** prior, neither the undersigned nor the Proposer, or any of its officers, including its president, vice president, director, executive director, member of board officers or directors, or any person performing equivalent functions on Proposer's behalf, has been convicted or has pleaded guilty in the state or federal forum, or in any other jurisdiction of the United States, for any of the following crimes:

   (a) omission in the fulfillment of duty;

   (b) illegal sale of goods;

   (c) breach of duty;

   (d) negligence in the fulfillment of duty;

   (e) usurpation of public office; or

   (f) preventing the inspection of records and documents.

5. As of the date of execution of this sworn statement and **for the ten (10) years prior**, neither the undersigned nor the Proposer, or any of its officers, including its president, vice president, director, executive director, member of board officers or directors, or any person performing equivalent functions on Proposer's behalf, has been convicted or has pleaded guilty in the state or federal forum, or in any other jurisdiction of the United States, for crimes against the exercise of public office or public funds as defined in the Puerto Rico Penal Code, ; Law No. 1-2012, as amended, the Government Ethics Office Enabling Act; or any other crime defined in Law 2-2018.

6. I accept and acknowledge my obligation to inform of any change or modification to this statement during the contracting process or the term of the contract, as the result of a guilty plea or conviction for any of the above-mentioned crimes or any other conduct prohibited by the "Code

of Ethics for Contractors, Suppliers of Goods and Services and Applicants for Economics Incentives of the Executive Agencies of the Government of Puerto Rico", Title III, Law 2-2018.

7. I accept and acknowledge that a conviction for any of the crimes specified in the above paragraphs will result, in addition to any other penalties, in the immediate termination of any contract in force at the time of conviction, between the undersigned, the Proposer, and any government entity, public corporation or municipality at the date of conviction or guilty plea.

8. The undersigned and/or the Proposer, as the case may be, commits to complying with the "Code of Ethics for Contractors, Suppliers of Goods and Services and Applicants for Economics Incentives of the Executive Agencies of the Government of Puerto Rico", Title III, Law 2-2018.

9. I execute this sworn statement pursuant to Law 2-2018, and the terms and provisions of this procurement process.

10. I execute this sworn statement so that any government entity, public corporation or municipality has knowledge of what is herewith declared and for any administrative and/or legal purpose in relation thereto.

AND TO CERTIFY THIS, I swear and sign this declaration in _____, _____, this day of _____, _____ 20___.

_____
(Name of the Proposer's Entity)

By: _____
(Signature of the Proposer's Authorized Representative)

Exhibit 9: Sworn Statement (Act 2-2018, Anti-Corruption Code for New Puerto Rico)

_____
(Printed Name and Title of the Proposer's Authorized Representative)

_____
(Title of the Proposer's Authorized Representative)

Affidavit No: _____

Subscribed and sworn to before me in the city of _____, _____, this _____ day of _____, 20___, by _____ of legal age, _____ (civil status), _____ (occupation) and resident of _____, _____, in his/her capacity as _____ of Proposer. Who I personally know or have identified by his/her _____.

_____
Public Notary

State of _____

County of _____

Signed and sworn to (or affirmed) before me on this _____ day of _____ ___, 20___, by _____in his/her capacity as _____ of Proposer. Who I personally know or have identified by his/her _____.

_____
Notary Public

My Commission Expires: _____

END OF EXHIBIT 9

Exhibit 10: Anti-Lobbying Certification

The undersigned certifies, to the best of his or her knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence and officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for making lobbying contracts to an office or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form – LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions.

3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontractors, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352 (as amended by the Lobbying Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Proposer's Initials: _____

Exhibit 10: Anti-Lobbying Certification

The Proposer _____, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Proposer understands and agrees that the provisions of 31 U.S.C. A 3801 et seq., apply to this certification and disclosure, if any.

In _____, _____ this _____ day of _____ of 20____.

_____
Name of the Proposer's Entity

_____
Printed Name and Title of the Proposer's Authorized Representative

_____ _____
Signature of the Proposer's Authorized Representative Authorized Representative | Date

END OF EXHIBIT 10

Exhibit 11: Disclosure of Lobbying Activities

Instructions for Completion of SF-LLL Disclosure of Lobbying Activities

This disclosure form shall be completed by the reporting entity, whether sub awardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementation of guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address,

   city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.

Exhibit 11: Disclosure of Lobbying Activities

8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitations for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Included prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action. (b) Enter the full names of the individual(s) performing services and include full address if different from 10(a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no person is required to respond to a collection of information unless it displays a valid OMB control Number. The valid OMB control number for this information collection is OMB No. 4040-013. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (4040-013), Washington, DC 20503.

Exhibit 11: Disclosure of Lobbying Activities

DISCLOSURE OF LOBBRYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

1. Type of Federal Action

- ☐ a. contract
- ☐ b. grant
- ☐ c. cooperative agreement
- d. loan
- e. loan guarantee
- f. loan insurance

2. Status of Federal Action

- ☐ a. bid/offer/application
- ☐ b. initial award
- ☐ c. post-award

3. Report Type

- ☐ a. initial filing
- ☐ b. material change

4. Name and Address of Reporting Entity:

☐ Prime ☐ Subawardee (Tier, if known: _____)

Name: _____

Street 1: _____ Street 2: _____

City: _____ State: _____ Zip: _____

Congressional District, if known: _____

5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:

Name: _____

Street 1: _____ Street 2: _____

City: _____ State: _____ Zip: _____

Congressional District, if known: _____

6. Federal Department/Agency:

_____

7. Federal Program Name/Description:

CFDA Number, if known: _____

8. Federal Action Number, if known:

_____

9. Award Amount, if known:

$_____

10. (a) Name and Address of Lobbying Registrant:

Name: _____

Street 1: _____ Street 2: _____

City: _____ State: _____ Zip: _____

(b) Individual Performing Services (Including address of different from No. 10a):

Name: _____

Street 1: _____ Street 2: _____

City: _____ State: _____ Zip: _____

Exhibit 11: Disclosure of Lobbying Activities

11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Signature

Printed Name

Title

Telephone No. *Date*

Federal Use Only:

Authorized for Local Reproduction
Standard Form – LLL (Rev. 7-97)

Reporting Entity: _____ **Page** _____ **of** _____

Exhibit 12: Authorization for Background and/or Other Information

By signing this Authorization, the Proposer authorizes the Procurement Division, Bid Board and Evaluation Committee to seek any background, references and/or other information, including financial information, that they deems' necessary to evaluate the Proposer's proposal and capacity in connection with the RFP reference above.

Name of the Proposer's Entity	
Printed Name and Title of the Proposer's Authorized Representative	
Signature of the Proposer's Authorized Representative	Date

END OF EXHIBIT 12

Exhibit 13: Entities Prior Performance Certification

1. Has the Proposer or any of its Team Members (Design-Builder, Designer's Team, First-Tier Subcontractor, and Consultant) been notified with a "Letter of Concern", which refers to any written communication from a government entity notifying the Proposer or any of its Team Members, wariness or caution about the performance under a contract to provide services.

   ☐ Yes ☐ No ☐ Other (specify): _____

   If "Yes", provide a copy of every "Letter of Concern" received from and as a Contractor of a Government entity.

2. Has the Proposer or any of its Team Members (Design-Builder, Designer's Team, First-Tier Subcontractor, and Consultant) been found in default of contract terms with any contracting entity?

   ☐ Yes ☐ No

   If "Yes", indicate below if a Performance Bond or other means was used to resolve the default issue:

   ☐ Yes ☐ No ☐ Other (specify): _____

   Name of Surety Company: _____

   Telephone Number of Surety Company: _____

   Contact Person of Surety Company: _____

   Email Address of Contact Person:

   Provide an explanation regarding the circumstances that created the need for the contracting entity to invoke the terms of the Performance Bond, or other means, to include the current status of the matter. (include additional sheets if necessary).

Exhibit 13: Entities Prior Performance Certification

Name of the Proposer's Entity

Printed Name and Title of the Proposer's Authorized Representative

Signature of the Proposer's Authorized Representative

Date

END OF EXHIBIT 13

Exhibit 14: Certification Regarding Compliance of Act 173-1988

The performance of any engineering, architecture, surveying, and landscape architecture services in Puerto Rico shall be commissioned to a licensed professional or a professional services organization in accordance with the Act 173-1988, as amended, "Act of the Examiner Board of Puerto Rico's Engineers, Architects, Surveyors and Landscapers' Architects", Act 319 of May 15, 1938, as amended, "Act to Create the Board of Engineers and Surveyors". Therefore, the Proposer must certify, by submission of this Certification, that:

1. Proposer expressly acknowledges that only engineers, architects, surveyors, and landscapers' architects (professional services) duly authorized and licensed to practice in the commonwealth of Puerto Rico may perform professional services in Puerto Rico[1].

2. If the professional services organization will perform any services under a partnership or professional association, all partners or principals of the entity shall hold a license in their respective professions and shall be enrolled in the corresponding Register of Professional Partnerships.[2]

3. If the professional services organization is a corporation[3], all the shareholders shall be licensed in their respective professions and this corporation should be organize as a professional corporation pursuant to the provisions of sections 711 to 711z of Act 173, supra, and Act 164-2009, as amended, better known as the "General Corporation Act of Puerto Rico"[4].

4. The professional services organization herein engaged to perform any engineering, architecture, surveying, and landscape architecture services, hereby certifies and guarantees that is duly organized, validly existing and in good standing under the laws of Puerto Rico, particularly Act 173-1988, as amended, "Act of the Examiner Board of Puerto Rico's Engineers, Architects, Surveyors, and Landscapers Architecture", and Act 319 of May 15, 1938, as amended, "Act to

[1] 20 LPRA § 711 *et seq*.
[2] 20 LPRA § 711q-1
[3] 20 LPRA § 711q-2
[4] 14 LPRA § 3501 *et seq*.

Proposer's Initials: _____

create the Board of Engineers and Surveyors", authorized to do business in the Commonwealth and with the full legal right, power and authority to execute, deliver and perform the professional services above-mentioned under any applicable law.

Please provide the name of the professional services organization that will provide the services required; additionally, provide the name of the partners, principals, or shareholders from the organization.

Name of Organization: _____

Name of Partners, Principals or Shareholders	
1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

In _____, _____ this _____ day of _____ of 20____.

_____
Name of the Proposer's Entity

_____
Printed Name and Title of the Proposer's Authorized Representative

_____ _____
Signature of the Proposer's Authorized Representative | Date

END OF EXHIBIT 14

Exhibit 15: Certification of Compliance with the Prevailing Federal Wage Rule Davis Bacon Act 40 USC 276A – 276A-71

I, _____, of legal age, or marital status (married/single), and a resident of _____, have been designated as the authorized representative of _____ ("the Proposer") for the procurement process referenced in the title of this document ("RFP Process"). In such regard, I hereby certify that:

1. I will pay or supervise the payment of all persons employed by _____ (Name of the Proposer) and its subcontractors for the service, and that during the payroll period all persons employed in the service will receive their full earned weekly wages. No reimbursements have been or will be made, either directly or indirectly, on behalf of the aforementioned Proposer and its Subcontractors, for the full earned weekly wages of any person, other than allowable deductions as defined in the regulations, Part 3, CFR Part 3, issued by the Secretary of Labor pursuant to the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 537; 40 U.S.C. 276c).

2. Under the contract to be entered into as a result of this procurement process, it is required to submit accurate and complete payrolls;

3. The wage rates for workers or mechanics contained therein will not be lower than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications established therein for each worker or mechanic are appropriate to the work performed.

4. All apprentice employees will be properly registered in a bona fide apprenticeship program registered with a State Apprenticeship and Training Agency recognized by the Bureau of Apprenticeship and Training, U.S. Department of Labor, or if no such recognized agency exists in a State, will be registered with the Bureau of Apprenticeship and Training, U.S. Department of Labor.

Exhibit 15: Certification of Compliance with the Prevailing Federal Wage Rule Davis Bacon Act 40 USC 276A – 276A-71

In _____, _____ this _____ day of _____ of 20____.

_____
Name of the Proposer's Entity

_____
Printed Name and Title of the Proposer's Authorized Representative

_____ _____
Signature of the Proposer's Authorized Representative | Date

END OF EXHIBIT 15

Exhibit 16: Technical Proposal

The undersigned, having familiarized himself/herself with the specifications, terms and conditions (including the RFP documents), the Addendum and the Notices issued by the Bid Board, if any, understands that he/she has the qualifications and capacity to execute the project under this RFP process.

1.0 Proposer Identification
_____
Proposer's Name
2.0 Design Firm Experience and Past Performance. Demonstrate the Design Firm's experience in hospital planning, programming, design, permitting, regulatory coordination, construction-document development, and design support during construction. Address Acute care hospitals and trauma, emergency, surgical, intensive care, or comparable critical healthcare environments; Hospital facility planning, programming, and clinical workflow coordination; Resilient and mission-critical building systems, including structural, electrical, mechanical, plumbing, medical gas, IT, communications, life safety, and utility infrastructure; Design-Build delivery, fast-track design packages, multidisciplinary coordination, constructability reviews, and support of phased construction; Knowledge of American College of Surgeons (ACS) regulations and requirements; and Compliance with applicable healthcare codes, standards, licensing requirements, accessibility requirements, environmental requirements, including Federal Aviation Administration (FAA) requirements, and Puerto Rico professional practice requirements.
Proposer should submit additional sheets if the space provided is insufficient. Identify each continuation clearly and reference it here. ☐ Annex ____

2.0 Organizational Structure, Team Integration. Provide the Design-Build organizational structure and explanation of how the Design-Builder, Designer, Builder, subcontractors, specialty consultants, suppliers, vendors, and Key Personnel will be integrated to deliver the Project. The Proposal shall include an organizational chart consistent with Section 9.2.5.1 and shall describe lines of authority, decision-making responsibilities, communication protocols, issue-escalation procedures, design-construction coordination, and the method for managing scope, schedule, quality, safety, cost, risk, commissioning, activation, and operational readiness. The Proposer shall identify any prior collaboration among major Design-Build team members and describe how such prior collaboration supports efficient project delivery, risk reduction, and accountability.

Proposer should submit additional sheets if the space provided is insufficient. Identify each continuation clearly and reference it here. ☐ Annex ____

3.0 Minimum Technical Qualification Crosswalk. Provide a concise crosswalk or matrix identifying where the Proposal demonstrates compliance with the minimum healthcare experience, Key Personnel, bonding, technical capacity, past performance, and technical approach requirements established in Section 10.0. The crosswalk shall reference the applicable Proposal section, page number, and supporting documentation.

Proposer should submit additional sheets if the space provided is insufficient. Identify each continuation clearly and reference it here. ☐ Annex _____

4.0 Work Approach / Technical Proposal. provide a detailed Work Approach demonstrating a comprehensive understanding of the Project, the Design-Build delivery requirements, and the active Medial Center Campus environment. The Work Approach shall describe the Proposer's integrated strategy for delivering the Project from design through close-out and shall address, at a minimum, the following:

a. **Project delivery strategy:** Integrated approach for design, permitting, procurement, construction, commissioning, activation, turnover and closeout:

Proposer should submit additional sheets if the space provided is insufficient. Identify each continuation clearly and reference it here. ☐ Annex ____

b. Schedule Strategy (Project Schedule, Resource Loading, and Monthly Cash Flow Projections). Submit a computer-produced Critical Path Method (CPM) Project Schedule and a resource-loaded schedule with monthly cash-flow projections. Show activity logic, sequence, interdependencies, whole-day durations, subcontracted work, critical path, design reviews, endorsements and permits, early-work packages, procurement and long-lead equipment, construction, inspections, testing, commissioning, activation, approvals, Substantial Completion, Final Completion, and closeout. Demonstrate completion within the maximum fifty-four (54) months, including Phase I within twenty-one (21) months and Phase II within thirty-three (33) months, and provide the accelerated strategy required by Section 10.1.2.4.3 for the full structural frame and operational readiness of the Emergency Department level within twenty-one (21) months of Notice to Proceed. Include recovery planning and schedule-risk controls.

Proposer should submit additional sheets if the space provided is insufficient. Identify each continuation clearly and reference it here. ☐ Annex ____

c. **Campus Logistics, Maintenance of Traffic, and Site Utilization**. Provide an integrated logistics and site-utilization plan for work within the active Medical Center Campus. Identify construction access points, ambulance and emergency-vehicle routes, public and worker access, pedestrian and vehicular circulation, haul and delivery routes, staging and laydown areas, material storage, temporary facilities, contractor parking, equipment and crane/hoisting zones, waste-removal routes, fencing, barriers, utility protection, and coordination with adjacent medical, clinical, administrative, parking, utility, and support facilities. Explain how continuous safe access and campus operations will be maintained.

Proposer should submit additional sheets if the space provided is insufficient. Identify each continuation clearly and reference it here. ☐ Annex ____

d. **Safety, Site Security, Infection Control, and Environmental Protection**. Describe the safety-management approach for design and construction, including worker safety, public protection, pedestrian and vehicular safety, emergency access, high-risk work, site security, incident response, and coordination with ASEM and campus operations. Describe infection-control measures appropriate to an active medical campus and controls for dust, noise, vibration, air quality, erosion and sedimentation, stormwater, hazardous materials, construction and demolition waste, and protection of patients, staff, visitors, adjacent facilities, and ongoing healthcare operations.

Proposer should submit additional sheets if the space provided is insufficient. Identify each continuation clearly and reference it here. ☐ Annex ____

e. **Procurement, Materials, Equipment, and Delivery Management**. Describe the approach for procurement, delivery, receipt, inspection, storage, security, protection, installation, start-up, and turnover of materials and equipment in accordance with the Project Schedule. Address long-lead and healthcare-critical equipment, Owner-furnished/Contractor-installed items, medical-equipment interfaces, delivery coordination, temporary storage, submittals, vendor participation, testing, warranties, spare parts, and measures to avoid disruption to adjacent medical and support operations**.**

Proposer should submit additional sheets if the space provided is insufficient. Identify each continuation clearly and reference it here. ☐ Annex ____

f. **Quality Assurance and Quality Control**. Describe the proposed quality assurance and quality control program for design and construction, including design reviews, constructability reviews, multidisciplinary coordination, code reviews, inspections, testing, submittals, RFIs, nonconformance and corrective-action processes, records, document control, and verification of compliance with the RFP and Contract Documents. Describe the BIM Execution Plan, model uses, Level of Development by phase, clash detection, issue tracking, healthcare-system coordination, record-model requirements, and integration of BIM information with commissioning, operations, and maintenance.

Proposer should submit additional sheets if the space provided is insufficient. Identify each continuation clearly and reference it here. ☐ Annex ____

g. **Risk Management and Operational Continuity**. Describe the methodology for identifying, assessing, assigning, mitigating, monitoring, and controlling risks throughout design and construction. Include schedule, cost, permitting, design coordination, procurement, safety, environmental, utility, campus-interface, clinical-operations, commissioning, and activation risks. Provide measures to minimize impacts to emergency response, existing medical services, utilities, traffic, parking, wayfinding, deliveries, and adjacent clinical, administrative, public, and support operations, including contingency and recovery procedures.

Proposer should submit additional sheets if the space provided is insufficient. Identify each continuation clearly and reference it here. ☐ Annex ____

h. **Commissioning, Activation, Training, Turnover, and Closeout**. Describe the integrated approach for commissioning and operational readiness, including commissioning planning; pre-functional and functional testing; integrated systems testing; deficiency tracking and retesting; regulatory inspections and approvals; facility activation; staff training; O&M manuals; warranties; as-built and record drawings; record BIM model; asset and equipment information; final permits; occupancy and life-safety documentation; punch list; phased turnover; and final closeout. Address HVAC, electrical, emergency power, plumbing, fire protection, medical gas, BAS, IT/low-voltage, security, nurse-call, and other hospital-critical systems identified in Attachment 1.

Proposer should submit additional sheets if the space provided is insufficient. Identify each continuation clearly and reference it here. ☐ Annex ____

i. **Regulatory Compliance**. Describe the approach for compliance with all applicable federal, Puerto Rico, CDBG-MIT, HUD, PRDOH, ASEM, healthcare, environmental, labor, safety, accessibility, professional licensing, permitting, and Design-Build requirements.

Proposer should submit additional sheets if the space provided is insufficient. Identify each continuation clearly and reference it here. ☐ Annex ____

Exhibit 16: Technical Proposal

In witness thereof, the Proposer has executed this Technical Proposal this ____ day of _____, 20 _____.

If Proposer's entity is an individual:

_____
Signature of Individual

_____
Printed Name and Title of Individual

If Proposer's Entity is a sole partnership or operates under a trade name:

_____
Printed Name and Title of the Proposer Entity

By: _____
Signature of the Proposer's Authorized Representative

If Proposer's Entity is a Partnership or Joint Venture

_____
Printed Name and Title of the Proposer Entity

By: _____
Signature of the Proposer's Authorized Representative

If Proposer's Entity is a corporation

Printed Name of Corporation

By:

Signature of Officer

Printed Name and Title of Officer

Title of Officer

Attest:

Secretary

Corporate Seal

Jurisdiction of Incorporation

END OF EXHIBIT 16

Annex III

MINIMUM HEALTHCARE / HOSPITAL PROJECTS EXPERIENCE

RFP Section 10.1.1.8 | Submit with Proposal

INSTRUCTIONS

Proposers must complete this form to demonstrate compliance with the Minimum Healthcare/Hospital Projects Experience requirements set forth in Section 10.1.1.8 of the RFP. Read all instructions carefully before completing the form.

- All projects submitted must have been substantially completed within the last twenty (20) years from the date of submission.
- Proposers may list additional projects beyond the stated minimum for each requirement. Attach supplemental sheets as needed using the same format.
- A single project may satisfy more than one (1) requirement (e.g., a completed Design-Build hospital project may count toward both Requirement A and Requirement B of this document).
- All information is subject to verification. The Evaluation Committee or Bid Board reserves the right to contact all listed references.
- Incomplete submissions may be deemed non-responsive. Ensure all fields are completed for every project listed.
- Leave the checkbox fields blank; the Evaluation Committee or Bid Board will not accept pre-filled evaluations on their behalf.

PART I – PROPOSER INFORMATION

Proposer / Firm Name:	
Authorized Representative:	
Title:	
Address:	
Phone:	
Email:	
Date of Submission:	

MINIMUM HEALTHCARE / HOSPITAL PROJECTS EXPERIENCE

REQUIREMENT A: COMPLETED HOSPITAL CONSTRUCTION PROJECTS

Minimum Requirement: At least one (1) completed hospital construction projects within the last twenty (20) years. Proposers may submit more projects. Each project must meet the twenty-year threshold. List projects in reverse chronological order (most recent first).

PROJECT 1: Complete Hospital Construction Project					
Project Name:					
Owner / Client:					
Location:		**Contract Value ($):**		**Completion Date:**	
Proposer's Role:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____	Design-Bid-Build _____	CM at Risk _____	Other: _____	
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

PROJECT 2: Complete Hospital Construction Project					
Project Name:					
Owner / Client:					
Location:		**Contract Value ($):**		**Completion Date:**	
Proposer's Role:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____	Design-Bid-Build _____	CM at Risk _____	Other: _____	
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

PROJECT 3: Complete Hospital Construction Project					
Project Name:					
Owner / Client:					
Location:		**Contract Value ($):**		**Completion Date:**	
Proposer's Role:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____	Design-Bid-Build _____	CM at Risk _____	Other: _____	
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

PROJECT 4: Complete Hospital Construction Project					
Project Name:					
Owner / Client:					
Location:		**Contract Value ($):**		**Completion Date:**	
Proposer's Role:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____	Design-Bid-Build _____	CM at Risk _____	Other: _____	
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

Minimum required: One (1) project. Use the same format to attach additional project sheets.

MINIMUM HEALTHCARE / HOSPITAL PROJECTS EXPERIENCE

REQUIREMENT B: COMPLETED DESIGN-BUILD HEALHCARE OR HOSPITAL PROJECT

Minimum Requirement: At least one (1) completed Design-Build healthcare or hospital project performed by the designer or builder. This project may be the same as one (1) submitted under Requirement A of this Document. List the primary project first; additional projects may be submitted to further demonstrate experience.

Project 1 – Completed Design-Build Healthcare or Hospital Project					
Project Name:					
Owner / Client:					
Location:		**Contract Value ($):**		**Completion Date:**	
Percentage of participation/responsibility:		**Gross Square Footage:**		**No. of Stories:**	
Design-Build Entity Name:					
Role in Design-Build:	☐ Designer (Architect / Engineer of Record) ☐ Builder (General Contractor / Construction Manager) ☐ Lead Design-Builder (Prime) ☐ Other: _____				
Please provide details of your participation:					
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

Project 2 – Completed Design-Build Healthcare or Hospital Project					
Project Name:					
Owner / Client:					
Location:		**Contract Value ($):**		**Completion Date:**	
Percentage of participation/responsibility:		**Gross Square Footage:**		**No. of Stories:**	
Design-Build Entity Name:					
Role in Design-Build:	☐ Designer (Architect / Engineer of Record) ☐ Builder (General Contractor / Construction Manager) ☐ Lead Design-Builder (Prime) ☐ Other: _____				
Please provide details of your participation:					
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

Minimum required: One (1) project. Cross-reference to Requirement A of this document project number where applicable.

REQUIREMENT C: CRITICAL HEALTHCARE ENVIRONMENTAL EXPERIENCE

Requirement: Experience involving critical healthcare environments, including emergency departments, operating rooms, intensive care units, trauma facilities, or comparable critical care environments. Submit all applicable projects. Projects listed under Requirements A or B of this document may be cross-referenced.

Project 1: Critical Healthcare Environment Experience					
Project Name:					
Owner / Client:					
City / State:		**Contract Value ($):**		**Completion Date:**	
Percentage of participation/responsibility:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____ Design-Bid-Build _____ CM at Risk _____ Other: _____				
Role in Design-Build:	☐ Designer (Architect / Engineer of Record) ☐ Builder (General Contractor / Construction Manager) ☐ Lead Design-Builder (Prime) ☐ Other: _____				
Please provide details of your participation:					
Critical Care Environment(s) Involved:	☐ Emergency Department (ED) ☐ Operating Rooms (OR) ☐ Intensive Care Unit (ICU) ☐ Trauma Facility ☐ Comparable Critical Care Environment ☐ Other: _____				
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

Project 2: Critical Healthcare Environment Experience					
Project Name:					
Owner / Client:					
City / State:		**Contract Value ($):**		**Completion Date:**	
Percentage of participation/responsibility:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____ Design-Bid-Build _____ CM at Risk _____ Other: _____				
Role in Design-Build:	☐ Designer (Architect / Engineer of Record) ☐ Builder (General Contractor / Construction Manager) ☐ Lead Design-Builder (Prime) ☐ Other: _____				
Please provide details of your participation:					
Critical Care Environment(s) Involved:	☐ Emergency Department (ED) ☐ Intensive Care Unit (ICU) ☐ Comparable Critical Care Environment		☐ Operating Rooms (OR) ☐ Trauma Facility ☐ Other: _____		
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

List all projects demonstrating critical care environment experience. Cross-reference to earlier requirements where applicable.

REQUIREMENT D: ACTIVE HEALTHCARE CAMPUS / OPERATIONAL ENVIRONMENT EXPERIENCE

Requirement: Experience delivering projects within active healthcare campuses, mission-critical facilities, or operational environments requiring strict coordination of access, safety, logistics, utilities, and continuity of operations. Submit all applicable projects.

Project 1: Active Healthcare Campus / Operational Environmental Experience					
Project Name:					
Owner / Client:					
City / State:		**Contract Value ($):**		**Completion Date:**	
Percentage of participation/responsibility:		**Gross Square Footage:**		**No. of Stories:**	
Please provide details of your participation:					
Active Campus / Operational Constraints:	☐ Active Healthcare Campus ☐ Operational Environment (Phased Access) ☐ Utility Coordination / Continuity of Operations		☐ Mission-Critical Facility ☐ Infection Control (ICRA) ☐ Other: _____		
Scope of Work / Project Description:					
Detail the handling on coordination of access:					
Detail the handling on safety:					
Detail the handling on logistics:					
Detail the handling on utilities:					
Detail the handling on continuity of operations					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

Project 2: Active Healthcare Campus / Operational Environmental Experience					
Project Name:					
Owner / Client:					
City / State:		**Contract Value ($):**		**Completion Date:**	
Percentage of participation/responsibility:		**Gross Square Footage:**		**No. of Stories:**	
Please provide details of your participation:					
Active Campus / Operational Constraints:	☐ Active Healthcare Campus ☐ Operational Environment (Phased Access) ☐ Utility Coordination / Continuity of Operations		☐ Mission-Critical Facility ☐ Infection Control (ICRA) ☐ Other: _____		
Scope of Work / Project Description:					
Detail the handling on coordination of access:					
Detail the handling on safety:					
Detail the handling on logistics:					
Detail the handling on utilities:					
Detail the handling on continuity of operations					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

Project 1: Active Healthcare Campus / Operational Environmental Experience					
Project Name:					
Owner / Client:					
City / State:		**Contract Value ($):**		**Completion Date:**	
Percentage of participation/responsibility:		**Gross Square Footage:**		**No. of Stories:**	
Please provide details of your participation:					
Active Campus / Operational Constraints:	☐ Active Healthcare Campus ☐ Operational Environment (Phased Access) ☐ Utility Coordination / Continuity of Operations		☐ Mission-Critical Facility ☐ Infection Control (ICRA) ☐ Other: _____		
Scope of Work / Project Description:					
Detail the handling on coordination of access:					
Detail the handling on safety:					
Detail the handling on logistics:					
Detail the handling on utilities:					
Detail the handling on continuity of operations					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

Cross-reference to Requirements A, B, or C of this document where the same project applies.

REQUIREMENT E: VERTICAL CONSTRUCTION PROJECTS

Requirement: Experience with vertical construction projects. Projects previously listed under Requirements A through D may be cross-referenced. List all applicable vertical construction projects, whether healthcare or non-healthcare.

Project 1: Vertical Construction Project					
Project Name:					
Owner / Client:					
City / State:		**Contract Value ($):**		**Completion Date:**	
Percentage of participation/responsibility:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____ Design-Bid-Build _____ CM at Risk _____ Other: _____				
Role in Design-Build:	☐ Designer (Architect / Engineer of Record) ☐ Builder (General Contractor / Construction Manager) ☐ Lead Design-Builder (Prime) ☐ Other: _____				
Please provide details of your participation:					
Type of Vertical Construction:	☐ Hospital or Healthcare ☐ Institutional Buildings ☐ Parking ☐ Residential buildings ☐ Hotels ☐ Other: _____				
Constraints:	☐ Site ☐ Structural ☐ logistics and operations ☐ Other: _____				
	Explain:				
Strategies and measures to address the constraints:					
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

Project 2: Vertical Construction Project					
Project Name:					
Owner / Client:					
City / State:		**Contract Value ($):**		**Completion Date:**	
Percentage of participation/responsibility:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____ Design-Bid-Build _____ CM at Risk _____ Other: _____				
Role in Design-Build:	☐ Designer (Architect / Engineer of Record) ☐ Builder (General Contractor / Construction Manager) ☐ Lead Design-Builder (Prime) ☐ Other: _____				
Please provide details of your participation:					
Type of Vertical Construction:	☐ Hospital or Healthcare ☐ Institutional Buildings ☐ Parking ☐ Residential buildings ☐ Hotels ☐ Other: _____				
Constraints:	☐ Site ☐ Structural ☐ logistics and operations ☐ Other: _____				
	Explain:				
Strategies and measures to address the constraints:					
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

List all applicable vertical construction projects. Cross-reference to prior requirements where the same project applies.

REQUIREMENT F: SAFETY, QUALITY, SCHEDULE & COMPLIANCE PERFORMANCE

Requirement: Demonstrated safety, quality, schedule, regulatory compliance, stakeholder coordination, and risk-management performance. Provide performance data for representative projects. Projects cross-referenced from earlier requirements are acceptable.

A. Firm-Wide Safety Record (Last 3 Years)

Metric	Year 1	Year 2	Year 3 (Most Recent)
OSHA Total Recordable Incident Rate (TRIR)			
Days Away, Restricted, or Transferred (DART) Rate			
Lost-Time Incident Rate (LTIR)			
EMR (Experience Modification Rate)			
Fatalities			

B. Project: Level Performance — Representative Projects

Project 1: Level Performance — Representative Projects					
Project Name:					
Owner / Client:					
Location:		**Contract Value ($):**		**Completion Date:**	
Proposer's Role:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____	Design-Bid-Build _____	CM at Risk _____	Other: _____	
OSHA TRIR (this project):		**Lost-Time Incident Rate:**		**On Schedule?**	Y / N
Schedule Variance (days):		**Budget Variance:**		**Regulatory Citations?**	Y / N
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

Project 2: Level Performance — Representative Projects					
Project Name:					
Owner / Client:					
Location:		**Contract Value ($):**		**Completion Date:**	
Proposer's Role:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____	Design-Bid-Build _____	CM at Risk _____	Other: _____	
OSHA TRIR (this project):		**Lost-Time Incident Rate:**		**On Schedule?**	Y / N
Schedule Variance (days):		**Budget Variance:**		**Regulatory Citations?**	Y / N
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

Project 3: Level Performance — Representative Projects					
Project Name:					
Owner / Client:					
Location:		**Contract Value ($):**		**Completion Date:**	
Proposer's Role:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____	Design-Bid-Build _____	CM at Risk _____	Other: _____	
OSHA TRIR (this project):		**Lost-Time Incident Rate:**		**On Schedule?**	Y / N
Schedule Variance (days):		**Budget Variance:**		**Regulatory Citations?**	Y / N
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

C. Project: Level Performance — Representative Projects

Provide a brief narrative (500 words or fewer) describing your firm's approach to risk management, regulatory compliance (e.g., AHCA, The Joint Commission, CMS, OSHA), and stakeholder coordination on healthcare or hospital construction projects:

REQUIREMENT G: FEDERALLY FUNDED PROJECT EXPERIENCE

Requirement: Experience with federally funded projects. List all applicable projects below. Cross-reference to projects already submitted under Requirements A through F where applicable. Include the relevant federal agency, funding program, and any applicable federal contracting requirements (e.g., Davis-Bacon Act, Buy America provisions).

Project 1: Federally Funds Project					
Project Name:					
Owner / Client:					
City / State:		**Contract Value ($):**		**Completion Date:**	
Percentage of participation/responsibility:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____ Design-Bid-Build _____ CM at Risk _____ Other: _____				
Role in Design-Build:	☐ Designer (Architect / Engineer of Record) ☐ Builder (General Contractor / Construction Manager) ☐ Lead Design-Builder (Prime) ☐ Other: _____				
Please provide details of your participation:					
Federal Funds Program:	☐ FEMA (PA/ HMGP) ☐ CDBG-DR/MIT ☐ American Rescue Plan Act ☐ Other: _____				
Compliance:	☐ 2 CFR Part 200.31-328 ☐ Davis-Bacon Act ☐ Build America, Buy America Act ☐ Section 3 ☐ Minority Business Enterprise ☐ Women Business Enterprise ☐ Veterans Business Enterprise ☐ Non-Discrimination and Equal Opportunity ☐ Environmental Review, NEPA compliant ☐ Debarment and suspension regulations ☐ Reporting and recordkeeping, in accordance with federal transparency and audit standards ☐ Lobbying Restrictions (31 U.S.C. §1352) ☐ Occupational safety in accordance with OSHA ☐ Accessibility and design according to ADA				
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

Project 2: Federally Funds Project					
Project Name:					
Owner / Client:					
City / State:		**Contract Value ($):**		**Completion Date:**	
Percentage of participation/responsibility:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____ Design-Bid-Build _____ CM at Risk _____ Other: _____				
Role in Design-Build:	☐ Designer (Architect / Engineer of Record) ☐ Builder (General Contractor / Construction Manager) ☐ Lead Design-Builder (Prime) ☐ Other: _____				
Please provide details of your participation:					
Federal Funds Program:	☐ FEMA (PA/ HMGP) ☐ CDBG-DR/MIT ☐ American Rescue Plan Act ☐ Other: _____				
Compliance:	☐ 2 CFR Part 200.31-328 ☐ Davis-Bacon Act ☐ Build America, Buy America Act ☐ Section 3 ☐ Minority Business Enterprise ☐ Women Business Enterprise ☐ Veterans Business Enterprise ☐ Non-Discrimination and Equal Opportunity ☐ Environmental Review, NEPA compliant ☐ Debarment and suspension regulations ☐ Reporting and recordkeeping, in accordance with federal transparency and audit standards ☐ Lobbying Restrictions (31 U.S.C. §1352) ☐ Occupational safety in accordance with OSHA ☐ Accessibility and design according to ADA				
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

Project 3: Federally Funds Project					
Project Name:					
Owner / Client:					
City / State:		**Contract Value ($):**		**Completion Date:**	
Percentage of participation/responsibility:		**Gross Square Footage:**		**No. of Stories:**	
Project Delivery Method:	Design-Build _____ Design-Bid-Build _____ CM at Risk _____ Other: _____				
Role in Design-Build:	☐ Designer (Architect / Engineer of Record) ☐ Builder (General Contractor / Construction Manager) ☐ Lead Design-Builder (Prime) ☐ Other: _____				
Please provide details of your participation:					
Federal Funds Program:	☐ FEMA (PA/ HMGP) ☐ CDBG-DR/MIT ☐ American Rescue Plan Act ☐ Other: _____				
Compliance:	☐ 2 CFR Part 200.31-328 ☐ Davis-Bacon Act ☐ Build America, Buy America Act ☐ Section 3 ☐ Minority Business Enterprise ☐ Women Business Enterprise ☐ Veterans Business Enterprise ☐ Non-Discrimination and Equal Opportunity ☐ Environmental Review, NEPA compliant ☐ Debarment and suspension regulations ☐ Reporting and recordkeeping, in accordance with federal transparency and audit standards ☐ Lobbying Restrictions (31 U.S.C. §1352) ☐ Occupational safety in accordance with OSHA ☐ Accessibility and design according to ADA				
Scope of Work / Project Description:					
Owner Reference Contact:	Name / Title:	**Phone / Email:**			

Cross-reference to Requirements A–F of this document where the same federally funded project was already listed.

PART II – PROJECT CROSS-REFERENCE SUMMARY

Complete the table below to identify which projects satisfy multiple requirements. Enter the Project Name and mark (X) each requirement it satisfies. This summary assists the reviewing committee in efficiently evaluating your submission.

PROJECT NAME	REQUIREMENTS						
	A (Hospital)	B (Design-Build)	C (Critical Care)	D (Active Campus)	E (Vertical)	F (Safety)	G (Federal)

PART III – CERTIFICATION AND SIGNATURE

The undersigned authorized representative of the Proposer hereby certifies, under penalty of disqualification, that:

- All information provided in this form is true, accurate, and complete to the best of the representative's knowledge and belief;
- All projects listed were substantially completed by the Proposer's firm (or a joint venture/partnership in which the Proposer held a material role), within the last twenty (20) years;
- The Proposer understands that the Evaluation Committee and Bid Board reserves the right to verify all submitted information and to contact listed references;
- Any material misrepresentation in this submission may result in disqualification from this procurement and may be grounds for contract termination if discovered after award;
- The Proposer meets all Minimum Healthcare/Hospital Projects Experience requirements set forth in Section 10.1.1.8 of the RFP, as demonstrated by the projects listed herein.

Proposer's Name:	
Authorized Signature:	
Printed Name:	
Title:	
Date:	

— END OF MINIMUM HEALTHCARE/HOSPITAL PROJECTS EXPERIENCE FORM —

Exhibit 17: Price Proposal Form

Name of Proposer:	**Date:**

ARTICLE 1 – PROPOSER'S ACKNOWLEDGEMENTS

Proposer accepts all the terms, specifications, and conditions of the Request for Sealed Proposals, including without limitation those dealing with the disposition of Price Proposal security. This Price Proposal and all prices stated herein shall remain valid and subject to acceptance for one hundred eighty **(180) days** from the Proposal Submission Deadline.

ARTICLE 2 – PROPOSER'S REPRESENTATIONS

In submitting this Price Proposal, Proposer represents that:

1. The Proposer has carefully examined and studied the Request for Sealed Proposal documents, as well as all data and reference items identified in the RFP documents, and hereby acknowledges receipt of the following Addenda

Addenda No.	**Addenda Date**

2. Proposer has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with

and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

3. Proposer is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work and its compliance with CDBG-MIT requirements.

4. Proposer has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site, and all drawings (if any) of physical conditions relating to existing surface or subsurface structures at the Site, that ASEM has identified or made available to Proposer, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that ASEM has identified or made available to Proposer, especially with respect to Technical Data in such reports and drawings.

5. Proposer has considered the information known to Proposer itself, and to members of Proposer's design-build team; information commonly known to design professionals, design-builders, and contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the RFP Documents; and the Site-related reports and drawings (if any) identified in the RFP Documents or otherwise made available to Proposer, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the project design; (3) the means, methods, techniques, sequences, and procedures of construction to be employed by Proposer; and (4) Proposer's safety precautions and programs.

6. Proposer agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the preparation of its Proposal for performance of the Work at the prices stated and within the times required, and in accordance with the other terms and conditions of the RFP Documents.

7. Proposer is aware of the general nature of work to be performed by ASEM and others at the Site that relates to the Work as indicated in the RFP Documents.

8. Proposer has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Proposer has discovered in the RFP Documents and confirms that the written response from ASEM is acceptable to Proposer.

9. The RFP Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

10. The submission of this Price Proposal constitutes an incontrovertible representation by Proposer that Proposer has complied with every requirement of this Article, and that without exception the Price Proposal and all prices in the Price Proposal are premised upon performing and furnishing the Work required by the RFP Documents.

ARTICLE 3 – PROPOSER'S UNDERSTANDING

1. The undersigned, having familiarized himself with the specifications, terms and conditions of the Request for Sealed Proposal Documents, submits this proposal in response to the Request for Sealed Proposal No 27DJ-00415. whose price proposal includes all related costs, including but not limited to all labor, materials, studies, reports, installation, equipment, professional services, non-professional services, and construction works; as well as having fully understood the scope of the work, specifications, terms and conditions, amendments to the RFP documents, and notifications issued for this RFP.

2. The Proposer acknowledges and accepts that the prices of the proposal, as stated above, may not be changed after the selection or award has been issued and that these will remain fixed during the execution of the contract and until the contracted service is completed.

3. The Proposer acknowledges and accepts that as part of this Request for Sealed Proposals process and in accordance with 48 CFR Part 6 Subpart 6.203 to 6.208, it is the policy of the Government of Puerto Rico and ASEM to stimulate the growth of small commercial businesses by encouraging their participation in this Request for Sealed Proposals process.

BASE BID: <u>Design-Build for Puerto Rico's New Trauma Hospital</u>

A. <u>Delivery Schedule</u>: The Proposer will develop the project work within the period established in the RFP documents in two (2) phases, according to the schedule presented by the Technical Proposer of its proposal.

By submitting this proposal, I accept and certify that the execution of all activities identified in the Scope of Work will be carried out within an execution period of no more than 54 months (First Phase no more than 21 months and Second Phase no more than 33 months), as established in the Request for Sealed Proposals documents.

B. Price Proposal:

Base Bid: The Proposer hereby submits the following Price Proposal for the Project as per the terms, specifications, and conditions of the RFP and Scope of Works, the details and corresponding cost breakdown which are provided in **Exhibit 18** (Cost Breakdown).

Item	Description	Quantity	Unit	Amount
1.	Design	1	LS	
2.	Construction	1	LS	
			Total Base Bid	

ALTERNATE:

A. The Proposer must submit an additional cost proposal (Alternate) to the Base Bid regarding the design and construction of the water reservoir intended to guarantee the facility's operational continuity and compliance with storage, pressure, and potable water quality requirements. The proposal must consider the technical, regulatory, and operational criteria established by the ASEM and demonstrate significant improvements, as per the Scope of Work.

B. The Alternate must include a cost that covers design, materials, labor, equipment, testing, installation, supervision, quality control, commissioning, and applicable contingencies. This cost will not be included in the Base Bid and will only be considered if the Bid Board awards the Alternate. If awarded, (1) the Alternate will be considered part of the contract and will be governed by the same administrative, quality, and safety clauses applicable to the Base Bid; (2) the Alternate must be integrated without affecting the critical path of the main project; and (3) No work related to the Alternate may commence without written authorization from ASEM.

C. This Alternate will be evaluated separately from the base price and may be selected, rejected, or negotiated, as necessary to meet budgetary conditions.

D. By submitting a cost proposal for the Alternate, the Proposer certifies that, for the purposes of its submission, it has considered compliance with all codes, regulations, technical standards, and specifications applicable to the project, as well as the work included in the Base Bid.

Exhibit 17: Price Proposal Form

Item	Description	Quantity	Unit	Amount
1.	Design-Build of the Water Storage Reservoir	1	LS	
			Total Alternate	

ALLOWANCE:

The Proposer acknowledges that the allowance items do not constitute a transfer of contractual risk to ASEM and accepts that the current costs will be reconciled.

The Proposer confirms it has evaluated the project conditions and acknowledges that the administration of allowance items constitutes an integral part of its obligations as a Contractor, including coordination with suppliers, logistics management, and compliance with regulatory requirements.

Specific cases may require the proposer to provide additional services to those stated above. For such services, the contract shall include an allowance, and the Proposer shall provide the PRDOH with unit pricings and/or tariff for the additional services to be performed. A Request for Approval (RFA) is required from the Proposer prior to the use of the allowance and at least three (3) cost estimates should be prepared and submitted for the approval of the use of the funds on any given service or media. No additional task or service may be performed by the Proposer without prior authorization of the ASEM and PRDOH.

1. **Supply and Install Hospitaller and Medical Equipment for Puerto Rico's New Trauma Hospital**

   The Proposer acknowledges and accepts that, as part of the items contemplated in the award, an allowance item is included in the amount of $25,000,000.00 intended to cover the costs related to purchase, taxes, fees, transport, delivery, installation, and commissioning of the specified hospitaller and medical equipment, and warranty of the medical equipment and its General Conditions. Refer to **Attachment H** (Hospitaller and Medical Equipment).

2. **Supply and Install the Furniture, Fixtures and Equipment (FF&E) for Design-Build for Puerto Rico's New Trauma Hospital**

   The Proposer acknowledges and accepts that, as part of the items contemplated in the award, an allowance item is included in the amount of $4,500,000.00 intended to cover the costs related to purchase, taxes, fees, transport, delivery, installation, and commissioning of the specified equipment, and warranty of the equipment. Refer to **Attachment 1** (Scope of Works).

3. **Contingency**

   The Proposer acknowledges and accepts that, as part of the items contemplated in the award, an allowance item is included in the amount of $10,300,000.00 intended to cover the costs related to **unforeseen conditions** (unexpectedly poor soil conditions, hidden interferences, unidentified utility conflicts, archaeological finds, etc.) or **minor variations during construction** (quantity adjustments, minor additional work, and coordination adjustments based on the scope of work included in the RFP).

Item	Description	Quantity	Unit	Amount
1.	Supply and Install Hospitaller and Medical Equipment for Puerto Rico's New Trauma Hospital	1	LS	$25,000,000.00
2.	Supply and Install the Furniture, Fixtures and Equipment (FF&E) for Design-Build for Puerto Rico's New Trauma Hospital	1	LS	$4,500,000.00
3.	Contingency	1	LS	$10,300,000.00

ARTICLE 4 – PROPOSER'S CERTIFICATION

Proposer certifies that:

1. This Price Proposal is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

2. Proposer has not directly or indirectly induced or solicited any other Proposer to submit a false or sham Price Proposal;
3. Proposer has not solicited or induced any individual or entity to refrain from submitting a Price Proposal; and
4. Proposer has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract:
    a. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the RFP process;
    b. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the proposal process to the detriment of ASEM, (b) to establish prices at artificial non-competitive levels, or (c) to deprive ASEM of the benefits of free and open competition;
    c. "collusive practice" means a scheme or arrangement between two or more Proposers, with or without the knowledge of ASEM, a purpose of which is to establish prices at artificial, non-competitive levels; and
    d. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the proposal process or affect the execution of the Contract.
5. As part of the documents of its Proposal, Proposer submitted a sworn statement proving that the undersigned has not participated in any collusion with any person with respect to this request for proposals or any other Request for Sealed Proposals for the contract for which this request is submitted.

The undersigned represents, warrants, and certifies on behalf of the Proposer that:

1. The information contained in the Proposal is true and complete,
2. The Proposal has been duly and properly authorized for submission by the Proposer, and
3. In its preparation and development of the Proposal, the Proposer has not, directly or indirectly, solicited or received any advice, assistance, or information concerning the Proposal from any representative of the ASEM or PRDOH, or its agents or contractors, which was not equally available to other Proposer, and which might contribute to an actual or potential competitive advantage for the Proposer.

Exhibit 17: Price Proposal Form

CERTIFICATION

I, _____, hereby AFFIRM AND CERTIFY that I am authorized to sign this Proposal, and that my name and signature are duly registered in the Single Registry of Bidders (RUL, for Spanish acronym) of the Puerto Rico's General Services Administration (ASG, for Spanish acronym) or will be registered within five (5) business days from the Proposals Opening. Furthermore, I CERTIFY that I RECOGNIZE AND ACCEPT the statements detailed above, as well as my obligation to comply with all requirements, specifications, terms, and conditions during the RFP process, and during the term of the contract that may be awarded.

In witness thereof, the Proposer has executed this Price Proposal Form this _____ day of _____, 20_____.

If Entity is an individual:

_____
(Signature of Individual)

_____
(Printed Name and Title of Individual)

_____
(Address Line 1)

_____
(Address Line 2)

_____ _____ _____
(City) *(State)* *(Zip Code)*

[Remainder of Page Left Blank Intentionally]

Exhibit 17: Price Proposal Form

If Entity is a sole partnership or operates under a trade name:

_____
(Printed Name of Firm)

By: _____
(Authorized Representative's Signature)

_____
(Printed Name and Title of Authorized Representative)

_____
(Address Line 1)

_____
(Address Line 2)

_____ _____ _____
(City) *(State)* *(Zip Code)*

If Entity is a partnership or joint venture:

_____
(Printed Name of Partnership or Joint Venture)

By: _____
(Signature of General Partner)

_____
(Printed Name and Title of General Partner)

_____
(Address Line 1)

_____
(Address Line 2)

_____ _____ _____
(City) *(State)* *(Zip Code)*

[Remainder of Page Left Blank Intentionally]

Exhibit 17: Price Proposal Form

If Entity is a corporation:

_____
(Printed Name of Corporation)

_____
(Corporate Address Line 1)

_____
(Corporate Address Line 2)

_____ _____ _____
(City) *(State)* *(Zip Code)*

By: _____
(Signature of Officer)

_____
(Printed Name and Title of Officer)

_____
(Title of Officer)

Attest: _____
(Secretary)

[CORPORATE SEAL]

_____
(Jurisdiction of Incorporation)

END OF EXHIBIT 17

Exhibit 18: Cost Breakdown

Name of Proposer:	**Date:**

This Cost Breakdown Form is provided solely to support the analysis and evaluation of the Proposal. It shall not be used as a payment application, schedule of values, basis for payment, Notice of Award, contract award, or authorization to proceed. Any award, payment, or contractual obligation shall be governed exclusively by the final procurement and contract documents approved by the ASEM.

The Proposer hereby submits the following Cost Breakdown of the Price Proposal for the project. The Proposer hereby submits the following Cost Breakdown of the Price Proposal for the Project. The Proposer shall complete every applicable cost line, and include all costs required to provide a complete, functional, code-compliant, permitted, commissioned, and operational facility.

A - DESIGN

DESIGN				
Item	**Description**	**Qty**	**Unit**	**Amount ($)**
1	Design and preconstruction mobilization, project understanding, review of ASEM requirements, and integration of the Bridging Documents, Geotechnical Report, and SARPS recommendations.	1	LS	
2	Required studies and site investigations, including topographic survey; existing infrastructure and subsurface-utility investigation using ground-penetrating radar, underground penetrating sonar, or other appropriate non-destructive methods; traffic and accessibility studies; site-access, easement, and restriction analysis; risk and safety assessment; hydrologic and hydraulic study; scour study, if applicable; applicable-regulations report; methodologies; findings; maps; models; laboratory results;	1	LS	

Exhibit 18: Cost Breakdown

DESIGN				
Item	**Description**	**Qty**	**Unit**	**Amount ($)**
	georeferenced photographs; risk matrix; recommendations; and technical conclusions.			
3	Hazardous-material identification, observation, sampling, analysis, inspection report, negative certifications, mitigation recommendations, and mitigation Work Plan, as applicable.	1	LS	
4	Schematic Design deliverables for all required disciplines, including architecture, landscape, civil, geotechnical, structural, fire protection, electrical, communications, mechanical, plumbing, life safety, interior design, furniture, fixtures and equipment, site plans, functional and circulation analysis, preliminary systems integration, code-compliance report, studies report, submittal log, technical specifications, calculations, Building Information Modeling coordination, cost estimate, and updated design and construction schedules.	1	LS	
5	Design Development deliverables, including advanced 30%-60% drawings, coordinated Building Information Modeling models, complete structural and mechanical, electrical, and plumbing criteria, updated technical specifications, analysis and calculation booklets, bill of quantities, updated cost estimate, updated schedules, regulatory-compliance review, pre-consultations, permitting support, and updated submittal log.	1	LS	
6	Construction Documents deliverables, including final signed and sealed discipline drawings, final technical specifications, fully coordinated Building Information Modeling model, final cost estimate, updated schedules and submittal log, Quality Plan, Design Professional Certification, and	1	LS	

Exhibit 18: Cost Breakdown

DESIGN				
Item	**Description**	**Qty**	**Unit**	**Amount ($)**
	construction-permit application and support through the Puerto Rico Permit Management Office.			
7	Technical specifications, calculations, analyses, design narratives, bill of quantities by discipline, Functional Area Matrix, space calculations, hazard and risk narratives, equipment and product data, installation and operating instructions, maintenance requirements, and warranty information.	1	LS	
8	Cost estimates at each design phase, broken down by discipline and by materials, equipment, labor, direct construction costs, soft costs, administrative costs, inflation, and contingency, with a dated cost narrative identifying the source and methodology and bearing the preparer's name and signature; include required original and copy submissions.	1	LS	
9	Design and construction schedules, including critical-path-method schedule, design, permit, construction, commissioning, and turnover milestones, monthly updates, risk analysis, schedule narrative, cash flow, long-lead procurement, operational-continuity sequencing, temporary-facility and utility shutdown coordination, and corrective-action narratives for deviations.	1	LS	
10	Submittal Log identifying specification sections, titles, required submittal types, material and equipment data, test results, calculations, submission deadlines, and status updates throughout design and construction.	1	LS	
11	Environmental-compliance support, including Environmental Review Record and Authority to Use Grant Funds documentation, compliance with choice-limiting-action restrictions, and reevaluation documentation	1	LS	

Exhibit 18: Cost Breakdown

DESIGN				
Item	**Description**	**Qty**	**Unit**	**Amount ($)**
	and coordination for Design-Builder-initiated changes, at no additional cost unless otherwise approved in writing.			
12	All required endorsements, permits, consultations, plans, calculations, certifications, fees, and agency coordination, including environmental recommendations and determinations, tree-mitigation consultation, construction consultation, reforestation plan, environmental assessment, construction permit, and coordination with applicable utilities and Puerto Rico agencies.	1	LS	
13	Design management and multidisciplinary coordination, including Building Information Modeling Execution Plan, model authorship and responsibilities, software and exchange protocols, model-federation procedures, clash detection, issue tracking, critical clinical-area coordination, Owner-furnished contractor-installed equipment coordination, constructability review, model review and revision controls, and coordination reports.	1	LS	
14	Design quality control and compliance, interdisciplinary review, coordination of drawings and specifications, completeness reviews, correction of comments, and correction of design errors, omissions, conflicts, or deficiencies at no additional cost.	1	LS	
15	Construction-phase design services and supervision, including requests for information, submittal and shop-drawing review, technical meetings, weekly field observations, field-observation reports, deficiency tracking, design updates, recommendations on proposed changes, code and permit impact reviews, monthly as-built review, record-set drawings, updated Building Information Modeling models, and project close-out	1	LS	

Exhibit 18: Cost Breakdown

DESIGN				
Item	**Description**	**Qty**	**Unit**	**Amount ($)**
	certifications.			
16	Commissioning planning support during design and preconstruction, including commissioning strategy, plan, schedule, system requirements, review of commissioning documentation, and coordination of integrated systems testing.	1	LS	
17	Professional liability and other design-related insurance required for Design-Build professional services.	1	LS	

B-Construction

CONSTRUCTION				
Item	**Description**	**Qty**	**Unit**	**Amount ($)**
1	Mobilization and remobilization for construction, including all required startup and close-out activities (limited to 5% of total cost, if applicable)	1	LS	
2	Temporary facilities, field office, sanitation, temporary utilities, storage, communications, logistics, staging, temporary controls, fencing, barriers, field support, and removal of temporary facilities at close-out.	1	LS	
3	Project management, construction supervision, coordination meetings, reporting, cost control, budget and cash-flow management, schedule control, document control, risk management, stakeholder coordination, and project execution planning	1	LS	
4	Operational continuity and infection-control measures, including work zones, temporary partitions and barriers, patient and staff circulation, emergency and trauma access, critical-care and sterile-workflow protection, utility shutdown coordination, pressure controls, dust mitigation, and coordination with ASEM operations	1	LS	

Exhibit 18: Cost Breakdown

CONSTRUCTION				
Item	**Description**	**Qty**	**Unit**	**Amount ($)**
5	Quality control and compliance management, including the Quality Control and Compliance Manager, written procedures, inspection and testing plans, laboratory testing, mockups, documentation, corrective actions, and coordination of regulatory inspections	1	LS	
6	Safety management and Safety Officer services, including daily and weekly inspections, toolbox talks, training, high-risk-work permits, incident and near-miss management, emergency preparedness, subcontractor compliance, safety logs, monthly reports, and applicable OSHA, PROSHA, EPA, and local-code compliance	1	LS	
7	Submittals, requests for information, shop drawings, material samples, and submittal log management	1	LS	
8	Project scheduling, including maintained critical-path-method schedule, design, permit, construction, commissioning and turnover milestones, monthly updates, schedule narratives, cash flow and S-curves, risk analysis, long-lead procurement, correction plans, and final turnover milestone	1	LS	
9	Construction and demolition waste management, including a compliant Waste Management Plan, daily cleanup, debris containers, disposal tickets, recycling and salvage, tracking of at least five diversion materials, and diversion of at least 75% of construction and demolition waste by weight	1	LS	
10	MOT, pedestrian and temporary access, emergency-access protection, advance closure notifications, traffic notices, sequencing controls, and coordination with ASEM and Medical Center users	1	LS	
11	Erosion and sediment control plan design and implementation, stormwater controls, inspections, corrective measures, documentation, and related permitting support	1	LS	
12	Utility connections and interruptions, including PREPA or LUMA Energy, PRASA, telecommunications and other utilities, temporary and permanent tie-ins, shutdown planning, approvals, testing, and applicable fees	1	LS	

Exhibit 18: Cost Breakdown

CONSTRUCTION				
Item	**Description**	**Qty**	**Unit**	**Amount ($)**
13	Existing conditions, demolition, removals, excavation, trenching, drilling and below-grade disturbance, including documented subsurface investigation before work, shoring, excavation support, dewatering, monitoring, and coordination of findings with the Building Information Modeling model and construction plans	1	LS	
14	Site work, excavation, backfill, grading, drainage, paving, sidewalks, curbs, landscaping, fencing, roads, site utilities, restoration, campus interfaces, and environmental or archaeological protection measures required by the approved design	1	LS	
15	Concrete work, including foundations, footings, mat and basement slabs, basement walls, structural frames, slabs, columns, shear walls, roof structure, and helipad or heliport structural support	1	LS	
16	Masonry, concrete masonry unit walls, shafts, and fire-rated separations throughout the building	1	LS	
17	Metals, embeds, stairs, railings, roof and equipment support, helipad metals, and miscellaneous supports	1	LS	
18	Wood, plastics, and composites, including backing, blocking, millwork support, and related work	1	LS	
19	Thermal and moisture protection, including below-grade waterproofing, roofing, insulation, firestopping, vapor barriers, drainage, joints, and complete building-enclosure work	1	LS	
20	Doors, windows, openings, and hardware throughout the complete facility	1	LS	
21	Finishes, partitions, ceilings, flooring, wall protection, coatings, and clinical finishes throughout the complete facility	1	LS	
22	Specialties, signage, wayfinding, project signage, life-safety accessories, and related accessories throughout the complete facility	1	LS	
23	Medical and general equipment interfaces, fixed-equipment supports, clinical-support infrastructure, medical-equipment clearances, utility and mechanical, electrical and plumbing tie-ins, and Owner-furnished contractor-installed equipment coordination and verification	1	LS	

Exhibit 18: Cost Breakdown

CONSTRUCTION				
Item	**Description**	**Qty**	**Unit**	**Amount ($)**
24	Furnishings, furniture, fixtures and equipment, fixed casework, nurse stations, built-ins, and related infrastructure to the extent required by the Contract Documents	1	LS	
25	Special construction, including seismic-isolation systems and interfaces, joint coordination and covers, flexible mechanical, electrical, and plumbing crossings, and helipad or heliport systems	1	LS	
26	Conveying systems, including elevators and vertical transportation, work for the complete building and helipad interface	1	LS	
27	Heating, ventilation, and air-conditioning systems, including central-plant interfaces, air-handling units, chillers, boilers, variable-air-volume boxes, critical ventilation, pressure control for clinical spaces, controls, smoke control, testing, adjusting and balancing, start-up, and functional testing	1	LS	
28	Plumbing systems, including domestic hot and cold water, sanitary, stormwater, pumps, water heaters, specialty systems, backflow prevention, insulation, testing, certification, and complete distribution throughout the facility	1	LS	
29	Medical-gas systems, including sources, distribution, outlets, valves, alarms, testing, certifications, operating documentation, and staff training	1	LS	
30	Fire-suppression systems, including fire pumps, sprinklers, standpipes, helipad or heliport support, interfaces, testing, certification, and authority acceptance	1	LS	
31	Electrical power and lighting, including service entrance, normal and emergency distribution, grounding, panels, lighting, controls, sensors, emergency branches, testing, labeling, and thermographic scanning when required.	1	LS	
32	Electrical substations and emergency-power systems, including switchgear, generators, automatic transfer switches, uninterruptible power supplies, critical power, load-bank testing, and integrated systems testing	1	LS	

Exhibit 18: Cost Breakdown

CONSTRUCTION				
Item	**Description**	**Qty**	**Unit**	**Amount ($)**
33	Fire-alarm and life-safety systems, including smoke-control interfaces, alarms, controls, programming, testing, certification, and authority acceptance	1	LS	
34	Nurse-call and patient and staff communication systems, including complete infrastructure, programming, testing, integration, training, and turnover	1	LS	
35	Telecommunications, data networks, information technology, security, closed-circuit television, access control, door card readers, disaster monitoring, structured cabling, system programming, testing, credentials, passwords, configuration data, and turnover, coordinated with ASEM's information technology requirements	1	LS	
36	Building Automation System and Energy Management System, including controls, sensors, actuators, sequences, alarms, interlocks, dashboards, trend logs, system integration, testing, configuration records, and ASEM operations training	1	LS	
37	Complete commissioning for heating, ventilation and air conditioning, electrical, plumbing, fire protection, medical gas, low-voltage, Building Automation System, life-safety and other required systems, including commissioning plan and schedule, prefunctional checklists, startup, functional performance testing, integrated systems testing, calibration, balancing, deficiency resolution, retesting, reports, and final acceptance documentation	1	LS	
38	Building Information Modeling implementation during construction and close-out, including model coordination, clash detection, issue tracking, constructability and logistics review, installed-condition updates, record model, native and interoperable file delivery, and structured asset data	1	LS	
39	Training and operational transition for ASEM staff, including heating, ventilation and air conditioning and Building Automation System operations, medical gas, emergency power, nurse call, security, access control, information technology,	1	LS	

Exhibit 18: Cost Breakdown

CONSTRUCTION				
Item	**Description**	**Qty**	**Unit**	**Amount ($)**
	fire alarm, emergency procedures, manuals, videos, certifications, keys, access cards, credentials, passwords, and configuration data			
40	Project close-out and turnover, including punch lists, final inspections, final permits and certificates, regulatory approvals, as-built and record-set drawings, redlines, record Building Information Modeling model, final specifications, operations and maintenance manuals, warranties, commissioning records, environmental and infection-control close-out, safety reports, lien waivers, affidavits, final cleaning and restoration, final walk-through, and complete digital and printed close-out package	1	LS	
41	If applicable, other item contemplated in the Attachment 1 (SOW) and RFP Documents, which has not been previously identified or described in the items included in this project (construction) cost breakdown (explain):	1	LS	
42	Bonds, insurances, overhead/profit, fees, freight and logistics, refunds, travel, additional benefits, taxes, as well as any other additional expenses and administrative costs applicable to the project	1	LS	

Exhibit 18: Cost Breakdown

C- Alternate

ALTERNATE				
Item	**Description**	**Qty**	**Unit**	**Amount ($)**
1	Design-Build of the Water Storage Reservoir	1	LS	

D- ALLOWANCES

ALLOWANCES				
Item	**Description**	**Qty**	**Unit**	**Amount ($)**
1	Supply and Install Hospitaller and Medical Equipment for Puerto Rico's New Trauma Hospital	1	LS	$25,000,000.00
2	Supply and Install the Furniture, Fixtures and Equipment (FF&E) for Design-Build for Puerto Rico's New Trauma Hospital	1	LS	$4,500,000.00
3	Contingency	1	LS	$10,300,000.00

CERTIFICATION

I, _____, hereby AFFIRM AND CERTIFY that I am authorized to sign this proposal, and that my name and signature are duly registered in the Single Registry of Bidders (RUL, for Spanish acronym) of the Puerto Rico's General Services Administration (ASG, for Spanish acronym) or will be registered within five (5) business days from the Proposals Opening. Furthermore, I CERTIFY that I RECOGNIZE AND ACCEPT the statements detailed above, as well as my obligation to comply with all requirements, specifications, terms, and conditions during the RFP process, and during the term of the contract that may be awarded.

This document is intended as a guide for the Bid Board or Evaluation Committee for the evaluation of the cost analysis of proposals, in compliance with the requirements of 2 CFR 200.324. To this end, it is the Proposer's responsibility to study and analyze the information

contained in the scope of work, drawings, specifications, terms, and other documents that are an integral part of the RFP process, ensuring that the information contained therein is included in the prices of their proposal. It is the Proposer's responsibility to verify the itemized details and report any discrepancies before submitting their proposal.

In witness thereof, the Proposer has executed this Cost Breakdown Form this _____ day of _____, 20_____.

If Entity is an individual:

_____
(Signature of Individual)

_____
(Printed Name and Title of Individual)

_____
(Address Line 1)

_____
(Address Line 2)

_____ _____ _____
(City) *(State)* *(Zip Code)*

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Exhibit 18: Cost Breakdown

If Entity is a sole partnership or operates under a trade name:

_____
(Printed Name of Firm)

By: _____
(Authorized Representative's Signature)

_____
(Printed Name and Title of Authorized Representative)

_____
(Address Line 1)

_____
(Address Line 2)

_____ _____ _____
(City) *(State)* *(Zip Code)*

If Entity is a partnership or joint venture:

_____
(Printed Name of Partnership or Joint Venture)

By: _____
(Signature of General Partner)

_____
(Printed Name and Title of General Partner)

_____
(Address Line 1)

_____
(Address Line 2)

_____ _____ _____
(City) *(State)* *(Zip Code)*

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Exhibit 18: Cost Breakdown

If Entity is a corporation:

_____
(Printed Name of Corporation)

_____
(Corporate Address Line 1)

_____
(Corporate Address Line 2)

_____ _____ _____
(City) *(State)* *(Zip Code)*

By: _____
(Signature of Officer)

_____
(Printed Name and Title of Officer)

_____
(Title of Officer)

Attest: _____
(Secretary)

[CORPORATE SEAL]

_____
(Jurisdiction of Incorporation)

END OF EXHIBIT 18

Exhibit 19: Bid Bond

BE KNOWN IT, BY THESE PRESENTS:

That we, as Principal, and _____ as Surety (collectively with the Principal, the "Obligors"), are held and firmly bound unto the Puerto Rico Medical Services (ASEM), a governmental instrumentality of the Government of Puerto Rico, its successors and assigns, as Obligee, in the full and just amount of _____ equal to **5% of the Cost Proposal (Base Bid + Allowances + Alternate)** for the payment in lawful money of the United States, of which sum well and truly to be made, the Obligors bind ourselves, our heirs, administrators, and successors, jointly and severally, firmly by these presents.

WHEREAS, the Proposer has submitted the accompanying Proposal dated _____ for **Design Build of Puerto Rico's New Trauma Hospital** under the procurement process (27DJ-00415).

NOW, THEREFORE, the conditions of this obligation are such that if the aforesaid Principal is awarded the contract and, the said Principal, within the time required enters into a formal contract and secures the performance of the terms and conditions of the contract, then this obligation will be void. If otherwise, the Principal withdraws his Proposal or fails to enter into a formal contract after award, the Principal and Surety will pay unto the Obligee the difference in money between the amount of the Proposal of the said Principal and the amount for which the Obligee legally contracts with another party to perform the work if the latter amount be in excess of the former, but in no event shall liability hereunder

exceed the penal sum hereof. These conditions shall remain in full force and effect for a period of ninety (90) days after the Proposal Due Date.

IN WITNESS WHEREOF, the above-bound parties have executed this instrument under their several seals this _____ day of _____, the name and corporate seal of each corporation party being hereto affixed and these presents duly signed by the undersigned representative pursuant to authority of its governing body.

Attest: _____

Principal: _____
(Proposer Name)

By: _____
(Signature of Proposer's Authorized Representative)

[CORPORATE SEAL]

_____
(Printed Name and Title of Proposer's Authorized Representative)

_____
(Title of Proposer's Authorized Representative)

Surety: _____
(Name of Surety)

By: _____
(Signature of Surety's Authorized Representative)

[SURETY'S SEAL]

_____
(Name of Surety's Authorized Representative)

_____
(Title of Surety's Authorized Representative)

END OF EXHIBIT 19

Exhibit 20: Acknowledgement of Surety

STATE OF _____ OF _____

On this _____ day of _____, _____, before me, the subscriber, a Notary Public of the city of _____, _____, duly commissioned and qualified came _____ as attorney in fact of the _____ to me personally known to be the officer who executed the preceding instruments, and he acknowledges execution of the same, and being by me duly sworn, deposed, and said, that he is that said officer of the company aforesaid, and that his signature as such officer was duly affixed and subscribed to said instrument by authority and direction of the said Company given in the Power of Attorney* executed by said company on the _____ day of _____, _____, the original of which is on file in the Office of the Superintendent of Insurance of Puerto Rico.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal, at the city of _____, Puerto Rico the day and year first above written.

_____
(NOTARY PUBLIC)

END OF EXHIBIT 20

Attachment 1: Scope of Works

I. PROJECT DESCRIPTION

Project: Design-Build of Puerto Rico's New Trauma Hospital

Location: Medical Center, La Plazoleta, Pedro Arzuaga at coordinates 18.39529234, -66.07379206

Owner: Puerto Rico Medical Services Administration (ASEM)

Proposer: Any entity submitting a proposal in response to this RFP

Description: The project will consist of developing the new ASEM Trauma Hospital of Puerto Rico on the campus of the Puerto Rico Medical Center. The Contractor ("Design-Builder") will be responsible for developing, coordinating, and delivering the complete project design in accordance with the functional, regulatory, and performance requirements established by the ASEM.

This Scope of Work establishes the minimum design, construction, commissioning, permitting, quality, safety, BIM, and close-out requirements for delivery of Puerto Rico's New Trauma Hospital under a Design-Build model. The Design-Builder shall serve as the single point of responsibility for integrated delivery of the Project, including all professional design services, construction execution, regulatory compliance, coordination among disciplines and trades, and final operational readiness for ASEM's acceptance.

The Design-Builder shall provide all labor, materials, equipment, supervision, management personnel, professional services, technical services, permits, testing, commissioning, documentation, training, and incidentals necessary to deliver a complete and operational Level I Trauma Center. The Design-Builder shall be responsible for all work reasonably inferable from the Contract Documents and necessary to provide a complete, functional, code-compliant, and operational facility, whether specifically identified or not. Any scope not expressly excluded in the Proposal shall be deemed included in the Contract Price.

II. DESIGN

This section of the Scope of Work is intended as a guide for the Designer and their team to help them understand their overall responsibilities. It does not attempt to identify every activity required during the design phase.

a. Description

The Designer will evaluate the project area by conducting all the necessary tests, studies, and analyses to continue with the development of the design that contemplates the construction of Puerto Rico's New Trauma Hospital.

b. Bridging Documents

The Designer will develop a design in accordance with the Scope of Works and Bridging Documents (Attachment A, B and C), Geotechnical Report, SARPS's Recommendations (Attachment D), Owner's Requirements (Attachment E). Hospitaller and Medical Equipment (Attachment F), and Utilities Plans (Attachment G).

The Design-Builder shall incorporate the Bridging Documents into the final design development process and shall preserve the approved architectural concept, clinical intent, patient flow, space relationships, and project objectives to the maximum extent practicable. The Design-Builder may review, interpret, modify, revise, adjust, supplement, expand, or replace portions of the conceptual design as necessary to comply with applicable laws and regulations, meet permitting requirements, resolve conflicts, address constructability, meet budget and schedule requirements, coordinate building systems, and achieve Project performance requirements. Changes that materially alter the architectural concept, building configuration, clinical workflow, functional program, or project objectives shall require prior written review and approval by ASEM. Upon award, the Design-Builder assumes full responsibility for the final design, and the original designer shall not be liable for revisions, alterations, value engineering decisions, coordination efforts, or other changes made by the Design-Builder after transfer of the Bridging Documents.

c. Hazardous Content Identification

The Designer will carry out the process of identifying hazardous materials. To do so, they must document the process, findings, and mitigation recommendations. This information will form the basis of the "Hazardous

Materials Inspection Report," which will identify the components that will be affected by the construction and demolition activities and where mitigation of these materials is required, based on their identification. The Designer must provide the ASEM's authorized representative with two (2) copies of the "Hazardous Materials Inspection Report."

If mitigation of hazardous materials is required, according to applicable laws and regulations, the Designer will develop a Work Plan for the mitigation of these materials, in accordance with applicable laws, manuals, codes, and regulations. This Work Plan will be an integral part of the design.

If the inspection and analysis of samples yield negative results, the Designer will submit a negative certification for each hazardous material, issued by a duly certified professional in Puerto Rico.

All costs associated with management, coordination, observation, inspection, sampling, analysis, reporting, certification, and development of the Work Plan shall be included in the Design-Builder's proposal and shall not constitute a basis for additional compensation.

d. Cost Estimate

The Contractor shall provide a cost estimate breakdown by architectural and engineering disciplines, and shall separately calculate the costs of materials, equipment and labor, corresponding to direct construction costs, soft costs and administrative costs, including inflation and contingency adjustments.

The Contractor is responsible for submitting a Cost Estimate for each phase of the design. This estimate must include detailed line items and a narrative for each cost item.

The cost estimate must always be accompanied by a narrative that identifies the source and explains the method applied for the cost analysis, which will be dated, along with the name and signature of the professional who prepared the cost estimate, indicating the corresponding design phase.

The Contractor will submit two (2) originals and two (2) copies of the Cost Estimate for each phase, as required and without exceeding the budget allocated for the design and construction of Puerto Rico's New Trauma Hospital.

e. Design Work Schedule and Proposed Construction Schedule

The Design-Builder shall prepare and maintain a work schedule for design development. Design and construction activities shall be performed within the timeframe and dates established in the Notice to Proceed issued by ASEM. The Design-Builder shall update the work schedule approved by ASEM's authorized representative and distribute it at the initial design meeting. The schedule shall be provided in hard copy and in digital formats compatible with Microsoft Project and PDF. It shall identify all project activities and include the start and finish dates for each activity. The Designer and Project Team shall use the schedule to monitor compliance with all design milestones. The Design-Builder shall update the schedule at each design phase, submit periodic performance reports, and obtain review and approval from ASEM's authorized representative. Any deviation from the approved design schedule shall be explained in detail, including the cause, schedule impact, and corrective actions required to maintain the approved delivery dates.

The Design-Builder shall also prepare a work schedule for all construction-phase activities.

The Design-Builder shall provide and maintain a CPM schedule identifying the critical path, design milestones, ASEM review periods of at least 30 days per milestone, permit milestones, construction milestones, commissioning milestones, monthly updates, risk analysis, schedule narrative, and final turnover milestones. Schedule delays or impacts arising from design deficiencies, coordination issues, procurement choices, construction inefficiencies, or failure to maintain required operational continuity shall be the responsibility of the Design-Builder unless otherwise approved by ASEM.

The design documents should identify the requirements and conditions governing construction activities to minimize disruption to operations near the project area. The Design-Builder shall develop a phased construction schedule showing material delivery dates, long-lead items, and the sequence of work.

The Design-Builder shall submit a detailed Operational Continuity Plan and Construction Phasing Plan to ensure that the Medical Center remains fully operational throughout construction. Under no circumstances shall construction activities impede emergency vehicle access, trauma response routes, sterile workflows, clinical operations, or critical care functions. The plans shall address work zones, temporary barriers, patient and staff circulation, temporary facilities, utility shutdowns, phasing

sequence, infection control measures, and coordination with ASEM operations.

The design documents shall include a specific work sequence coordinated with the Project Team and shall address applicable requirements, including safety, pedestrian and vehicular traffic flow, weather-related considerations, and closure procedures.

The design documents shall also identify all special coordination required for utility connections, utility interruptions, and project-related closures.

f. Submittal Log

The Contractor shall include a Submittal Log in the design documents identifying the applicable general conditions, specification section number and title, and required submittal type, including material data, product data, test results, calculations, and similar documentation. The Submittal Log shall compile the project's required submittals and serve as a construction-phase reference tool.

The Submittal Log shall be provided to the Design Builder before the pre-construction meeting. Submission deadlines shall be established and approved by the affected parties during that meeting.

g. Technical Specifications

The Contractor shall provide technical specifications in accordance with the Construction Specifications Institute Master Format standard for each discipline.

The technical specifications shall be certified (signed and sealed) by the professional in all updates, as applicable.

The content of the technical specifications includes, but is not limited to:

a. Cover page containing the seal and signature of the professional, as applicable to the discipline, and the name and address of the Designer;

b. Table of contents;

c. Individual sections on each piece of equipment, product, material, and system;

d. Identification of equipment, material, and product data;

e. Installation instructions;

f. Operating instructions;

g. Maintenance instructions; and

h. Warranty terms and details;

h. Design Calculation and Analysis Booklet

The Contractor shall provide a bill of quantities for each discipline (architecture and engineering) and update it at each phase of the design, as applicable.

a. Civil: Site description and analysis, including geotechnical properties, building layout and other infrastructure (e.g., roads, access roads, and fences), design references, including codes, regulations, design guidelines, publications, etc., site utility systems, including potable water, sewer system, stormwater drainage system, natural gas, electricity, fire protection systems, mechanical systems, telecommunications, etc., and a site inspection report.

b. Architectural: Architectural design, revise building space layout and functional analysis (Functional Area Matrix), revise architectural space calculations, revise safety code analysis, hazard narrative, and design strategy based on the findings of an ASEM (Assessment of Hazards and Evidence) providing hazard and risk analysis.

c. Landscape: Preliminary landscape design, preliminary planting plans, and planting sizes and quantities.

d. Structural: Analysis of the structural design, including but not limited to design references, including codes, regulations, design guides, publications, and load analyses and calculations.

e. Mechanical: Analysis of the mechanical design, including but not limited to design references, including codes, regulations, design guides, publications, design data and calculations used to determine the overall heat transmission coefficients for building elements and roofs, load calculations, ventilation and extraction requirements, including indoor air quality calculations, plumbing fixtures (hot water, cold water, and sewage), roof drainage calculations, etc.

f. Electrical: Analysis of electrical design, design of security systems for access control infrastructure, alarms, and CCTV as needed,

telecommunications infrastructure, and data networks, including but not limited to: design references, including codes, regulations, design guides, and publications; risk analysis of building lighting protection; preliminary load calculations and code analysis; sizing of emergency power generators; building lighting calculations; conduit and cable types; and equipment manufacturer data. g. Fire Prevention System: Analysis of the fire prevention system design, including but not limited to design references, including codes, regulations, design guides, publications, analyses, and calculations

i. General Design Requirements

1. The funds allocated for the construction project come from a grant awarded to ASEM by CDBG-MIT under its Infrastructure and Healthcare Set-Aside Program. Therefore, the Contractor must incorporate into the design all applicable federal and state regulations regarding construction projects, including but not limited to: the Davis-Bacon and Related Acts, the American Disability Act (ADA), the Architectural Barrier Act (ABA), the Energy Conservation Act, the Clean Air Act, the Federal Water Pollution Control Act, the Clean Water Act, and the regulations of the Environmental Protection Agency (EPA) and the State Historic Preservation Office (SHPO), among other provisions.

2. The Design-Builder acknowledges that no choice-limiting action prohibited by 24 CFR §58.22 may occur prior to environmental clearance and issuance of the Authority to Use Grant Funds (AUGF). Although AUGF is expected to be issued before execution of the contract resulting from this RFP, if AUGF has not been approved at the time of contract execution, the Design-Builder shall not initiate, undertake, authorize, or commit HUD or non-HUD funds to any activity that would constitute a choice-limiting action under 24 CFR §58.22, including any activity that may have an adverse environmental impact or limit the choice of reasonable alternatives, until HUD or the State has approved the applicable Request for Release of Funds and certification and AUGF has been issued. No commitment of HUD funds shall occur before environmental clearance authorization.

3. The Design-Builder shall be responsible for identifying whether any Design-Builder-initiated change, design modification, construction means or methods, field condition, permitting requirement, or other project development creates. requiring environmental reevaluation or revision to the Environmental Review Record (ERR) or Authority to

Use Grant Funds (after AUGF). If issuance, ASEM shall determine whether reevaluation or revision is required, and the Design-Builder shall prepare the reevaluation documentation, make all required revisions or additions to the ERR, provide all supporting studies, technical analyses, maps, drawings, certifications, and documentation necessary to support the reevaluation, and coordinate with ASEM and PRDOH for review, submittal, and approval of any reevaluation or revision to the ERR and/or AUGF. The Design-Builder shall not proceed with any activity affected by the reevaluation, including any activity that may constitute a choice-limiting action under 24 CFR §58.22, until the required reevaluation or revision has been reviewed and approved by the appropriate authority and any required revised AUGF or environmental clearance authorization has been issued. All costs, schedule impacts, technical support, and design or construction required for such reevaluation. Design modifications resulting from Design-Builder-initiated changes or conditions requiring reevaluation shall be the responsibility of the Design-Builder and shall be performed at no additional cost unless otherwise approved in writing by ASEM.

4. The Design must include all Architectural, Civil, Structural, Mechanical, Electrical, Plumbing, Life Safety, FF&E design, drawings and specifications as well as any other required for a fully operational and fully permissible building.

5. It shall be the Contractor's responsibility to provide, as part of the design, the artwork for the project sign, as required by the Joint Permit Regulations, and the sign itself, as required by the Signage Manual in effect at the time of the final design submission, including signs required by OSHA, among others.

6. All plans, technical specifications, cost estimates, reports, computer logs, endorsement requests and permits, and proposed work schedules for the project shall be duly certified and signed by the authorized professional in accordance with their profession or specialty.

7. As part of the content of the plans, the Contractor shall clearly and precisely identify the vegetation area, pavement, traffic, emergency zones, areas affected by changes in ground level, and infrastructure of the areas located within a 20-foot radius following the boundary of the project development area, according to the design.

8. The Designer shall make all necessary corrections at no cost to ASEM when their design documents (plans, specifications, or other elements) contain errors, deficiencies, or shortcomings. It is understood that the Designer shall, without additional compensation, correct or revise any errors or deficiencies in their designs, plans, specifications, and other related services.

9. The Designer's services must be reasonably accurate and free from material errors or omissions.

10. ASEM will review the Designer's documentation at the end of each design phase. ASEM's comments or decisions regarding the documentation review will be communicated to the Designer as soon as possible. ASEM will notify the Designer in writing of any errors, omissions, or other material defects in the design, or any conflicts in the contractual documentation of which it becomes aware but will not be obligated to investigate whether such errors, defects, or conflicts exist.

11. ASEM's authorized representative will review each error or omission with the Designer and determine the actual amount of damage, if any, resulting from each negligent act, error, or omission.

12. The Design-Builder shall comply with the intellectual property ownership, use, delivery, and indemnification requirements established by the ASEM.

13. The term Intellectual Property refers to all proprietary and other rights in: (i) trademarks, service marks, registered trademarks, certification marks, trade dress, trade names, business names, and other indications of origin; (ii) patents, inventors' certificates, and disclosures of inventions; (iii) trade secrets and other non-public or confidential business information, including ideas, formulas, compositions, inventions, discoveries and improvements, know-how, manufacturing and production processes and techniques, and research and development information (patentable or not); drawings, specifications, designs, plans, proposals, and technical data; and financial information, pricing and cost information, business and marketing plans, and customer and supplier information and lists; (iv) writings and other works of authorship, whether or not protectable by copyright, including computer programs, databases, and related documentation, and all copyrights in any of the foregoing; (v) job identification masks; (vi) rights, titles, and interests in and to technical know-how, technical

information, processes, practices, and systems, whether or not protected by patents, copyrights, or trade secret laws; (vii) moral rights; (viii) rights to limit the use or disclosure of Confidential Information by any person; (ix) any intellectual property or similar proprietary rights, tangible or intangible, information, and technology; (x) registrations and applications for registration of any of the foregoing with any governmental agency or authority, as well as any renewals or extensions thereof; (xi) the goodwill associated with each of the foregoing; and (xii) any claim or cause of action arising from any infringement or misappropriation of any of the foregoing.

14. The Design-Builder acknowledges that all documents, writings, recommendations, and/or reports produced as part of the contract are to be awarded as a result of this Request for Proposals process will be the exclusive intellectual property of ASEM. All materials, products, documents, or information, as well as applications, programming, and/or any other products developed and/or derived from the contracted services, will be the property of ASEM. It is expressly agreed that all property, code, source code, research, studies, designs, photographs, and/or material created and/or recognized as intellectual property under the laws of the United States of America and Puerto Rico, regardless of the medium in which it is presented, will become the property of ASEM, which is authorized to reproduce it without being obligated to pay the Designer any additional compensation for such production and/or rights thereto, beyond the compensation stipulated in the contract.

15. All products and/or results of services provided (the "Work") as a result of this Request for Proposals process will be for the exclusive benefit of ASEM. The Design-Builder acknowledges and agrees that the work (and all rights therein, including, but not limited to, copyrights, patents, intellectual property rights, and trademarks) shall be the exclusive and perpetual property of ASEM. Notwithstanding the foregoing, the Design-Builder also assigns and transfers to ASEM all rights, titles, and interests in and to the copyrights, trademarks, patents, and intellectual property rights in the work; all copyright registrations and applications relating thereto, as well as all renewals and extensions thereof; and all works based upon, derived from, or incorporating the work. All present and future income, royalties, damages, claims, and payments related thereto, as well as all legal actions, both at law and in equity, for past, present, and future damages, including, but not limited to, future damages related to intellectual property; and all rights in and to the

design worldwide. The Design-Builder undertakes to take all necessary steps to ensure that ASEM and/or its authorized representative retain the rights assigned, as set forth.

16. The Design-Builder shall deliver and return to ASEM all documents, files, reports, materials, programs, and/or applications ("the Materials") delivered, produced, and/or in their possession as a result of the contractual relationship with ASEM, as soon as their tasks are completed, when required, and/or upon termination of the contractual relationship, as applicable in each case. ASEM shall have the right to unrestricted and unlimited use of such Materials. If the contract is terminated and/or rescinded before the expiration date stipulated therein, the delivery of the materials shall be made immediately upon such notification and within a maximum period of fifteen (15) days from the date of notification.

17. The Designer shall be responsible for the professional quality, technical accuracy, and coordination of all designs, drawings, specifications, and other services provided by the Designer. In this regard,

    a. Neither the ASEM's review, approval, or acceptance, nor payment by ASEM for services rendered under this contract, shall be construed as a waiver of any right or cause of action arising from the performance of the contract, and the Contractor shall be and shall remain liable to the ASEM under applicable law for all damages to the ASEM caused by the Contractor's negligent performance of any of the services rendered under this contract.

    b. The Government's rights and remedies provided in this contract are in addition to any other rights and remedies provided by law.

13. The Design-Builder will deliver to the ASEM's Project Team the design drawings, technical specifications, BIM models, BIM-related files, coordination reports, clash detection reports, model review comments, model issue logs, model exports, structured asset data, and all supplementary information required for the Scope of Work. The drawings will be delivered in two (2) sets of printed sheets, 24" x 36", and digitally in the file formats ".dwg" (native file format for AutoCAD) and ".pdf" (Adobe Portable Document Format). BIM deliverables shall be provided in native model formats, federated coordination model formats, and nonproprietary/interoperable exchange formats as required by ASEM, together with all related

reports, schedules, logs, and supporting documentation necessary to review, coordinate, approve, operate, and maintain the Project. The specifications, calculation books, reports, BIM-related reports, coordination documentation, and results will be delivered in one (1) original and one (1) copy, 8-1/2" x 11", and digitally in the file formats ".doc" (native file format for Word), ".pdf" (Adobe Portable Document Format), and other electronic formats required by ASEM for BIM files, models, and related project data.

14. For the corresponding approval, the Design-Builder will submit to ASEM's authorized representative complete documents, as required at each phase of the design. Failure to submit all documents will result in the design being considered incomplete, and payment for services rendered will not be processed until all documents are submitted.

15. The Designer will provide all labor, equipment, and materials necessary for the development and delivery of the design in accordance with applicable laws, codes, guidelines, manuals, and regulations.

16. Architectural, Logistics and Biomedical Program

    a. Two (2) Hybrid Operating Rooms: the First-Floor design (Sheet A-1.2) shall mandatorily incorporate two (2) contiguous Hybrid Operating Rooms, each with a minimum clear area of 650 to 800 sq. ft., sharing a single Centralized Technical Control Room (150–200 sq. ft.). Both rooms shall include perimeter lead radiological shielding (1/16" to 1/8") and structurally reinforced slab beams capable of supporting CT scanners or robotic arms weighing up to 3 tons.

    b. Strategic Third-Floor Connection: an elevated physical connector door and bridge-type corridor shall be designed on the Third Level (Sheet A-1.4) to directly and quickly link the new trauma tower with the ASEM Central Building (Buildings A1/A9), providing exclusive access to the Blood Bank and the Central Clinical Laboratories.

    c. Trauma Elevators with Priority Access Control: the elevators assigned to the vertical route from the rooftop Helipad to the operating rooms shall be equipped with restricted access-control systems using a card reader and a medical override key (Trauma Override Key). Its activation shall instantly

cancel ordinary calls and initiate a direct express trip for critical patients.

d. Medical Reconversion of the Cafeteria (Basement): the walls of the cafeteria located in the basement (Sheet A-1.1) shall include concealed, flush-mounted medical oxygen, medical air, and vacuum outlets, protected by independent zone valve boxes, to enable the immediate reconversion of the space into a mass triage and stabilization area during extreme emergencies.

17. In terms of utilities, a backup design with N+1 redundancy will be required for the electrical system, which must include, in an integrated manner: the direct line from substation 1359, the microgrid network, and the hospital's internal generators.

18. Electrical Infrastructure and Hybrid Redundancy (N+1)

The hospital's electrical design must include a redundant hybrid configuration comprised of:

a. A new dedicated 38 kV to 13.2 kV / 480V substation of the isolated type, independent from the campus's ordinary grid.

b. A secondary underground service feed automatically connected to Medical Center Substation 1359 by means of a medium-voltage automatic transfer switch (ATS).

c. A microgrid with a large-scale Battery Energy Storage System (BESS) functioning as a centralized UPS with zero (0) millisecond response time to stabilize power and back up life-safety loads. (Verify facilities – Micro Grid Project Assessment – Municipality of San Juan).

d. A plant of paralleled internal emergency generators (minimum of three 2,000 kW units at 480V) installed within a Category 5 hurricane-rated building per the site plan, equipped with a double-wall underground diesel tank providing minimum autonomy of 96 hours of continuous operation.

The main MCC located in the basement shall include reserve physical cells equipped with molded-case circuit breakers (MCCB) and quick-connect Cam-Lok type terminals (suggested), dedicated to the safe

interconnection of portable chillers or rental emergency generators, in compliance with NEC Article 702.

19. The hospital's mechanical system must have the same level of backup and N+1 redundancy established for the electrical system.

20. HVAC and Critical Hygrothermal Control

    a. Air Handling Units (AHUs) dedicated exclusively to critical areas (Operating Rooms, the Intensive Care and Recovery Unit, and the Burn Unit) shall be manufactured with a dual internal coil design. The primary coil shall operate on the central Chilled Water system, and the secondary coil shall operate on an independent Direct Expansion (DX / refrigerant) system connected to wind-protected rooftop condensing units, configured to start automatically via the BMS in the event of a chilled-water supply failure.

    b. The HVAC system shall be sized to maintain (in both regular and DX emergency mode) a fixed temperature continuously and uninterruptedly between 65°F and 70°F, with relative humidity strictly controlled between 30% and 55% RH, mitigating condensation-related microbiological infection risk in accordance with ASHRAE 170.

    c. All AHU fan motors, hydraulic pumps, and compressors shall use Variable Frequency Drives (VFDs) controlled by static pressure, temperature, and humidity sensors and transmitters calibrated directly to the Building Management System (BMS).

    d. The main chilled-water loop in the basement shall include a high-pressure bypass "pot feeder" chemical feed system, appropriately sized for the system, for predictive anti-corrosion water treatment without system shutdowns.

    e. Installation of industrial piezoelectric accelerometers (vibration sensors) is mandatory on the motor housing and gearboxes of the rooftop cooling towers (Sheet A-1.12), connected to the BMS with automatic vibration trip switches to prevent structure-borne noise transmission to the ICU below.

21. Automated Pneumatic Tube Logistics (PTS)

a. Interconnected Pneumatic Network: the Contractor shall design and install a 6" nominal diameter High-Speed Computerized Pneumatic Tube System (PTS) network connecting the new hospital with the ASEM Central Building via the Third-Level bridge. The system shall guarantee a transit time of 30 to 45 seconds for biological samples, plasma, and medications.

b. Tracking Technology and Impact Control: sending and receiving stations shall include touchscreen interfaces, RFID tracking technology on hermetically sealed carriers, and VFD-controlled soft, air-cushion deceleration systems to prevent hemolysis of blood samples in the laboratories.

c. Quality Standard and Reference Brands: PTS engineering shall be based on medical-grade systems from Swisslog Healthcare, Pevco, or Bionuclear de Puerto Rico (Smart Tech Division – Sumetzberger System), or an exact technical equivalent approved by the Owner that demonstrates local, island-based technical support 24 hours a day, 7 days a week (24/7).

22. Flood Protection and Plumbing

a. Stormwater Backwater (Back Check) Valve: the hospital's main stormwater drainage system shall incorporate a stormwater backwater valve with a hinged flap and hermetic neoprene seal prior to discharge into the public street, installed within an exterior inspection manhole per the site plan (Sheet AS 1.1), to prevent surcharging of the external network from flooding the basement.

b. Basement Storm Sump Pit: construction is mandated of a waterproofed concrete sump pit within the basement foundation slab (Sheet A-1.1), equipped with a duplex (N+1) automatic-alternation submersible pump system (storm pumps) connected to the emergency electrical network and monitored by the BMS, to evacuate any flooding or groundwater infiltration toward the street.

c. Potable Water Cistern Capacity: the preliminary 60,000-gallon graphic configuration is rejected. The Proposer shall redesign the basement technical area to expand the potable water cisterns to a minimum capacity of 150,000 gallons, ensuring the consumption autonomy required for expanded operation during disasters.

23. Life-Safety and Monitoring Systems

    a. Critical 24/7 Utility Annunciator Panels: installation is required of visual and audible remote annunciator panels, in accordance with NFPA 99, flush-mounted in an operational area staffed 100% of the time – either the ICU Central Nursing Station (Second Floor) or the Disaster Control Center (Ninth Floor). This panel shall reflect, in real time and by means of audible alarms, the critical status of medical gases, generator diesel levels, BMS alarms, and substation status.

    b. Redundant Ring Fire Alarm Interconnection: the new trauma tower's Fire Alarm Control Panel (FACP) shall connect to the existing Central Building's panel by means of a redundant Class A / Style 7 certified fiber-optic ring network (NFPA 72), ensuring that both buildings communicate instantaneously, coordinate zoned voice-evacuation systems, and trigger automatic closure of fire doors in the interconnecting corridors.

24. As part of the design, a note will be included indicating that all materials, including fixtures, equipment, debris, trash and all waste generated as part of the development of the design and construction must be collected and deposited in garbage containers. Making your provision in compliance with the provisions of the corresponding laws and regulations; for what that the accumulation and storage of these outside the containers is not allowed. The frequency of removal debris will be identified in the design specification.

25. If a waste container is required, its location must be shown on the site plan in an area approved by the ASEM's Project Team in a fenced and enclosed construction area.

26. The Designer will identify all barriers and measures, as required, that will be implemented to protect equipment, materials, and personnel.

This is for the purpose of providing safety during all demolition, removal, and construction work, among others.

27. In cases where the Scope of Work and the applicable Design Code conflict, the Design Code shall prevail. In cases where the Design Code and Safety conflict, the Contractor shall immediately inform and consult with the ASEM's Project Manager and ASEM's authorized representative for guidance.

28. Regarding the documents that comprise each phase of the design, they must be clear, legible, and in the required format. In addition, (1) it must be ensured that the edges of the drawing sheets are uniform across all disciplines, (2) that the orientation of the structure is the same, (3) that all symbols and abbreviations are consistent in their use, and (4) that the text scales are the same.

    The documents must: (1) maintain a clear and easily understood structure, (2) establish cross-references, and (3) the sheets identified by discipline (mechanical, fire prevention, plumbing, electrical, civil, structural, among others) are consistent with the architectural drawings.

29. The Contractor shall be responsible for:

    a. Conducting a thorough review of all documents for each phase of the design process prior to their submission to ASEM. This review shall be the responsibility of the Contractor, who shall also be responsible for identifying and resolving any conflicts among the design documents;

    b. Ensuring that all disciplines comply with the required format and are coordinated with each other; and

    c. Ensuring that its consultants meet the requirements established by ASEM for the execution of the contracted service.

j. Design Phases

The purpose of this section is to establish the minimum deliverables required by the Design-Builder during all phases of the project design, ensuring that the technical information is sufficient, verifiable and compliant with ASEM requirements.

The design phase will include preliminary studies, conceptual development, architectural and engineering design, multidisciplinary coordination, production of final buildable drawings and specifications, and documentation required for permits.

i. Schematic Design

The design must include, among others, the following disciplines: architecture, landscape architecture, civil engineering (including geotechnical and structural engineering), fire protection systems, electrical engineering (including communications), and mechanical engineering. All documents submitted by the Contractor must be signed and stamped by the corresponding professional.

This phase will include, at a minimum, the following:

1. Project statement of understanding.
2. Site analysis, constraints, and opportunities. Initial studies (site, topography, surveying, etc.).
3. Spatial, functional, volume, and circulation diagrams.
4. Preliminary definition and integration of structural and MEP systems.
5. Report on compliance with applicable codes and regulations.
6. Project risk identification (Design-Build).
7. Meeting: After the presentation of the preliminary design package and once ASEM has completed its evaluation, a meeting will be held to discuss the documents corresponding to the preliminary phase.
8. Schedule: Submit an updated schedule of design services and the development of the construction project schedule.
9. Submittal Log: Provide a list of the materials and equipment required according to the design, based on the information established in the presented phase.
10. Cost Estimate: The Contractor must provide a cost estimate breakdown by discipline.

11. Report on studies and research

12. Technical Specifications: All specified products, materials, systems, and equipment will have a corresponding technical specification for the design.

13. Analysis and calculation book: The Contractor shall submit an analysis and calculation book considering each discipline, according to the content of the design.

14. Environmental Compliance: The Contractor shall be responsible for preparing, filing, and monitoring all documents required by the Puerto Rico Department of Natural Resources' Environmental Compliance process and any other applicable regulatory entities.

15. Drawings (floor plan, elevations and sections): The drawings must be sufficiently detailed and include all relevant information to adequately represent the basic design characteristics. Drawings for all disciplines at this stage shall emphasize the structural layout, as specified in the architectural design.

    a. Site plan includes the following:

        i. Property boundaries, streets, and general areas surrounding the site, including bodies of water, etc.;

        ii. Baseline and location of proposed facilities;

        iii. Levels of original and proposed finish within the construction area, either by point elevations or contour lines. However, there must be a sufficient number of contour intervals to adequately show the concept and extent of the proposed leveling for the project. Outside the construction area, sufficient data must be provided to show the general topography in relation to the proposed construction works;

        iv. Cut and fill profiles;

        v. Elevations of floor finishes;

        vi. Existing and proposed sites support elements, such as rigid and flexible pavement (i.e.,

sidewalks, parking, driveways including curbs, fences, etc.);

vii. Location of existing and proposed utility lines, including potable water, sanitary sewer, stormwater drainage, telecommunications, data, electricity, and connections to existing utility systems, etc.;

viii. Area reserved for construction (disturbance limits), proposed area for building expansion, including future proposed projects adjacent to the site, parking, etc.;

ix. Show the actual designed quantities of grading and seeding, paving and perimeter, utility extensions, roads, sidewalks, and curbs;

x. Location of historical, archaeological, or environmentally sensitive areas on and near the site that may be impacted as part of the construction project; and

xi. Existing access to and from the parcel that will be affected by the project and proposed access to and from the parcel that will be served by the project.

b. Floor plans, sections, and elevations, including:

i. Plan(s) with overall dimensions and dimensions of each area, showing the functional use of each;

ii. Built area;

iii. Schedule of finishes for the areas;

iv. Relationship between masses, heights, architectural treatment, and use of materials from at least two (2) viewpoints that provide as much information as possible about the proposed design;

v. Typical section(s) showing foundations, floor systems, construction elements, structural treatments, structural support, and roofing

system, including floor-to-ceiling heights and/or showing the roof structure and any height difference with respect to the floor level; and

vi. Any special features.

c. Building utility plan that includes the numbering of the spaces and their use, showing each utility and its connections through a diagram.

d. Ventilation system designed for the more efficient, effective, and consistent management of toxic or harmful gases that could affect human health and the environment.

e. Electrical lighting system, showing the number and type (program) of proposed lighting fixtures, and the locations of electrical/telephone/data outlets.

f. Interior design. The Interior Contractor must determine the desired finishing materials based on aesthetic qualities, durability, and maintenance. This must be clearly shown in plans, sections, finishes schedules, notes, 3D renderings, materials lists, and any other materials that illustrate the design intent.

ii. Design Development

The Designer will proceed with the design development, increasing the level of detail and information in the documents, once ASEM's approval is received. These documents will, in turn, incorporate ASEM's resolutions and decisions from schematic design.

The Designer develops the design with sufficient detail and information for the permitting process and technical coordination.

This phase will include, at a minimum, the following:

1. Meetings: After the presentation of the conceptual design package and once ASEM has completed its evaluation, a meeting will be held to discuss the documents corresponding to the delivery of the conceptual phase.

2. Schedules: Submit the updated design services schedule and the construction project schedule.

3. Submittal Log: Submit the updated list of materials and equipment required for the design, in accordance with the information established in the previous phase.

4. Technical Specifications: All specified products, materials, systems, and equipment shall have a corresponding technical specification for the design.

5. Cost Estimate: Submit an updated cost estimate breakdown by discipline.

6. Analysis and calculation book: Update the analysis and calculation book considering each discipline according to the design content.

7. Permits and Endorsements: The Contractor shall submit a pre-consultation request to the relevant agencies or entities. The Contractor shall also develop and submit the applicable endorsements and permits to all agencies or entities of the Government of Puerto Rico.

8. Drawings (advanced 30%-60%): includes but is not limited to location map, site plan, floor plan, elevation, sections, construction details, interior design, fire protection, building utility plan and other elements necessary to understand the project.

9. BIM models are coordinated at the Design Development level.

10. Complete structural and MEP criteria.

11. Regulatory compliance review

iii. Construction Documents

The Designer will develop the final design for the project which will incorporate ASEM's resolutions and decisions from Design Development.

The Designer is responsible for completing the design for construction and coordinating the phases of the work.

This phase will include, at a minimum, the following:

1. Meetings: After the presentation of the advanced design package and once ASEM has completed its evaluation, a meeting will be held to discuss the documents corresponding to the delivery of the advanced phase.

2. Schedules: Submit the updated design services schedule and the construction project schedule.

3. Submittal Log: Submit the updated list of materials and equipment required for the design, according to the information established in the submitted phase.

4. Technical Specifications: Provide the updated technical specifications for all products, materials, systems, and equipment specified in the design.

5. Cost Estimate: Submit the updated cost estimate breakdown by discipline.

6. Analysis and Calculation Book: Update the analysis and calculation book, considering each discipline, according to the design content.

7. Permits: Updated documents for final permits. The Contractor must prepare and submit the application for the Construction Permit to the OGPe.

8. Drawings: The Contractor shall submit final and complete drawings separated into sections titled by architectural and engineering discipline. The drawings shall include the necessary plans, elevations, sections, and notes, containing sufficient detail to ensure:

    a. Complete construction of all project elements, including exterior support facilities;

    b. Coordination of drawings and specifications to eliminate omissions, conflicts, or ambiguities;

    c. Finalization of details in the specifications; and

    d. Clear and consistent interpretation of the project scope and complexity.

9. Fully coordinated BIM model.

10. Development of the project's Quality Plan

11. Design Professional Certification - certification of a licensed design professional stating that the project design or redesign meets a nationally recognized design and performance standard applicable to the project, including, if applicable, criteria recognized by FEMA for a project of its type, pursuant to FEMA's Hazard Mitigation Assistance Guidance and Hazard Mitigation Assistance Guidance Addendum.

III. STUDY

The Contractor is responsible for conducting and providing all studies, analyses, and technical documentation necessary to support the design, planning, and construction process under the Design-Build model, ensuring that the contractor has accurate, verifiable, and sufficient information to develop the design and execute the project, including but not limited to:

1. Topographic Survey (Detailed survey of the land and existing structures; and contour lines, property lines, easements, access points, nearby infrastructure)

2. Existing Infrastructure Study (Service conditions: water, electricity, telecommunications, drainage, sewage; available capacity vs. project requirements; evaluation of underground infrastructure; and verification of subsurface utilities, structures, voids, obstructions, and potential conflicts through underground penetrating sonar, ground penetrating radar, or other non-destructive subsurface investigation methods, as applicable.

3. Utilities Clearance: The Design-Builder will be responsible for executing all activities necessary to ensure that existing utilities are properly located, documented, secured, coordinated, and, if necessary, rerouted or relocated, in accordance with the requirements of the ASEM and service entities.

    a. Gather and review existing plans, record drawings, as-built drawings, GIS, and any other available documentation.

    b. Request official information from AAA, AEE/LUMA, telecommunications companies, gas providers, sewer providers, fiber optic providers, and institutional systems providers (medical gases, drainage, pipelines).

    c. Prepare an initial Utility Inventory Report consolidating all the information gathered.

    d. Perform location services using GPR, electromagnetic locating, and other approved methods.

    e. Conduct potholing/test pits when required to confirm depth and condition.

f. Physically mark utilities in the field using paint, flags, and stakes.

g. Document findings with photographic and georeferenced evidence.

h. Validate the depth, diameter, material, condition, and functionality of each utility.

i. Identify conflicts with excavations, foundations, pipeline routes, ducts, and temporary and permanent structures.

j. Prepare a Utility Conflict Matrix with severity classification and mitigation recommendations.

k. Formally notify each service provider of findings and potential impacts.

l. Coordinate joint inspections when required.

m. Obtain permits, approvals, letters of no objection, or official instructions.

n. Schedule temporary outages, diversions, or protections according to each provider's guidelines.

o. Design and implement temporary protection for exposed or vulnerable utilities.

p. Develop preliminary and final designs for rerouting or relocation.

q. Perform relocation work according to each supplier's technical standards.

r. Conduct pressure, continuity, and integrity tests, and perform post-installation certifications.

s. Implement OSHA protocols for excavation, utility handling, and work in proximity to critical infrastructure.

t. Comply with NFPA 70, NFPA 99, EPA, OGPe, and other applicable standards.

u. Develop a Utility Emergency Response Plan for incidents involving critical utilities.

v. Train personnel in "Call Before You Dig" procedures.

w. The Design-Builder must submit the Utility Clearance Report, including:

   i. Final utility inventory.

   ii. Updated as-found drawings.

   iii. Conflict and mitigation matrix.

   iv. Photographic and georeferenced evidence.

   v. Service provider certifications.

   vi. Updated design drawings incorporating all findings.

   vii. Final post-relocation as-built drawings, when applicable.

x. The Utilities Clearance will be considered complete when:

   i. All utilities have been located, verified, and documented.

   ii. All identified conflicts have been resolved.

   iii. The ASEM has received certifications from each utility provider.

   iv. The design plans accurately reflect the site's condition

4. Traffic and Accessibility Studies (Impact of the project on vehicle and pedestrian flow; recommendations for geometric design and signage)

5. Analysis of site access, easements and restrictions

6. Risk and Safety Assessment (Identification of natural hazards (floods, seismicity); safety conditions of the surrounding area; and recommendations for mitigation)

7. Hydrological and Hydraulic (H-H) Study

a. The Contractor shall submit a detailed H-H study comparing the existing conditions with the proposed conditions and the effect of the proposed work on the hydraulic condition of the area. This study shall comply with applicable regulations. The H-H study report must be complete before proceeding to the Design Development (60%) design phase. Therefore, its submission will form part of the Schematic (30%) design documentation.

b. The precipitation depth values required for the hydrological analysis shall be obtained from NOAA Atlas 14.

c. The Contractor shall submit a scour study explaining the parameters used to calculate it, as well as the study's conclusions and recommendations. It should also consider the existing conditions and compare them with the effect of the proposed scour or erosion control measures. The scour study shall be conducted in accordance with the latest version of applicable regulations, standards, and guidelines. The study includes, but is not limited to, recommendations on:

   i. Removal or relocation of utilities in areas of significant improvement, as applicable;

   ii. Trench reconstruction/reconditioning areas where significant improvements are recommended, as applicable; and

   iii. Other safety improvements, such as rumble strips, safety edges, high-friction surface treatment, and others, as applicable

8. <u>Report on applicable regulations for design and permits</u>

Each study must include: (1) Methodology used; (2) Findings and data collected; (3) Plans, maps, models, or test results; (4) Certified laboratory results; (5) Georeferenced photos; (6) Comprehensive summary for the design-build team and ASEM; (7) Clear risk matrix and recommendations; and (8) Technical conclusions.

All studies must comply with the following requirements: (1) Puerto Rico building codes; (2) Local and federal environmental regulations; (3) Applicable ASTM standards; and (4) Geotechnical, surveying, and safety regulations

Designer or Consultant Responsibilities: (1) Coordinate permits and access for conducting studies; (2) Comply with all applicable technical

standards; (3) Integrate with the Design-Build team for consultations, reviews, and clarifications; and (4) Assist in technical meetings and preliminary design reviews.

IV. ENDORSEMENT & PERMITS

1. The Contractor shall provide plans, calculations, and detailed documentation for architecture, civil works, plumbing, mechanical, fire protection, electrical, and other documents necessary to obtain all endorsements, permits, and design approvals required for the construction of the project. This includes, but is not limited to, the development of plans, reports, studies, analyses, certification of compliance with codes and design guidelines, certification of graphic file and map, certification of the project designer and specialist, among others, as required by the relevant entity, and shall pay for the processing of these documents.

2. The Contractor shall be responsible for completing all documents required for filing and obtaining the applicable permits and endorsements for the development of the design and its construction. This includes, but is not limited to, the required payments and documents necessary to carry out the work.

3. The Contractor shall be responsible for obtaining all necessary state endorsements, permits, and approvals for the project, including but not limited to:

    a. Environmental Recommendation (REA)

    b. Determination of Environmental Compliance (DEA)

    c. Consultation on monetary compensation for tree planting mitigation

    d. Construction Consultation

    e. Consultations with: Puerto Rico Electric Power Authority (PREPA), LUMA, Puerto Rico Aqueduct and Sewer Authority (PRASA), Telecommunications Regulatory Board (TRB), Department of Transportation and Public Works (DTOP), Puerto Rico Highways and Transportation Authority (PRHTA), Department of Health, Fire Department, Institute of Puerto Rican Culture (ICP), and Municipality of San Juan

    f. ICP (Phase IA – IB)

    g. Construction Permit

h. Pre-consultations with government entities, as applicable and necessary

i. Reforestation Plan

4. The Contractor shall be responsible for the preparation and submission of (1) a request for prior consultation through the OGPe, (2) review of the Reforestation Plan, (3) Environmental Assessment (Law No. 416-2004), and (4) any other as required by the corresponding agencies or entities.

5. The Contractor is responsible for the mandatory process with the Federal Aviation Administration (FAA) to obtain its official comments, operational guidelines and regulations for both the existing heliports and the new heliport to be built as part of the Puerto Rico Trauma Hospital; as well as the development of all documents necessary for the management, including coordination with regulatory entities to ensure that all installed systems, equipment, and interfaces meet the performance, safety, and compliance standards established by the Agency.

V. SUPERVISION

1. The Designer is responsible for providing support during construction and providing: (1) responses to RFIs, review and approval of submittals and shop drawings, (2) design updates due to field conditions; (3) engineering adjustments according to changes approved by ASEM; (4) ongoing technical support to the builder; (5) attendance at periodic technical meetings with the project team; and (6) coordination with the project team for adjustments.

2. The Designer is responsible for delivering: (1) updated BIM models as appropriate; (2) operation and maintenance manuals; (3) regulatory compliance and final inspection certifications; and (4) closure documentation.

3. The Designer, consultants, and subconsultants will attend the pre-construction meeting and all working meetings during the construction phase, as required by ASEM.

4. The Designer, consultants, and subconsultants will provide supervisory services during the construction phase and will address any critical situations and activities requiring their participation. The required services will include, but are not limited to, field observations necessary to verify the quality and progress of the work, in accordance with the design documents. These personnel will also attend, and chair meetings required by the authorized ASEM's authorized representative to resolve specific situations in the project's development.

5. The Designer, Consultant, and Subconsultant(s) will conduct weekly field inspection and observation visits. These inspection and/or observation visits may be conducted in conjunction with the scheduled work meetings held every two (2) weeks, depending on the progress of the work, during the weeks in which the work meetings are scheduled. The Designer, Consultant, and their Subconsultant(s) must submit a field observation report for each project inspection to the ASEM's authorized representative within three (3) calendar days following their site visit. In addition, they will conduct inspections of key activities, including, but not limited to, the following examples: code inspections, final system testing, achievement of each milestone (required in the work schedule), and at the request of the ASEM's authorized representative. The assignment of a consultant and sub-consultant does not relieve the Designer of their obligation to visit, inspect,

and supervise the development of the project activities during the construction phase.

6. The submittals will be reviewed and approved by the Designer. This includes project schedule, Schedule of Values, equipment and materials, shop drawings, procedures, and material samples, among others. The submittal review process must be carried out at each work progress meeting and will include the Designer, Consultant, Subconsultant, Contractor, Project Manager, and ASEM's authorized representative. The Designer will generate an updated Submittal Log at each work meeting, highlighting the status of all required submittals.

7. The Designer will review the "As-Built" drawings submitted by the Contractor monthly to ensure they are up to date. Any deficiencies will be noted by the Designer on a form agreed upon by all parties. The Designer will acknowledge acceptance of the "As-Built" drawings by signing a submission indicating that they have reviewed them and that they reflect the "As-Built" conditions as they exist. Upon receiving the "As-Built" drawings from the Contractor, the Designer will obtain the original reproducible drawings and transfer the "As-Built" conditions to the signed, full-size, reproducible original drawings to reflect the registration conditions within fourteen (14) calendar days following receipt of the "As-Built" information.

8. The Designer will include the following statement on the original RECORD-SET drawings: "The CONSTRUCTION information added to this drawing(s) has been provided by the Contractor(s). The Designer assumes no responsibility for its accuracy, except for conformity with the design concept and the overall adequacy of the "As-Built" information to the best of the Designer's knowledge and belief."

9. As part of the project closure, the Designer will deliver the reproducible original RECORD-SET drawings to the authorized ASEM's Authorized Representative, who will acknowledge receipt in writing. This set of printed drawings and a digital version in ".dwg" (native file format for AutoCAD) and ".pdf" (Adobe Portable Document Format) file formats will be provided.

10. The Designer shall prepare, maintain, and continuously distribute a rolling list of deficiencies to the Contractor and Project Team throughout the construction phase of the project. This list shall be a separate correspondence from the field observation reports and shall not be considered a checklist.

11. The Designer shall evaluate all requests for changes to the work and provide a detailed, written recommendation for the approval or disapproval of the request, including supporting documentation and all other considerations to corroborate that decision with the ASEM's authorized representative.

12. The Designer will determine if the modifications request requires a review of codes, guides, manuals, and regulations. The Designer must also determine if the modifications request require any modifications to the permits, endorsements, certifications, and authorizations issued for the development of the project.

13. The Designer will review all project closure documents submitted by the Contractor to ensure they meet the design requirements. After approving these documents, the Designer must send them to the Project Team within fourteen (14) calendar days of the approval date. The Designer must also submit a letter certifying that the project was completed in accordance with the contract documents, etc.

14. The Designer must complete all modification request documents and send all corresponding supporting documentation to the Project Team within seven (7) calendar days of receiving the request submitted by the Contractor. If the Project Manager considers the contents of the modification package insufficient, they will request the Designer to submit a complete package at no additional cost.

VI. CONSTRUCTION

This section of the Scope of Work is intended as a guide for the Contractor to understand their general responsibilities during the execution of the project activities considered in the design and does not attempt to identify each specific activity or deliverable required during this phase.

1. It will be the Contractor's responsibility to determine the coordination, policies, and procedures regarding the parking area, its use, services, schedule for the execution of the activities contemplated in the design, the need for and location of portable sanitary units, the need for and location of the work area and storage areas, connection to existing utilities, among others.

2. The Contractor will have to coordinate with ASEM's personnel for technical data necessary for the installation and MEP connections of the specialized medical equipment.

3. The Contractor will have to coordinate with ASEM's personnel and its IT Department for the needs of their telecommunications systems.

4. The Contractor must allow within their processes time and coordination for the ASEM to evaluate material and/or equipment submittals that may affect aesthetics, operation or maintenance of the facilities.

5. The construction is to include all demolition, excavation and backfill necessary to complete the work.

6. Prior to any excavation, trenching, drilling, pile installation, utility connection, demolition affecting below-grade elements, or other subsurface disturbance, the Builder shall perform and document underground penetrating sonar, ground penetrating radar, or other appropriate non-destructive subsurface investigation methods to identify existing utilities, buried structures, voids, abandoned infrastructure, obstructions, and potential conflicts. Findings shall be coordinated with the BIM model, construction phasing plan, utility shutdown plan, and ASEM's authorized representative before proceeding with the affected work.

7. The Contractor is responsible for carrying out all laboratory tests necessary to complete the construction, including, but not limited to, geotechnical/compaction tests and concrete compression (cylindrical) tests.

8. The Medical Center campus and facilities will remain open and operating during the construction period. It is important the project complies with all PROSHA/OSHA as well as Medical Center campus safety and security standards. Proper protection of the construction area as well as adjoining buildings will be required during the construction process to minimize dust and dust as well maintain a safe environment. To reduce adverse environmental impacts the construction area will be isolated and sealed from the road with temporary drywall and plastic partitions. To mitigate dust, continuous irrigation with water will be carried out during construction.

9. Construction waste management will be contractually required to the Contractor and is to be conducted in compliance with Construction Waste Management applicable standards as required by US Environmental Protection Agency. Construction and Demolition Waste Management Plan to be implemented has following goals: (1) Outline at least five materials targeted for diversion, (2) Provide the anticipated % of total waste that these materials will represent, (3) Include on-site diversion strategies, (4) Improve the sustainability of construction practices, from procurement to disposal in order to reduce the amount of waste generated, (5) Divert construction and demolition waste from disposal in landfills and incineration facilities by redirecting recyclable and reusable materials to appropriate management companies, (6) At least 75% of construction and demolition waste (by weight) will be diverted from the landfill. Plan encompasses the following areas: (1) Responsibility of parties, (2) Waste reduction, (3) Recycling and salvage, (4) C&D waste to be diverted, (5) Special Handling Instructions, (6) Submittals, (7) Quality control.

10. All materials, debris, trash, and waste generated as part of the project, among others, will be collected daily and stored in garbage containers for disposal outside the Medical Center premises. Their handling will be in accordance with applicable laws and regulations. The approved location of the garbage containers, vehicle parking, material storage trailers, construction equipment, etc., must be coordinated and approved by ASEM at the pre-construction meeting.

11. It shall be the Contractor's responsibility to keep the work areas clean and free of any materials, equipment, and waste that represent a hazardous situation.

12. The Contractor is responsible for carrying out the corresponding tasks and procedure for the connection of PREPA/LUMA and PRASA, including the payment of the fee.

13. It shall be the Contractor's responsibility to submit submittals and RFI containing all the information necessary for the Designer to evaluate the submittal and RFI.

14. The Contractor shall develop and submit a Maintenance of Traffic (MOT) plan to ASEM, which will be implemented during the construction period. When access roads to the construction area need to be closed, it is the Contractor's responsibility to notify ASEM and all users surrounding the project area at least one (1) week in advance of the event.

15. The Contractor is responsible for Multidisciplinary Coordination (BIM model integration and clash detection coordination, design coordination meeting reports, and adjustments and updates by discipline to ensure compatibility).

16. The Design-Builder shall perform, coordinate, and supervise all construction activities to ensure that the work conforms to the approved design, documents, contract requirements, applicable codes, safety regulations, quality standards, and industry best practice.

17. The Contractor commits to strict and non-appealable compliance with the following operational, safety, and service-continuity guidelines throughout the term of the Project.

    a. Preservation of the Plaza: the plaza area shall not undergo any structural, aesthetic, or surface alteration. The Contractor shall return this area in exactly the same physical and clean condition in which it was provided at the start of the Work. Any damage shall be repaired entirely at the Contractor's expense.

    b. Guarantee of Critical Traffic (Ambulances): the free transit, access, and maneuvering of ambulances is of priority and internal national-security character. Under no circumstances shall the obstruction, unauthorized diversion, or stoppage of these emergency vehicles be permitted during the course of the Project.

    c. Continuity of MEP Services (Mechanical, Electrical, and Plumbing): the electrical power and potable water supplies to the outpatient clinics shall not be interrupted under any scenario. The Contractor shall exercise the utmost precaution and guarantee the full integrity of the main electrical feeder energizing those healthcare facilities.

Any work posing a potential risk to these lines shall be coordinated with and approved in advance by Project supervision.

VII. DELIVERABLES

1. The First Phase consists of the development of the basement and first floor through functional operation, including the building enclosure, but excluding the helipad.

    a. Design-build development, mobilization and project controls

    b. Surveys, investigations, validation, agency coordination and user confirmation

    c. Final design, construction documents, reviews, permits and early release packages

    d. Long-lead procurement and major submittal packages

    e. Campus enabling, temporary services, abatement, demolition, required site/off-site work and clearing

    f. Shoring, dewatering, excavation, foundations, basement utilities and basement/Level 1 turnover package

    g. Basement structure, seismic isolation plane and concrete superstructure for nine above-ground levels

    h. Building enclosure, waterproofing, roofing, facade envelope, windows, dry in and heliport/helipad access enclosure

    i. Elevators, vertical transportation, dedicated heliport elevator core and related shaft/core completion

    j. MEP/FP/medical gases/electrical/IT/nurse call systems, including basement utility plant systems

    k. Interior build-out, casework, fixed equipment, finishes and FFE coordination

    l. Exterior site completion, ambulance/patient entries, final paving, plazas and landscaping.

m. Commissioning, TAB, inspections, heliport coordination, licensing support, training and turnover

2. The Second Phase consists of developing the second through ninth floors and the helipad through functional operation, as well as completing all remaining Project areas through final completion and close-out.

    a. Elevators, vertical transportation, dedicated heliport elevator core and related shaft/core completion.

    b. MEP/FP/medical gases/electrical/IT/nurse call systems, including basement utility plant systems

    c. Interior build-out, casework, fixed equipment, finishes and FFE coordination

    d. Exterior site completion, ambulance/patient entries, final paving, plazas and landscaping

    e. Commissioning, TAB, inspections, heliport coordination, licensing support, training and turnover

VIII. SAFETY MANAGER

The Safety Manager shall perform, among others, the following tasks:

1. Design Phase. (1) Participate in design reviews to identify construction risks in clinical settings. (2) Provide safety recommendations during Value Engineering to prevent impacts on hospital operations. (3) Evaluate constructability in sensitive areas (ICUs, operating rooms, emergency departments). (4) Validate that construction phases respect safe routes, barriers, negative/positive pressure, and patient flows. (5) Collaborate with the design team in selecting safer construction methods for occupied hospital environments.

2. Daily Tasks. (1) Conduct daily site walkthroughs to identify unsafe conditions. (2) Verify the proper use of PPE (Personal Protective Equipment). (3) Document safety observations (findings, corrections, hazards). (4) Record incidents, near misses, and unsafe acts. (5) Check machine guards, ladders, scaffolding, and lifting equipment. (6) Ensure emergency routes and assembly points are clear and accessible. (7) Coordinate with supervisors to correct any hazardous conditions identified.

3. Weekly Tasks. (1) Lead toolbox talks and safety training sessions. (2) Review and update the Site Safety Plan weekly. (3) Inspect heavy equipment, cranes, forklifts, and critical machinery. (4) Verify subcontractor documentation regarding training, licenses, and permits. (5) Review weekly incident reports and implement preventative measures. (6) Coordinate testing of emergency systems on site (alarms, fire extinguishers, evacuation routes).

4. Permitting & Compliance. (1) Ensure compliance with OSHA, EPA, and local safety codes. (2) Prepare high-risk work permits: Hot Work Confined Spaces Work at Heights Excavations Verify safety equipment certifications, inspections, and labels.

5. Incident & Accident Management. (1) Respond immediately to incidents and coordinate emergency response. (2) Ensure isolation of the affected area. (3) Investigate incidents and near misses to determine root causes. (4) Prepare incident reports for management and regulatory authorities. Implement corrective actions and follow up.

6. Training & Awareness. (1) Provide initial safety training for new workers. (2) Organize specialized training (working at heights, scaffolding, confined

spaces, chemical handling). (3) Evaluate the safety performance of subcontractors. (4) Promote safe practices through signage and consistent communication.

7. Documentation & Reporting. (1) Maintain records of incidents, observations, work permits, and training. (2) Update the Safety Log. (3) Complete weekly inspection forms. (4) Prepare monthly safety reports for the Project Manager. (5) Document corrective actions with photographic evidence.

8. Coordination & Communication. (1) Coordinate with the Project Manager and superintendents regarding emerging risks. (2) Communicate new policies, regulations, and safety requirements. (3) Participate in coordination meetings with subcontractors. Ensure all workers understand emergency procedures.

9. Emergency Preparedness. (1) Verify the availability and functionality of fire extinguishers, first aid kits, and rescue equipment. (2) Coordinate emergency drills (evacuation, fire, chemical spill). (3) Update evacuation maps and routes on site.

10. Specialized Safety Tasks (if applicable). (1) Monitoring hazardous atmospheres (gas monitoring). (2) Management of hazardous materials (HazMat). (3) Control of noise, vibration, and dust damage. (4) Electrical safety and lockout/tagout (LOTO), as applicable.

IX. QUALITY CONTROL

1. The Contractor shall have a Quality Control and Compliance Manager who takes a holistic approach to ensuring full compliance and quality control throughout the entire process of developing the contracted activities. The Quality Control and Compliance Manager shall be responsible for:

    a. Quality control system management: Overseeing the Contractor's Quality Control (QC) system to ensure that all work meets quality standards;

    b. Review of design quality control plans: Ensuring that the design quality control plan at each phase is carried out by personnel with the necessary experience and authority, and that the execution of the Quality Control Plan is successful;

    c. Implementation of quality assurance processes: Ensuring that assigned personnel properly review the quality control methods.

2. It shall be the Contractor's responsibility: Have an internal quality control and compliance procedure in place, following industry best practices. The quality control or quality assurance procedure should include, among other things:

    a. Written company procedures, as implemented;

    b. Standard quality control and compliance forms; and

    c. Reviewed or commented on plans.

X. PROJECT MANAGER

The Project Manager shall perform, among others, the following tasks:

1. Project Initiation & Planning. (1) Create and configure the project in Project Manager Software. (2) Develop the initial project plan (schedule). (3) Coordinate with ASEM to verify functional and operational requirements. (4) Establish the Design-Build team (design, engineering, construction). (5) Create the project's communication and governance structure. (6) Identify preliminary risks and develop the Risk Management Plan. (7) Prepare the Project Execution Plan (PEP).

2. Design Management (Design Phase). (1) Oversee design development. (2) Coordinate interdisciplinary reviews (architecture, structural, MEP, civil). (3) Manage design deliverables and ensure compliance with codes and standards. (4) Facilitate Value Engineering sessions to optimize cost and constructability. (5) Ensure the design reflects ASEM requirements and performance criteria. (6) Coordinate BIM management (models, federation, clash detection). (7) Manage preliminary permits and coordinate with regulatory authorities.

3. Construction Management. (1) Oversee the execution of the construction plan. (2) Coordinate subcontractors and work sequences. (3) Manage weekly progress meetings. (4) Verify compliance with the IFC (Issued for Construction) design. (5) Supervise quality control and inspection management. (6) Coordinate the management of RFIs, submittals, comments, and changes. (7) Monitor the schedule and adjust the plan according to deviations. (8) Implement safety strategies in collaboration with the Safety Manager. (9) Maintain active communication with ASEM, inspectors and Project Team.

4. Cost Management. (1) Prepare and maintain the project budget. (2) Manage forecasts, cash flow, and S-curves. (3) Review and approve proposed change orders. (4) Control subcontractor and supplier costs. (5) Validate invoices and payment requests.

5. Stakeholder Coordination. (1) Serve as the primary point of contact between ASEM, inspector, design, construction, and Team Project. (2) Facilitate transparent and effective communication. (3) Manage client expectations regarding scope, cost, and timeline. (4) Prepare monthly executive project status reports.

6. Quality Management. (1) Ensure implementation of the QA/QC plan. (2) Supervise quality inspections and testing. (3) Document deviations and coordinate corrective actions. (4) Verify conformity of materials and construction methods with specifications.

7. Safety Oversight. (1) Monitor compliance with the project safety plan. (2) Provide support to the Safety Manager during incidents and audits. (3) Ensure that high-risk activities comply with protocols (working at heights, hot work, excavation).

8. Commissioning Coordination. (1) Develop the commissioning strategy with the technical team. (2) Coordinate functional testing by discipline (HVAC, electrical, plumbing, BAS, etc.). (3) Ensure that commissioning is integrated with design and construction. (4) Validate documentation, reports, and defect closure.

9. Close-Out & Turnover. (1) Oversee punch list completion. (2) Validate delivery of updated as-built drawings and BIM models. (3) Coordinate delivery of O&M manuals and training to ASEM. (4) Manage certifications, final permits, and regulatory documentation. (5) Conduct final walkthrough and prepare acceptance certification. (6) Execute financial close-out of the project (final payments, retention).

10. Project Reporting & Documentation. (1) Maintain complete project documentation. (2) Prepare reports for internal and external audits. (3) Ensure that project files comply with company standards and regulations.

XI. LEED CERTIFICATION

This project does not require LEED certification for compliance, but this does not exempt the Contractor from implementing energy efficiency strategies. This approach affects the entire facility (interior and exterior) and all systems (architecture, plumbing, mechanical, and electrical), including design, construction, and operation, to reduce environmental impact, improve the health and comfort of building occupants, decrease operating costs, and optimize building performance.

XII. COMMISSIONING

1. The Contractor will develop and execute a comprehensive Total Building Commissioning (Cx) field validation and inspection process, in accordance with ASHRAE Guideline 0 2019 and ASHRAE Guideline 1.1-2007 for HVAC systems in health care facilities. The purpose of this phase is to subject all systems to physical stress testing and certify that they operate in strict compliance with the Owner's Project Requirements Form (OPR Checklist) prior to final acceptance of the Work by the ASEM.

2. Requirement for an Independent Commissioning Authority (CxA)

    a. Third-Party Engagement: the Design-Builder shall subcontract an Independent Commissioning Authority (Third-Party CxA) qualified and certified by the Building Commissioning Association (BCA) or the AABC Commissioning Group (ACG).

    b. Legal Independence: the CxA shall report its findings directly and simultaneously to both the Contractor and the Owner's representative (ASEM), and its validation logs shall be a mandatory requirement for approval of payments tied to construction financial milestones.

3. The Commissioning phase encompasses all activities required to verify that the project's systems, equipment, and components are installed, tested, and operating in accordance with the design intent, contractual requirements, and applicable codes and standards. The Contractor shall perform all commissioning tasks necessary to ensure the project's operational readiness prior to final acceptance.

4. The Contractor shall plan, manage, and execute commissioning activities in coordination with the ASEM, design professionals, subcontractors, and other relevant stakeholders. Responsibilities include preparing commissioning documentation, conducting functional performance tests, facilitating inspections, and addressing deficiencies identified during the commissioning process.

5. Commissioning activities include, but are not limited to:

    a. Design Phase

1. Verify that the project's functional, operational, and performance objectives are clearly established.
2. Document any required adjustments or clarifications.
3. Ensure that the design criteria are adequately addressed.
4. Confirm technical consistency across disciplines.
5. Establish activities, responsibilities, sequence, and acceptance criteria for the commissioning process for all project phases. Coordinate this plan with the designer and the general contractor.
6. Conduct systematic reviews of design documents at their different stages: schematic, preliminary design, and final design.
7. Verify that the proposed systems meet the requirements for efficiency, indoor environmental quality, controls, maintainability, and operational safety.
8. Identify technical interdependencies among mechanical, electrical, control, architectural, structural, and special systems.
9. Coordinate solutions with the design team.
10. Preliminary Identification of Tests and Verifications.
11. Define the types of functional tests expected in the acceptance phase.
12. Document access requirements, instrumentation, loads, and anticipated operating conditions.
13. Initiate the structure of system manuals, checklists, and commissioning responsibility matrices.
14. Identification of Technical Risks Related to Performance.
15. Analyze risks that could affect the commissioning, early operation, or ongoing performance of the building.

16. Recommend mitigation measures.

17. Confirm that the project specifications include the required commissioning, testing, documentation, and deliverables.

18. Commissioning tests must verify and document full compatibility with existing operational systems in ASEM's central building, ensuring proper integration with communications subsystems, required voltage levels, network and data infrastructure, information exchange protocols, and any other associated critical interfaces.

b. Verification of correct installation of all systems and equipment;

c. Execution of testing and start-up procedures as specified in the contract documents;

d. Conducting functional performance tests to confirm compliance with design intent and manufacturer requirements;

e. Calibration and adjustment of systems to achieve specified performance;

f. Documenting findings, test results, and corrective actions; and

g. Coordinating retesting as necessary to demonstrate full compliance.

h. System-Specific Validation Protocols

i. Pneumatic Tube Logistics System (PTS – Bionuclear / Swisslog / Pevco)

1. Speed and Transit Testing: The CxA shall oversee physical tests of continuous carrier dispatch from the First Floor (Trauma) and Second Floor (ICU), through the Third-Floor connection, to the ASEM Central Building's Central Laboratories, validating the 30-to-45-second transit time.

2. Anti-Hemolysis and RFID Certification: a minimum of fifty (50) test dispatches shall be performed using vials with biological control samples. A pathologist certified by the ASEM laboratory shall audit the samples to certify the total absence of cellular hemolysis caused

by the air cushion and the VFDs. 100% of RFID tag reads and PIN-code security lockout at the terminal stations shall be validated.

3. Biological Spill Simulation: a simulated vial breakage inside a carrier shall be triggered to certify activation of the automatic containment sequence, HEPA-filtered air purge, and isolation of the affected section of tubing without contaminating clinical ceiling plenums.

ii. Dual-Coil HVAC Climate Control and Containment System

1. Hygrothermal Stress Testing: the AHUs serving the Hybrid Operating Rooms, ICU, Recovery, and Burn Unit shall undergo continuous 72-hour testing to certify that the automated BMS sustains temperature strictly between 65°F and 70°F and relative humidity between 20% and 55% RH.

2. Chilled-Water Failure Simulation: the main basement hydraulic supply valves (Sheet A-1.1) shall be physically closed to simulate a central plant collapse. The CxA shall certify that the BMS activates the exterior rooftop DX condensing units (Sheet A-1.12) and that emergency Direct Expansion mode assumes 100% of the thermal load in under 60 seconds, while maintaining design positive pressures and air change rates (ACH).

3. Vibration and Noise Monitoring: using calibrated portable acoustic spectrum analyzers, the CxA shall measure noise levels inside Second-Floor ICU rooms with the cooling towers and chillers operating at maximum capacity. It shall be certified that the vibration sensors installed on the roof trigger emergency shutdown if the ISO 10816 thresholds are exceeded, in order to prevent structure-borne noise transmission.

iii. Hybrid Electrical Infrastructure and Emergency Plant (N+1)

1. General Blackout Test: a full shutdown of the 38 kV street supply to the new substation shall be

coordinated with LUMA Energy to evaluate the hospital's resiliency response.

2. Microgrid (BESS) and Generator Validation: the CxA shall certify that the battery bank (Micro-Grid) instantaneously (0 milliseconds) assumes operating-room life-safety loads, eliminating voltage fluctuations, and that the paralleled generator plant (3 units of 2,000 kW) starts, automatically synchronizes, and assumes 100% of the hospital load in under 10 seconds, in accordance with NFPA 110.

3. Fuel Autonomy: the automated pumping and filtration system from the underground diesel tanks in the exterior service yard to the generators' day tanks shall be physically inspected, certifying continuous flow for 96 hours of operation.

iv. Flood Protection, Plumbing, and Life-Safety Systems

1. Stormwater Surcharge Simulation: high-pressure water shall be injected into the exterior street drainage lines to certify the automatic, hermetic closure of the stormwater backwater valve at the exterior manhole (Sheet AS-1.1), preventing backflow of runoff into the building.

2. Basement Flood (Sump Pit) Test: the basement storm sump pit (Sheet A-1.1) shall be intentionally filled to validate the automatic alternation of the duplex submersible pumps, start-up under emergency power, forced pumping capacity (GPM) discharged to the street, and activation of the critical-level alarm at the BMS and the ICU's 24/7 central annunciator panel.

3. Fiber-Optic Ring Fire Alarm Interconnection: manual pull stations and sprinkler flow sensors in the new trauma tower shall be randomly activated. The CxA shall validate that the Fire Alarm Control Panel (FACP) transmits the signal to the ASEM Central Building in under 2 seconds via the Style 7 fiber-optic ring (NFPA 72), triggering closure of fire doors in the connecting corridors and zoned, pre-programmed voice-evacuation messages.

i. Turnover Documentation (Cx Turnover Package)

i. As a mandatory condition for execution of the Certificate of Substantial Completion and disbursement of the final retained payment, the Design-Builder shall deliver to ASEM three (3) hard copies in binders and an indexed digital file containing.

1. A complete field test log bearing original signatures and seals of the CxA, the inspecting engineers, and the authorized manufacturer's representatives (Bionuclear, Swisslog, etc.).

2. Current calibration certifications for all temperature, humidity, medical gas pressure, and vibration accelerometer sensors.

3. Customized Operation and Maintenance (O&M) manuals for the interconnection of both buildings, including BMS logic diagrams and contingency guides for automation-loop failures.

6. The Contractor shall prepare and submit all commissioning-related documentation, including:

a. Commissioning plan and schedule;

b. Pre-functional checklists and functional performance test forms;

c. Start-up reports, testing results, and inspection records;

d. Documentation of deficiencies, resolutions, and retesting activities; and

e. Final Commissioning Report summarizing results, verification procedures, outstanding issues, and recommendations.

7. The Contractor shall ensure ongoing communication with all stakeholders throughout the commissioning phase. This includes scheduling tests, facilitating inspections, coordinating access to systems, and providing advance notice of required participation by the ASEM or design team.

8. The Contractor shall commission all HVAC systems, including air-handling units, chillers, boilers, VAV boxes, control systems, heat pumps, ventilation systems, and associated components.

9. HVAC Commissioning Tasks:

    a. Verification of correct installation, alignment, and anchorage.

    b. Start-up and testing of mechanical equipment per manufacturer specifications.

    c. Functional performance testing of cooling, heating, and ventilation modes.

    d. Calibration and programming of HVAC controls, sensors, and actuators.

    e. Testing of automation sequences (BAS/EMS), alarms, and interlocks.

    f. Airflow and waterflow balancing.

    g. Verification of indoor environmental quality (IEQ) targets.

10. HVAC Documentation:

    a. Pre-functional checklists for each piece of HVAC equipment.

    b. Air and hydronic balancing reports.

    c. Controls sequences verification reports.

    d. Start-up logs and test results.

    e. Final HVAC Commissioning Report

11. The Contractor shall commission all electrical systems, including service entrance equipment, switchgear, panels, lighting systems, emergency power systems, UPS devices, grounding systems, and electrical controls.

    a. Electrical Commissioning Tasks

1. Verification of installation: wiring, conduit routing, labeling, and grounding.
2. Energization procedures following safety protocols.
3. Functional testing of distribution systems and circuits.
4. Testing automatic transfer switches (ATS) and generator systems.
5. Load testing of critical UPS equipment.
6. Verification of lighting controls, sensors, and emergency lighting pathways.
7. Infrared thermographic scanning (when required).

b. Electrical Documentation

1. Electrical checklists and panel schedules.
2. ATS and generator test reports.
3. UPS load test certifications.
4. Lighting control commissioning results.
5. Grounding system verification documentation.
6. Final Electrical Commissioning Report

12. The Contractor shall commission all plumbing systems, including potable water distribution, sanitary sewer, stormwater drainage, pumps, water heaters, and specialty plumbing systems.

a. Plumbing Commissioning Tasks:

1. Verification of pipe installation, labeling, slopes, supports, and insulation.
2. Pressure testing of domestic water systems.
3. Testing functionality of valves, pumps, heaters, and fixtures.
4. Verification of hot water delivery times and temperature stability.

5. Testing sanitary and stormwater systems under flow conditions.
6. Inspection of backflow prevention devices and certifications.
7. Verification of water conservation features (as applicable).

b. Plumbing Documentation

1. Pressure test forms and certifications.
2. Hot water system performance logs.
3. Pump start-up and function test reports.
4. Backflow test certificates.
5. Final Plumbing Commissioning Report

13. Whole-building commissioning ensures that building systems work together as an integrated and efficient whole. This includes coordination among HVAC, electrical, plumbing, fire protection, IT/low-voltage systems, building automation, and life-safety systems.

a. Whole-Building Commissioning Tasks

1. Verification of system interoperability across all disciplines.
2. Integrated Systems Testing (IST) covering alarms, controls, and sequencing.
3. Validation of building automation dashboards, alarms, and trend logs.
4. Energy performance verification against established baseline criteria.
5. Confirming compliance with sustainability targets (LEED, ASHRAE, etc.).
6. Occupancy-readiness testing (lighting, HVAC scheduling, emergency systems).

b. Whole-Building Documentation

1. Integrated Systems Testing reports.
2. Energy performance verification results.
3. Building automation system (BAS) configuration logs.
4. Comprehensive Whole-Building Commissioning Report summarizing all disciplines

14. The Contractor shall:

a. Coordinate scheduling with all involved trades.

b. Provide advance notice for tests requiring Client or design team presence.

c. Maintain continuous communication on deficiencies, retesting, and results.

d. Ensure safe conditions during all testing activities

15. Commissioning shall be considered complete when:

a. all functional tests meet design intent and manufacturer criteria;

b. all systems perform in accordance with project specifications;

c. all deficiencies have been resolved, corrected or formally documented;

d. all required commissioning documentation has been submitted and approved;

e. integrated systems demonstrate seamless and reliable operation;

f. building meets all performance requirements necessary for final acceptance; and

g. all required commissioning deliverables have been submitted and approved by the ASEM.

Final acceptance of the project will not occur until commissioning requirements have been fulfilled.

XIII. BIM REQUIREMENTS

1. A BIM Execution Plan (BEP) defining model uses, software platforms, file exchange formats, version control procedures, coordination workflows, and discipline responsibilities.

2. Development and maintenance of BIM models for, at a minimum, architectural, structural, mechanical, electrical, plumbing, fire protection, medical gas, and low-voltage systems.

3. Use of BIM for multidisciplinary design coordination and 3D spatial validation.

4. Use of BIM for clash detection, issue tracking, and timely resolution of coordination conflicts prior to construction or fabrication.

5. Identification of model authorship, discipline responsibilities, and model management procedures.

6. Defined Level of Development (LOD) requirements by phase, discipline, and milestone.

7. Coordination of critical clinical areas, including ER, OR, ICU, imaging, trauma bays, and related support spaces.

8. Coordination of Owner-Furnished, Contractor-Installed (OFCI) equipment and all related infrastructure requirements.

9. Coordination of healthcare-specific systems and constraints, including medical equipment clearances, ceiling-space congestion, maintainability access, and mission-critical utilities.

10. Regular BIM coordination meetings and issuance of coordination and clash reports.

11. Use of BIM for constructability review, installation planning, and project logistics.

12. Use of BIM for phasing and sequencing analysis, where applicable.

13. Procedures for model review, approval, revision control, and management of superseded models.

14. Delivery of required BIM files in native formats, federated coordination models, and interoperable formats as required by the ASEM.

15. Delivery of nonproprietary exchange formats and structured asset data, if required by the ASEM for operations and maintenance.

16. Updating of BIM deliverables during construction to reflect final installed conditions.

17. Delivery of a record model / as-built BIM model at project closeout.

18. Inclusion of model-linked information necessary for commissioning, operations and maintenance documentation, equipment data, and maintainable assets.

19. Identification of BIM key personnel, coordination workflow, and proposed software environment as part of the technical proposal.

XIV. PROJECT CLOSE-OUT

1. Administrative Close-Out (Hospital-Specific Requirements)

    a. Submit all final contract documentation.

    b. Submit complete and final as-built drawings, including architectural, structural, civil, MEP, medical gas, fire protection, nurse-call, security, and IT systems.

    c. Submit final specifications with healthcare-related revisions and all regulatory compliance documents required by hospital authorities (Puerto Rico Department of Health, Joint Commission, etc.).

    d. Provide warranties, guarantees, and extended service agreements.

    e. Provide final O&M Manuals with manufacturer documentation.

    f. Submit final occupancy documentation, including life-safety compliance certifications.

    g. Submit final certificates (completion, occupancy, regulatory approvals).

    h. Delivery of medical equipment coordination records (layout validation, infrastructure verification).

    i. Deliver final permit close-out documentation.

2. Technical / Construction Close-Out

    a. Completion of punch list items for all hospital functional areas (patient care zones, imaging, surgery, ICU, labs, etc.).

    b. Final inspection of installation accuracy and system performance based on contract requirements.

    c. Final inspection and certification of critical hospital systems:

i. Fire alarm and fire suppression.

ii. Medical gas systems (oxygen, vacuum, nitrous oxide, etc.).

iii. Emergency power and life-safety branches.

iv. Isolation rooms and pressure-sensitive areas.

v. Specialized HVAC controls (negative/positive pressure rooms).

d. Site cleaning and restoration, with attention to infection control protocols.

e. Close-out of temporary utilities, fencing, and construction facilities.

f. Removal and proper disposal of construction materials per hospital environmental requirements.

3. Commissioning Close-Out (Hospital Systems)

a. Completion of commissioning for all hospital-critical systems:

i. HVAC systems serving surgery, ICU, pharmacy, and isolation rooms.

ii. Electrical emergency systems, ATS, generators, UPS.

iii. Medical gas systems and alarm panels.

iv. Nurse-call and communication systems.

v. Plumbing, hot water recovery, and sterilization systems.

b. Submit commissioning reports, deficiency lists, and retesting results.

c. Confirmation that all life-safety and patient-care systems meet performance criteria.

d. Submit resolution or documentation of all remaining commissioning deficiencies.

e. Delivery of commissioning certificates required by health authorities.

4. As-Built Documentation & Records

a. Provide "Issued for Record" hospital as-built drawings with medical gas zones, critical branches, and life-safety pathways clearly identified.

b. Provide redline drawings to reflect field conditions.

c. Updated BIM models reflect real installation of all systems.

d. Equipment submittals marked "as-built".

e. Medical equipment infrastructure verification drawings (MEP tie-ins, power requirements).

f. O&M manuals specifically tailored for hospital systems:

i. HVAC system control for sterile environments.

ii. Generator and ATS maintenance cycles.

iii. Medical gas equipment and valves.

g. Life-safety system maintenance schedules.

h. Documentation of infection-control compliance during construction.

5. Training & Operational Transition

a. Conduct formal training sessions for ASEM's operation staff covering:

i. HVAC/BAS operation for surgery suites, isolation rooms, pharmacy.

ii. Medical gas system operation, shut-off protocols, and emergency response.

iii. Emergency electrical systems and generator operation.

iv. Nurse-call, security, access control, and IT systems.

v. Fire alarm and emergency evacuation systems.

b. Provide training materials, videos, certifications, and manuals, as required by ASEM.

c. Verification that clinical staff can access and operate monitoring dashboards (BAS, EMS).

d. Turnover of access credentials, control passwords, and digital configurations.

e. Deliver keys, access cards, passwords, and system configuration data.

6. Safety & Compliance Close-Out (Healthcare Standards)

a. Submit final safety reports and incident logs.

b. Submit final infection control documentation (ICRA reports).

c. Delivery of environmental safety close-out documents:

i. Air quality testing results (surgical zones, isolation rooms).

ii. Water quality and Legionella testing reports.

d. Provide certification of fire protection systems per hospital code requirements.

e. Provide final inspection and approval by relevant hospital regulatory authorities.

f. Ensure proper disposal of hazardous materials and close-out of environmental permits.

7. Financial Close-Out

a. Submit final payment application.

b. Closure of change orders, claims, and cost adjustments.

c. Release of retainage following satisfaction of hospital regulatory approvals.

d. Delivery of lien waivers and affidavits.

8. Project Handover (Hospital-Specific Turnover)

   a. Conduct formal turnover meeting with ASEM's staff.

   b. Delivery of the final close-out package (digital + hard copy) including:

      i. As-builts

      ii. Warranties

      iii. O&M manuals

      iv. Commissioning results

      v. Regulatory approvals

   c. Confirmation of the final close-out package (digital + printed).

   d. Confirmation of warranty period and process for claims.

   e. Provide documentation of warranty start dates and response procedures for healthcare-critical failures.

   f. Final Owner walk-through including life-safety and clinical function validation.

   g. Formal acceptance of the hospital facility.

XV. CODES, STANDARDS AND STRUCTURAL RESILIENCE

1. All architectural, structural, mechanical, electrical, plumbing (MEP), and life-safety design shall strictly comply with the versions currently adopted on the island: Puerto Rico Building Code (PRBC 2018) or later, ASCE 7-16, NEC 2020/2023, NFPA 99 (Health Care Facilities), NFPA 101 (Life Safety), ASHRAE 170 standards, and the FGI 2022 Guidelines for Trauma Hospitals. The use of obsolete codes (such as PRBC 2011) is prohibited.

2. As the facility is classified under Occupancy Category IV (Essential Facilities), the structure and all façade systems (including EIFS and glazing systems) shall be designed to withstand hurricane design wind loads of 165 mph to 180 mph and to resist windborne-debris impact in accordance with ASCE 7-16.

3. All mechanical anchorage for heavy rooftop equipment, chillers, substations, equipment suspended in operating rooms, and other equipment (HVAC systems, medical gas systems, etc.) shall be provided with seismic-resistant certifications and supports validated by a structural engineer licensed in Puerto Rico.

XVI. GENERAL CONDITIONS

1. Failure to comply with any of the provisions contained in this document will constitute a material breach of the contractual terms of the Project.

2. The Contractor must incorporate each of the requirements detailed below into their construction plans, engineering reports, and design specifications. The Architect of Record (AOR) or Designer must certify compliance with these requirements with their signature and professional seal in the 30%, 60%, 100%, and As-Built design deliverables.

3. The Contractor will be solely responsible for ensuring the accuracy, timeliness, and completion of all documents related to the design, permitting, specifications and all necessary construction documentation for the Project assigned under this contract.

4. The Contractor will participate in weekly construction meetings with the ASEM and/or their consultants.

5. It shall be the Contractor's responsibility to provide, as part of the design, the artwork for the project sign, as required by the Joint Permit Regulations, and the sign itself, as required by the Signage Manual in effect at the time of the final design submission, including signs required by OSHA, CDBG-MIT, among others.

6. All plans, technical specifications, cost estimates, reports, computer logs, endorsement requests and permits, and proposed work schedules for the construction phase shall be duly certified and signed by the authorized professional in accordance with their profession or specialty.

7. As part of the content of the plans, the Contractor shall clearly and precisely identify the vegetation area, pavement, traffic, emergency zones, areas affected by changes in ground level, and infrastructure of the areas located within a 20-foot radius following the boundary of the project development area, according to the design.

8. The Contractor shall be responsible for providing all labor, knowledge, equipment, materials and programs necessary to carry out the design and construction, as contracted, without this representing an additional cost to its economic proposal or contract amount.

9. The Contractor shall make all necessary corrections at no cost to the Government when the design, plans, specifications, or other elements of the services provided contain errors, deficiencies, or shortcomings. It is understood that the Contractor shall, without additional compensation, correct or revise any errors or deficiencies in its designs, plans, specifications, and other services.

10. The design services must be reasonably accurate and free from material errors or omissions. Upon notification, the professional services provider must promptly correct any known or discovered errors, omissions, or other defects at no additional cost or expense to ASEM. As determined by ASEM's representative, ASEM may order the professional services provider to re-perform such services at no additional cost to ASEM or deduct the corresponding fees from any other payments to the designer.

11. All work performed must be completed to the satisfaction of ASEM or its authorized representative. ASEM or its authorized representative will decide on all matters relating to the performance of the professional services provider, and such decisions will be final and unappealable.

12. ASEM will notify the professional services provider in writing of any material errors, omissions, or other defects in the design, or any conflicts in the contractual documentation of which it becomes aware but will have no obligation to investigate whether such errors, defects, or conflicts exist.

13. The term Intellectual Property refers to all proprietary and other rights in: (i) trademarks, service marks, registered trademarks, certification marks, trade dress, trade names, business names, and other indications of origin; (ii) patents, inventors' certificates, and disclosures of inventions; (iii) trade secrets and other non-public or confidential business information, including ideas, formulas, compositions, inventions, discoveries and improvements, know-how, manufacturing and production processes and techniques, and research and development information (patentable or not); drawings, specifications, designs, plans, proposals, and technical data; and financial information, pricing and cost information, business and marketing plans, and customer and supplier information and lists; (iv) writings and other works of authorship, whether or not protectable by copyright, including computer programs, databases, and related documentation, and all copyrights in any of the foregoing; (v) job identification masks; (vi) rights, titles, and interests in and to technical know-how, technical information, processes, practices, and systems, whether or not protected by patents, copyrights, or trade secret laws; (vii) moral rights; (viii) rights to limit the use or disclosure of Confidential Information by any person; (ix) any intellectual property or similar

proprietary rights, tangible or intangible, information, and technology; (x) registrations and applications for registration of any of the foregoing with any governmental agency or authority, as well as any renewals or extensions thereof; (xi) the goodwill associated with each of the foregoing; and (xii) any claim or cause of action arising from any infringement or misappropriation of any of the foregoing.

14. The professional services provider acknowledges that all documents, writings, recommendations, and/or reports produced as part of the contract to be awarded as a result of this Request for Proposals process will be the exclusive intellectual property of ASEM. All materials, products, documents, or information, as well as applications, programming, and/or any other products developed and/or derived from the contracted services, will be the property of ASEM. It is expressly agreed that all property, code, source code, research, studies, designs, photographs, and/or material created and/or recognized as intellectual property under the laws of the United States of America and Puerto Rico, regardless of the medium in which it is presented, will become the property of ASEM, which is authorized to reproduce it without being obligated to pay the professional services provider any additional compensation for such production and/or rights thereto, beyond the compensation stipulated in the contract.

15. All products and/or results of services provided (the "Work") as a result of this Request for Proposals process will be for the exclusive benefit of ASEM. The professional services provider acknowledges and agrees that the work (and all rights therein, including, but not limited to, copyrights, patents, intellectual property, and trademarks) shall be the exclusive and perpetual property of ASEM. Notwithstanding the foregoing, the professional services provider also assigns and transfers to ASEM all rights, titles, and interests in and to the copyrights, trademarks, patents, and intellectual property rights in the work; all copyright registrations and applications relating thereto, as well as all renewals and extensions thereof; and all works based upon, derived from, or incorporating the work. All present and future revenues, royalties, damages, claims, and payments related thereto, as well as all legal actions, both at law and in equity, for past, present, and future damages, including, but not limited to, future damages related to intellectual property; and all rights in and to the design worldwide. The professional services provider undertakes to take all necessary steps to ensure that ASEM and/or its authorized representative retain the rights assigned, as set forth.

16. The Design-Builder shall deliver and return to ASEM all documents, files, reports, materials, programs, and/or applications ("the Materials")

delivered, produced, and/or in its possession as a result of the contractual relationship with ASEM, as soon as its tasks are completed, when required, and/or upon termination of the contractual relationship, as applicable in each case. ASEM shall have the right to unrestricted and unlimited use of such Materials. If the contract is terminated and/or rescinded before the expiration date stipulated therein, the delivery of the Materials shall be made immediately after such notification and within a maximum period of fifteen (15) days from the date of notification.

17. The Design-Builder represents and warrants to ASEM that its materials, programs, processes, systems, or applications do not infringe or violate any state or federal intellectual property laws, including, but not limited to, patents, trademarks, and copyrights. ASEM shall not be liable for any acts or omissions of the professional services provider in the performance of the agreed-upon services that result in damages to third parties due to the infringement of third-party intellectual property. The professional services provider agrees to defend, indemnify, and hold harmless ASEM and its successors from any and all direct or indirect claims, actions, and demands of any nature whatsoever, brought by third parties in any forum and arising out of the intellectual property used by the professional services provider in the performance of the services. The professional services provider agrees to pay all costs, expenses, and attorneys' fees that ASEM may incur in its defense.

18. The Contractor shall be responsible for the professional quality, technical accuracy, and coordination of all designs, drawings, specifications, and other services provided by the Contractor under the contract awarded as a result of this Request for Proposals process. In this regard,

    a. Neither the Government's review, approval, or acceptance, nor payment for services rendered under the contract, shall be construed as a waiver of any right or cause of action arising from the performance of the contract, and the Contractor shall be and shall remain liable to the Government under applicable law for all damages to the Government caused by the Contractor's negligent performance of any of the services rendered under the contract.

    b. The Government's rights and remedies provided in the contract are in addition to any other rights and remedies provided by law.

19. The proposal should include all necessary labor, materials, tools, equipment, software, supplies, and transportation necessary for the performance of the contractor's duties under the contract. The Contractor shall procure all necessary permits, consents, and licenses to comply with all applicable laws, federal, state, or municipal, along with

all regulations, and ordinances of any regulating body. The proposer shall pay any applicable sales, use, or personal property taxes arising out of this contract and the transactions contemplated thereby. Any other taxes levied upon this contract, the transaction, of the equipment, or services delivered pursuant here shall be borne by the Contractor.

20. The Contractor shall be responsible for the design and implementation of the CES Plan, including all required coordination, permitting support, inspections, corrective measures, and documentation.

21. ASEM will hold working meetings once a week for the duration of the contract. Attendance at these meetings will be in person at ASEM's facilities.

22. The Design and Construction team will thoroughly investigate all conditions that may affect the development and execution of the design and construction activities before the start of the activities.

23. The Project Team will hold a pre-construction meeting with ASEM to define the roles and responsibilities of each member and to discuss various matters relevant to the project's execution. At this meeting, the team will present the Work Plan to define the work schedule for the design phase and a preliminary schedule for the construction phase. ASEM will coordinate this meeting. The meeting will take place within 30 calendar days of the contract signing. The Project Team will consist of:

    a. Design-Builder

    b. Consultant

    c. Subconsultant

    d. ASEM's Authorized Representative

    e. Project Manager

    f. Safety Manager

    g. Quality Control Manager

    h. Subcontractors

    i. Suppliers, if necessary

ASEM will be responsible for preparing, within five (5) days following the meeting, minutes that will be distributed to the Project Team members and other attendees.

24. The Design-Builder shall be fully and solely responsible for the accuracy, completeness, coordination, and constructability of all design documents and design services provided for the Project, including those performed by architects, engineers, consultants, and any other design professionals under the Design-Builder's direction. Any design errors, omissions, inconsistencies, or conflicts—regardless of whether they arise from architectural, engineering, or specialty design services—shall be the responsibility of the Design-Builder.

25. ASEM shall not be responsible for verifying the design nor for resolving disputes between design consultants and contractors. The Design-Builder shall bear all costs, schedule impacts, corrective measures, and performance obligations resulting from design errors or omissions. Under no circumstances shall design responsibility be divided between "designer" and "contractor"; the Design-Builder assumes unified responsibility for both design and construction, ensuring coordinated and fully integrated project delivery.

26. The Design-Builder shall be fully responsible for all services, work, coordination, and deliverables required to perform the Project, including design, engineering, construction, commissioning, quality control, regulatory compliance, and project close-out. The Design-Builder shall provide a fully integrated project delivery approach in which design and construction responsibilities are unified and inseparable.

27. The Design-Builder shall coordinate the work of all design disciplines and construction trades so that drawings, specifications, and field activities are fully aligned.

28. The Design-Builder shall identify and resolve conflicts between design and construction proactively, without reliance on ASEM interpretation or intervention.

29. The Design-Builder guarantees that the finished project will meet all functional, operational, environmental, and performance requirements identified in the contract. The Design-Builder shall correct, at no cost to

the ASEM, any deficiencies affecting performance, regardless of whether caused by design or construction.

30. The Design-Builder shall be responsible for ensuring that all design and construction work complies with applicable laws, codes, regulations, standards, and authority requirements. The Design-Builder shall prepare and submit all documents required for permits, inspections, approvals, and certifications.

31. The Design-Builder shall implement a comprehensive quality management program that encompasses design QA, construction QC, submittals, inspections, testing, and commissioning. Any failure to meet specified quality standards shall be corrected at the Design-Builder's expense, regardless of origin.

32. The Design-Builder shall be responsible for preparing, maintaining, and updating a realistic and achievable project schedule and budget. Delays or cost impacts arising from design deficiencies, coordination issues, procurement choices, or construction inefficiencies shall be the sole responsibility of the Design-Builder.

33. All subcontractors, suppliers, architects, engineers, and consultants engaged by the Design-Builder are the Design-Builder's responsibility. The ASEM shall have no contractual relationship with these entities. The Design-Builder is responsible for their performance, compliance, safety, coordination, and deliverables.

34. The Design-Builder shall conduct all commissioning activities and ensure that systems operate according to design intent and contract requirements.

35. Design development activities, coordination efforts, constructability refinements, sequencing adjustments, and other work necessary to complete the Project shall not constitute compensable changes. Eligible change orders shall be limited to Owner-directed scope changes, differing site conditions, regulatory changes occurring after proposal submission, and force majeure events, subject to the procedures and limitations established in the Contract Documents.

36. The Design-Builder shall deliver complete close-out documentation, training, manuals, and as-built records.

37. The Design-Builder is the single point of responsibility and shall resolve any disputes internally among designers, engineers, subcontractors, or consultants. The ASEM shall not mediate or assume responsibility for internal disputes within the Design-Builder's Team.

38. The Technical Proposal shall clearly address the Design-Builder's design approach, clinical approach, BIM approach, construction approach, schedule approach, cost management strategy, change management strategy, commissioning strategy, QA/QC strategy, safety strategy, team organization, assumptions matrix, exclusions matrix, and deviations matrix. Conditional proposals, undisclosed exceptions, and exclusions not expressly stated in the Proposal may be rejected or deemed included in the Contract Price.

39. The Contractor will deliver the documents for each of the design phases, as applicable, in digital version in the file formats ".dwg" (native file format for AutoCAD) and ".pdf" (Adobe Portable Document Format), and printed (3 sets of drawings in size 11" x 17", 1 set of drawings in size 24" x 36" to scale, 3 books of technical specifications, 3 cost estimates that include the detail of the source of information or database, 3 books of analysis and calculations, etc.).

40. Staging Area. The Staging Area is the designated space for the organization, storage, pre-assembly, and logistical handling of materials, equipment, and support activities during project execution.

    The following requirements establish the minimum criteria that the Design-Builder must meet to ensure safety, operational continuity, risk control, and logistical efficiency.

    a. The Design-Builder must propose a clearly defined Staging Area, with plans indicating dimensions, access points, circulation routes, and proximity to operational areas.

    b. The location must not interfere with critical operations, emergency access, patient routes, or essential infrastructure.

    c. It must comply with the ASEM's restrictions, OGPe regulations, and applicable rules.

d. The area must be fenced, controlled, and marked.

e. Access is limited to authorized personnel only.

f. Implementation of physical security measures:

   i. Adequate lighting.

   ii. Cameras or surveillance depending on the project's criticality.

   iii. Record of incoming and outgoing materials

g. Materials and Equipment Handling

   i. Sufficient space for temporary storage, pre-assembly, and handling heavy equipment.

   ii. Protection from the elements (tarpaulins, tents, containers).

   iii. Segregation of sensitive, flammable, or regulated materials.

   iv. Compliance with OSHA and NFPA standards for safe storage

h. Circulation and Logistics

   i. Design of internal routes for the movement of trucks, forklifts, and equipment.

   ii. Minimizing interference with the ASEM's operations.

   iii. Internal traffic plan including:

      4. Permitted hours.

      5. Access and exit routes.

      6. Safety protocols for maneuvers

i. Operational Impact

i. The Design-Builder must ensure that the staging area does not disrupt essential services, especially in healthcare facilities.

ii. An Operational Impact Mitigation Plan will be required, including measures for noise, dust, vibration, and access.

j. Regulatory Compliance

i. Compliance with local and federal regulations: (1) OGPe, (2) OSHA for occupational safety; (3) EPA for materials and waste management; (4) ASEM's standards; or any other as applicable.

k. Waste Management and Environmental Control

i. Designated area for construction waste management.

ii. Segregation of hazardous waste.

iii. Dust, runoff, and spill control protocols.

iv. Compliance with Good Manufacturing Practices (GMPs).

l. Temporary Infrastructure

i. Installation of temporary facilities as needed:

1. Field offices.

a. Installation Requirements

- Temporary structures such as trailers, modules, or conditioned containers.
- Secure electrical, water, sewer system and telecommunications connections.
- Climate control system appropriate for local conditions.
- Minimum space for meetings, document storage, and administrative equipment.

b. Operational Requirements

- Designated area for coordination meetings and document management.
- Basic furnishings: desks, chairs, filing cabinets, whiteboards, office equipment.
- Controlled access for authorized personnel.
- Compliance with security and information protection standards.
- Available for ASEM's inspection.

2. Portable toilets.

a. Installation Requirements

- Sufficient quantity according to workforce size and OSHA standards.
- Accessible, safe location away from food preparation areas.
- Units with adequate ventilation and sturdy construction

b. Operational Requirements

- Cleaning and emptying at least 3 times per week, or as needed.
- Continuous supply of paper towels, disinfectants, and soap.
- Maintenance log available for ASEM's inspection.
- Waste management in accordance with applicable environmental regulations.

3. Washing stations.

a. Installation Requirements

- Strategically located near portable toilets and food areas.
- Systems with potable water, soap, and disposable towels.
- Stable structures protected from the elements.

b. Operational Requirements

- Daily restocking of supplies.
- Continuous cleaning and disinfection.
- Visible signage indicating mandatory use.
- Compliance with hygiene protocols established by OSHA and EPA.

4. Staff rest areas.

a. Installation Requirements

- A safe, shaded, and well-ventilated space for staff breaks.
- Basic furnishings: tables, chairs, shade or tents.
- Located away from hazardous areas, heavy machinery, and vehicular traffic.

b. Operational Requirements

- Daily cleaning maintenance.
- Smoking is prohibited in non-designated areas.

- Proper solid waste management. Dispose of all food waste outside the Medical Center Field facilities daily.

- Signage indicating rules of use and safety.

ii. All temporary infrastructure must comply with health and safety requirements and federal and local regulations.

iii. The Design-Builder will be responsible for the installation, operation, cleaning, maintenance, security, and removal of all temporary facilities.

iv. The facilities must be located in areas previously approved by the ASEM and must not interfere with critical operations, emergency access, or essential traffic routes.

v. Safe accessibility, adequate lighting, and signage in accordance with applicable standards must be guaranteed.

m. Emergency Plan

The Staging Area must include:

i. Evacuation routes.

ii. Fire extinguishers and emergency equipment.

iii. Protocols for severe weather events.

iv. Procedures for hazardous materials incidents

The Design-Builder shall implement a Safety Plan that includes periodic inspections, maintenance logs, and emergency protocols.

n. Final Restoration

i. Upon completion of the project, the Design-Builder shall completely remove the Staging Area.

ii. Restore the area to its original condition or to the condition specified by the ASEM.

iii. Submit certification of proper disposal of materials and waste.

iv. Upon completion of the project, the Design-Builder shall remove all temporary facilities and restore the area to its original condition or as specified by the ASEM.

v. Evidence of proper disposal of waste and materials must be submitted.

vi. The ASEM will conduct a final inspection to verify compliance.

41. Movilization.

a. Prior to mobilization, the Design-Builder must have a Mobilization Plan approved by ASEM that includes:

b. A detailed schedule of mobilization activities.

c. A list of equipment, machinery, and resources to be mobilized.

d. A plan for the installation of temporary facilities (offices, restrooms, wash stations, break areas).

e. A security and access control plan.

f. An internal and external traffic management plan.

g. Staging Area Plan.

h. Initial safety inspection before commencing construction activities.

i. Initial staff training in emergency and safety procedures.

j. The Design-Builder must obtain ASEM approval regarding: (1) Required insurance certificates or endorsements; (2) Quality Control Plan (QC Plan); (3) Waste Management Plan; (4) Communications and Coordination Plan with ASEM; and (5) Log of equipment and machinery mobilized.

k. ASEM may stop work, issue corrective orders or apply contractual measures if the Design-Builder: (1) Does not comply with mobilization requirements;

(2) Installs temporary facilities without approval; (3) Affects critical AESM operations; and (4) Violates OSHA, EPA, OGPe, or applicable regulations.

42. Demobilization.

a. Prior to project completion, the Design-Builder shall submit a Demobilization Plan that includes: (1) A schedule for the removal of equipment, machinery, and temporary facilities; (2) Procedures for closing work areas; (3) A plan for restoring surfaces, access points, and affected areas; and (4) A plan for the final disposal of waste and materials.

b. The Design-Builder shall: (1) Dismantle and remove field offices, portable toilets, wash stations, and rest areas; (2) Remove fences, temporary signage, barriers, and auxiliary structures; (3) Disconnect and remove temporary electrical, water, and telecommunications connections; and (4) Certify proper waste disposal in accordance with EPA regulations.

c. Complete cleaning of all areas used.

d. Restoration of the land to its original condition or as specified by the ASEM.

e. Repair of damage caused by construction or mobilization activities.

f. Final inspection with the ASEM to verify compliance.

g. The Design-Builder shall deliver: (1) Demobilization Report; (2) Photographic evidence of removal and restoration; (3) Waste disposal certifications; (4) Final as-built drawings and required contractual documentation; and (5) Administrative and financial closure in accordance with the contract.

h. ASEM may issue corrective orders or apply contractual measures if the Design-Builder: (1) Fails to meet demobilization requirements; (2) Affects critical ASEM operations; and (3) Violates OSHA, EPA, OGPe, or other applicable regulations.

43. Protection of Existing Infrastructure

a. The Contractor shall establish minimum requirements for the protection, preservation, and safe handling of all existing infrastructure within or adjacent to the project area, including systems, structures, utilities, operational facilities, and critical elements whose integrity must be maintained during the execution of the works.

b. The Design-Builder will be responsible for implementing all activities and measures to:

i. Identify and document existing infrastructure and utilities.

ii. Protect it against damage, disruption, or impact.

iii. Coordinate with the ASEM and service providers any required interventions.

iv. Restore any damage caused by construction activities.

v. Installation of physical barriers, fences, protective panels, and visible signage.

vi. Protection of surfaces, doors, windows, entrances, and traffic routes.

vii. Protection through support, temporary diversions, or isolation.

viii. Excavation is prohibited without authorization and without completing the Utilities Clearance.

ix. Signage for restricted areas and alternative routes.

x. Vibration monitoring in critical areas.

xi. Implementation of low-impact construction methods.

xii. Acoustic barriers where necessary.

xiii. Installation of dust barriers and filters.

xiv. Proper management of runoff to prevent infiltration into existing infrastructure.

xv. Protection of drains and stormwater system.

xvi. Identification of sensitive or hazardous materials in existing areas.

xvii. Containment and handling protocols in accordance with EPA and OSHA regulations.

xviii. Documentation of incidents and corrective actions.

c. The Design-Builder shall conduct a complete survey that includes:

   i. Existing structures (buildings, walls, slabs, roofs).

   ii. Underground and overhead utilities (electrical, water, telecommunications, gas, sewer).

   iii. Institutional systems (medical gases, ductwork, drainage, HVAC).

   iv. Critical operational areas (rooms, laboratories, emergency access points).

d. Failure to comply with these requirements may result in: (1) Corrective action orders; (2) Work suspension; (3) Contractual adjustments; or (4) Liability for damages and associated costs.

44. Risk Management and Operational Continuity

a. The Contractor must establish the minimum requirements for the identification, assessment, mitigation, and monitoring of risks, as well as for ensuring the operational continuity of the ASEM's facilities during project execution.

   This applies to all design, construction, mobilization, temporary operation, and demobilization activities.

b. The Design-Builder will be responsible for: (1) Ensure the continuity of the ASEM's critical operations; (2) Develop mitigation, contingency, and emergency response plans; (3) Coordinate with the SEM and regulatory entities any intervention that affects essential services; and (4) Document and report risks, incidents, and corrective action.

c. The Design-Builder must prepare a Risk Assessment Report that includes: (1) Technical risks (design, engineering, critical systems); (2) Operational risks (access, traffic flow, essential services); (3) Construction risks (excavation, vibrations, heavy machinery); (4) Regulatory risks (permits, compliance, inspections); and (5) Environmental risks (dust, noise, runoff, hazardous materials).

d. The Contractor must perform the (1) Impact assessment of cost, schedule, scope, and operations; and (2) Identification of critical risks requiring immediate mitigation.

e. The Design-Builder must submit a Risk Mitigation & Contingency Plan that

includes: (1) Preventive measures for each identified risk; (2) Corrective actions and contingency protocols; (3) Assigned resources (personnel, equipment, budget); (4) Implementation schedule; and (5) Communication procedures with the ASEM.

f. All safety measures must be in place before commencing high-risk activities.

g. ASEM may require adjustments to the plan based on operational conditions.

h. The Design-Builder must maintain evidence of implementation of all plans.

i. The Design-Builder shall ensure that project activities do not affect the continued operation of: (1) Clinical and hospital services (if applicable); (2) Emergency electrical systems; (3) Water, medical gas, and HVAC systems; (4) Emergency access, patient routes, and institutional circulation; and (5) Electronic security and telecommunications systems.

j. The Design-Builder must submit an Operational Continuity Plan that includes: (1) Identification of essential ASEM services; (2) Protocols to minimize disruptions; (3) Procedures for scheduled outages; (4) Communication plan for operational impact notifications; and (5) Protection measures for critical infrastructure.

k. The Design-Builder must submit: (1) Weekly Risk Status Reports; (2) Incident reports within 24 hours; (2) Documentation of implemented corrective actions; and (3) Updates to the risk matrix as the project progresses.

l. The Design-Builder must activate the plan immediately upon any incident, notify ASEM immediately, document the event, and take action. This documentation must be submitted within 24 hours.

m. The Design-Builder must submit a Risk Closure Report with evidence of risk closure and certify that there are no residual risks that affect the operation of ASEM.

n. Failure to comply with these requirements may result in: (1) Corrective action orders; (2) Work suspension; (3) Contractual adjustments; and (4) Liability for damages and associated costs.

45. Software Project Manager

a. It will be the Contractor's responsibility to acquire a Software Project

Manager who will provide the necessary tools to plan, organize, lead, and control project activities, thereby ensuring the project's completion within the defined scope, schedule, and budget. These responsibilities include:

- Developing and maintaining the project plan, schedule, and roadmap.
- Coordinating cross-functional teams, including developers and quality assurance.
- Facilitating the scheduling of daily stand-ups, retrospectives, and other meetings.
- Identifying and managing project risks, issues, and dependencies.
- Monitoring progress and preparing weekly status reports.
- Ensuring that project deliverables meet quality standards and stakeholder expectations.
- Managing communication between technical teams and management.
- Overseeing project documentation, change requests, and governance

b. The program must have the capacity to

i. Centralization of information: All project documentation (plans, RFIs, submittals, contracts, photos, etc.) is accessible to all project stakeholders (Designer, Owner, Inspection, Commissioning, Builder, etc.).

ii. Quality control and safety: Forms, inspections, checklists and reports

iii. Access: Works on web and mobile. Ideal for field and office teams.

iv. Integrations with other tools: Connect with accounting, design, and documentation systems.

v. Deliverables, including but not limited to:

- Project charter and scope document

- Detailed project plan and schedules
- Risk and issue log
- Weekly progress reports
- Planning and reviewing documentation
- Processing of Submittals, Submittal Logs, RFIs, and meeting minutes
- Final project closure report

END OF DOCUMENT

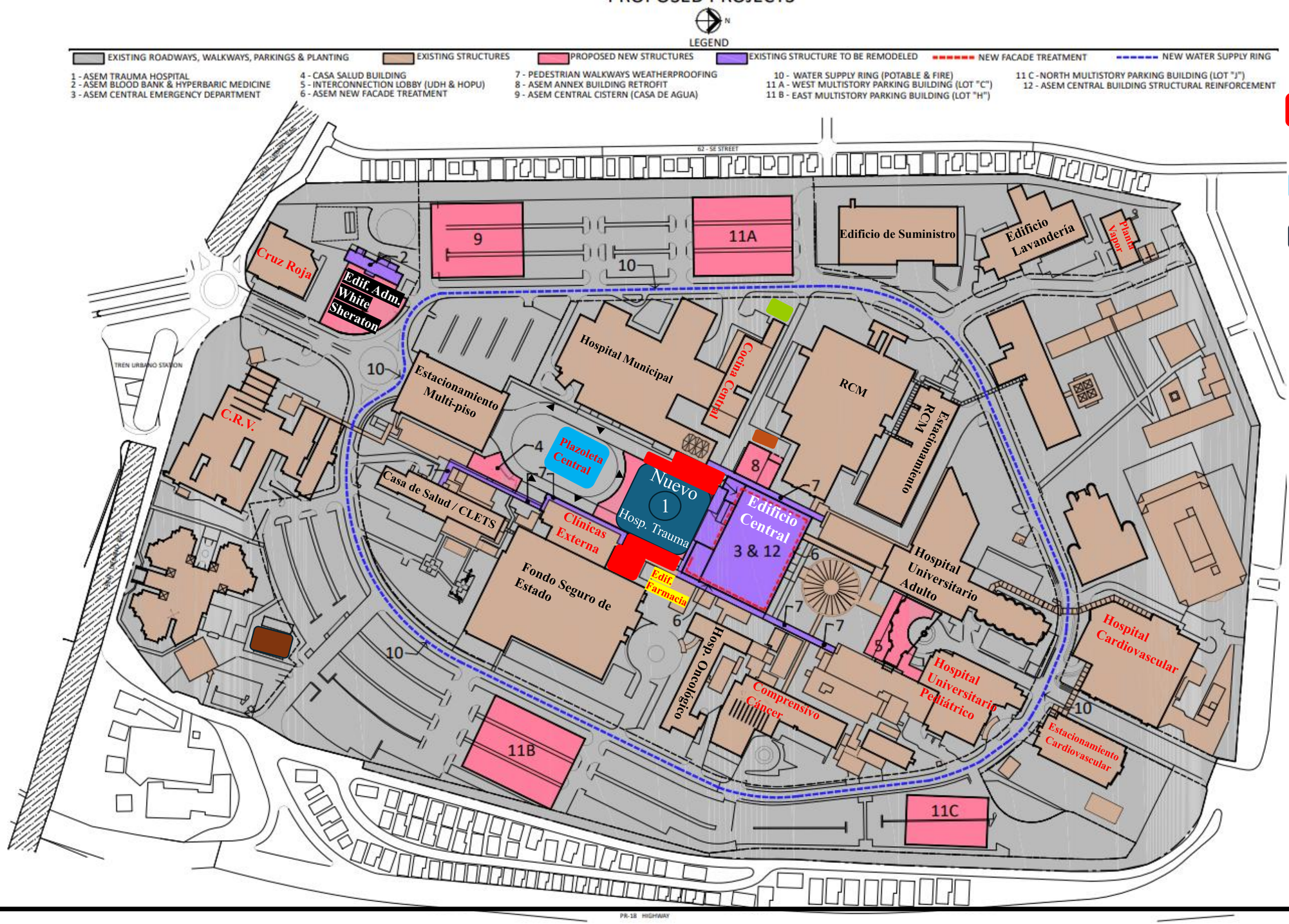
Attachment 2: Representation of the physical, logistical, operational, and functional conditions that characterize the site

MEDICAL CITY CONCEPTUALIZATION PLAN

PUERTO RICO MEDICAL CENTER

BARRIO MONACILLOS, SAN JUAN, PUERTO RICO

PROPOSED PROJECTS



Project Preparation Area (Staging Area) – ASEM

- Nuevo Hospital De Trauma
- Plazoleta Central
- Modernización Sub-Estación 1359 y 1327
- Anillo de Agua

Ing. Víctor E. González Ruiz
1 de septiembre de 2026

Attachment 3: Wage Determination

"General Decision Number: PR20260035 05/18/2026

State: Puerto Rico

Construction Types: Heavy

Counties: Puerto Rico Counties of
San Juan

HEAVY CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	01/02/2026
1	05/18/2026

SUPR2019-001 05/14/2024

	Rates	Fringes
TRUCK DRIVER: DUMP TRUCK	$ 10.06	1.16
OPERATOR: BACKHOE/EXCAVATOR/TRACKHOE	$ 11.38	0.94
LABORER: PIPELAYER	$ 7.25	0.33
LABORER: COMMON OR GENERAL	$ 8.48	0.43
ELECTRICIAN	$ 12.00	0.55
CEMENT MASON/CONCRETE FINISHER	$ 9.00	0.83
CARPENTER	$ 10.33	0.50

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than """"SU"""", """"UAVG"""", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union

whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The """SU""" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The """SA""" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were

adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION"

Attachment 4: HUD 4010

A. APPLICABILITY

The Project or Program to which the construction work covered by this Contract pertains is being assisted by the United States of America, and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

1. Minimum wages and fringe benefits

i. All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in 29 CFR 5.5(d) and (e), the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(v) of these contract clauses; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided,* That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under 29 CFR 5.5(a)(1)(iii)) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

ii. Frequently recurring classifications

A. In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to 29 CFR 5.5(a)(1)(iii), provided that:

1. The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

2. The classification is used in the area by the construction industry; and

3. The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

B. The Administrator will establish wage rates for such classifications in accordance with 29 CFR 5.5(a)(1)(iii)(A)(3). Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

iii. Conformance

A. The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be

classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

1. The work to be performed by the classification requested is not performed by a classification in the wage determination; and
2. The classification is used in the area by the construction industry; and
3. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

B. The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

C. If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

D. In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

E. The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under 29 CFR 5.5 (a)(1)(iii)(C) and (D). The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to 29 CFR 5.5 (a)(1)(iii)(C) or (D) must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

iv. Fringe benefits not expressed as an hourly rate

Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

v. Unfunded plans

If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided,* That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in 29 CFR 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

vi. Interest In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding

i. Withholding requirements

The U. S. Department of Housing and Urban Development may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in 29 CFR 5.5(a) for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in 29 CFR 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work (or otherwise working in construction or development of the project under a development statute) all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in 29 CFR 5.5(a)(3)(iv), HUD may on its own initiative and after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

ii. Priority to withheld funds

The Department has priority to funds withheld or to be withheld in accordance with 29 CFR 5.5(a)(2)(i) or (b)(3)(i), or both, over claims to those funds by:

- **A.** A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- **B.** A contracting agency for its reprocurement costs;
- **C.** A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- **D.** A contractor's assignee(s);
- **E.** A contractor's successor(s); or
- **F.** A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901-3907.

3. Records and certified payrolls

i. Basic record requirements

- **A. Length of record retention.** All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.
- **B. Information required** Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.
- **C. Additional records relating to fringe benefits***.* Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(v) that the wages of any laborer or mechanic include the amount of any

costs reasonably anticipated in providing benefits under a plan or program described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

D. Additional records relating to apprenticeship Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

ii. Certified payroll requirements

A. Frequency and method of submission The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to HUD if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the certified payrolls to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to HUD. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system

B. Information required The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i)(B), except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (*e.g.*, the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at *https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347.pdf* or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the sponsoring government agency (or the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records).

C. Statement of Compliance Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

1. That the certified payroll for the payroll period contains the information required to be provided under 29 CFR 5.5(a)(3)(ii), the appropriate information and basic records are being maintained under 29 CFR 5.5 (a)(3)(i), and such information and records are correct and complete;

2. That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly

from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3; and

3. That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

D. Use of Optional Form WH-347 The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by 29 CFR 5.5(a)(3)(ii)(C).

E. Signature The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

F. Falsification The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.

G. Length of certified payroll retention The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

iii. Contracts, subcontracts, and related documents The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

iv Required disclosures and access

A. Required record disclosures and access to workers The contractor or subcontractor must make the records required under 29 CFR 5.5(a)(3)(i)–(iii), and any other documents that HUD or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by 29 CFR 5.1, available for inspection, copying, or transcription by authorized representatives of HUD or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

B. Sanctions for non-compliance with records and worker access requirements If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to 29 CFR 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

C. Required information disclosures Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to HUD if the agency is a party to

the contract, or to the Wage and Hour Division of the Department of Labor. If the Federal agency is not such a party to the contract, the contractor, subcontractor, or both, must, upon request, provide the full Social Security number and last known address, telephone number, and email address of each covered worker to the applicant, sponsor, owner, or other entity, as the case may be, that maintains such records, for transmission to HUD, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity

i. Apprentices

A. Rate of pay Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

B. Fringe benefits Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

C. Apprenticeship ratio The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to 29 CFR 5.5(a)(4)(i)(D). Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in 29 CFR 5.5(a)(4)(i)(A), must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

D. Reciprocity of ratios and wage rates Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

ii Equal employment opportunity The use of apprentices and journeyworkers under this part must be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

5 Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6 Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (11), along with the applicable wage determination(s) and such other clauses or contract modifications as the U.S. Department of Housing and
Urban Development may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate.

7 Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8 Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9 Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

i. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of 40 U.S.C. 3144(b) or 29 CFR 5.12(a).

ii. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or 29 CFR 5.12(a).

iii. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.

11 Anti-retaliation It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

- **i.** Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, or 29 CFR parts 1, 3, or 5;
- **ii.** Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, or 29 CFR parts 1, 3, or 5;
- **iii.** Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, or 29 CFR parts 1, 3, or 5; or
- **iv.** Informing any other person about their rights under the DBA, Related Acts, or 29 CFR parts 1, 3, or 5.

B. Contract Work Hours and Safety Standards Act (CWHSSA)

The Agency Head must cause or require the contracting officer to insert the following clauses set forth in 29 CFR 5.5(b)(1), (2), (3), (4), and (5) in full, or (for contracts covered by the Federal Acquisition Regulation) by reference, in any contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses must

be inserted in addition to the clauses required by 29 CFR 5.5(a) or 4.6. As used in this paragraph, the terms "laborers and mechanics" include watchpersons and guards.

1. **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in 29 CFR 5.5(b)(1) the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchpersons and guards, employed in violation of the clause set forth in 29 CFR 5.5(b)(1), in the sum of $31 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in 29 CFR 5.5(b)(1).
3. **Withholding for unpaid wages and liquidated damages**

i. **Withholding process** The U.S Department of Housing and Urban Development or the recipient of Federal assistance may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in 29 CFR 5.5(b) on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in 29 CFR 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

ii **Priority to withheld funds** The Department has priority to funds withheld or to be withheld in accordance with 29 CFR 5.5(a)(2)(i) or (b)(3)(i), or both, over claims to those funds by:

- **A.** A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;
- **B.** A contracting agency for its reprocurement costs;
- **C.** A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;
- **D.** A contractor's assignee(s);
- **E.** A contractor's successor(s); or
- **F.** A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901-3907.

4. ***Subcontracts***. The contractor or subcontractor must insert in any subcontracts the clauses set forth in 29 CFR 5.5(b)(1) through (5) and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in 29 CFR 5.5(b)(1) through (5). In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss,

due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5 Anti-retaliation It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

- **i.** Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in 29 CFR part 5;
- **ii.** Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or 29 CFR part 5;
- **iii.** Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or 29 CFR part 5; or
- **iv.** Informing any other person about their rights under CWHSSA or 29 CFR part 5.

C. CWHSSA required records clause In addition to the clauses contained in 29 CFR 5.5(b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other laws referenced by 29 CFR 5.1, the Agency Head must cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor must maintain regular payrolls and other basic records during the course of the work and must preserve them for a period of 3 years after all the work on the prime contract is completed for all laborers and mechanics, including guards and watchpersons, working on the contract. Such records must contain the name; last known address, telephone number, and email address; and social security number of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid; daily and weekly number of hours actually worked; deductions made and actual wages paid. Further, the Agency Head must cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph must be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview workers during working hours on the job.

D. Incorporation of contract clauses and wage determinations by reference Although agencies are required to insert the contract clauses set forth in this section, along with appropriate wage determinations, in full into covered contracts, and contractors and subcontractors are required to insert them in any lower-tier subcontracts, the incorporation by reference of the required contract clauses and appropriate wage determinations will be given the same force and effect as if they were inserted in full text.

E. Incorporation by operation of law The contract clauses set forth in this section (or their equivalent under the Federal Acquisition Regulation), along with the correct wage determinations, will be considered to be a part of every prime contract required by the applicable statutes referenced by 29 CFR 5.1 to include such clauses, and will be effective by operation of law, whether or not they are included or incorporated by reference into such contract, unless the Administrator grants a variance, tolerance, or exemption from the application of this paragraph. Where the clauses and applicable wage determinations are effective by operation of law under this paragraph, the prime contractor must be compensated for any resulting increase in wages in accordance with applicable law.

F. HEALTH AND SAFETY

The provisions of this paragraph (F) are applicable where the amount of the prime contract exceeds **$100,000**.

1. No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his or her health and safety, as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.
2. The contractor shall comply with all regulations issued by the Secretary of Labor pursuant to 29 CFR Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96), 40 U.S.C. § 3701 et seq.
3. The contractor shall include the provisions of this paragraph in every subcontract, so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

Attachment 5: INSURANCE REQUIREMENTS AND BONDING SPECIFICATIONS

A. In General

The **DESIGN-BUILD CONTRACTOR** shall obtain and maintain, at its own expense and for the duration of the contract including any warranty periods under the Contract are satisfied, the insurance coverages set forth below.

These insurance requirements are minimum requirements for the Contract and in no way limit any indemnity covenants in the Contract. **ASEM** and the Puerto Rico Department of Housing (**PRDOH**) do not warrant that these minimum limits are sufficient to protect the **DESIGN-BUILD CONTRACTOR** from liabilities that might arise out of the performance of the work under the Contract by the **DESIGN-BUILD CONTRACTOR**, its agents, representatives, employees, or subcontractors.

The insurance required hereunder shall not be interpreted to relieve the **DESIGN-BUILD CONTRACTOR** of any obligations under the Contract. The **DESIGN-BUILD CONTRACTOR** shall remain fully liable for all deductibles and amounts in excess of the coverage actually realized.

B. Minimum scope and limit of insurance:

Coverage should be at least as broad as to be requested in applicable acquisition processes:

1. **Surety Bonds:** The **DESIGN-BUILD CONTRACTOR** must provide or cause those conducting the work to provide and maintain bonds covering the faithful performance of the contract and payment of all obligations in the following amounts:
   a) **Bid Bond**: 5% of the contract value.
   b) **Performance Bond**: 100% of the contract value, including change orders.
   c) **Payment Bond**: 100% of the contract value, including change orders.
   d) **Wage Payment Bond:** At least twenty percent (20%) of the contract value, guaranteeing payment of wages to the **DESIGN-BUILD CONTRACTOR's** laborers and employees, as required under Puerto Rico Law 111-1961. This bond is in addition to the **Payment Bond** and must meet all applicable statutory and regulatory requirements.

2. **Commercial General Liability Insurance**

Attachment 5: INSURANCE REQUIREMENTS AND BONDING SPECIFICATIONS

The **DESIGN-BUILD CONTRACTOR** must provide or cause those conducting the work to provide and maintain Commercial General Liability Insurance (broad form coverage) insuring against claims for bodily injury, property damage, personal injury and advertising injury that shall be no less comprehensive and no more restrictive than the coverage provided by Insurance Services Office (**ISO**) form for Commercial General Liability (**CG 00-01**). By its terms or appropriate endorsements such insurance shall include the following coverage, to wit: Bodily Injury, Property Damage, Fire Legal Liability, Personal Injury, Blanket Contractual, Independent Contractors, Premises Operations, Products and Completed Operations. The policy cannot be endorsed to exclude the perils of explosion (**x**), collapse (**c**) and underground (**u**) exposures without the specific written approval of the Owner.

If Commercial General Liability Insurance or other form with a general aggregate limit and products and completed operations aggregate limit is used, then the aggregate limits shall apply separately to the Project, or the **DESIGN-BUILD CONTRACTOR** may obtain separate insurance to provide the required limit which shall not be subject to depletion because of claims arising out of any other project or activity of the **DESIGN-BUILD CONTRACTOR.**

Type of Coverage:	Occurrence Basis
Amount of Coverage	
• General Aggregate	$2,000,000
• Each Occurrence	$1,000,000
• Products – Completed Operations Aggregate	$1,000,000
• Personal and Advertising Injury	$1,000,000
• Contractual Liability	$1,000,000
• Fire Legal Liability	$ 50,000
• Medical Expense	$ 5,000

a) Policy will include the following additional insured language: Puerto Rico Department of Housing (**PRDOH**), Puerto Rico Government, US Department of Housing and Urban Development **(HUD)**, **ASEM**, its officers, officials, agents, and employees, will be named as additional insureds with respect to liability arising out of the activities performed by or on behalf of the **DESIGN-BUILD CONTRACTOR**.

b) Policy will contain a waiver of subrogation against Puerto Rico Department of Housing (**PRDOH**), Puerto Rico Government, US Department of Housing and Urban Development **(HUD)**, **ASEM**, its officers, officials, agents, and employees, for losses arising from work performed by or on behalf of the **DESIGN-BUILD CONTRACTOR.**

c) Duration of Coverage: liability policies shall continue coverage for a minimum of five (**5**) years for Completed Operations liability coverage. Such Insurance must be maintained, and evidence of insurance must be provided for at least five (**5**) years after completion of the contract of work.

3. Automobile Liability Insurance

The **DESIGN-BUILD CONTRACTOR** must provide or cause those conducting the work to provide and maintain Comprehensive Automobile Liability Insurance insuring against claims for bodily injury and property damage and covering the ownership, maintenance or use of any auto or all owned/leased and non-owned and hired vehicles (Symbols 2, 8 and 9) used in the performance of the Work, both on and off the Project Site, including loading and unloading. The coverage shall be provided by Insurance Services Office form for Commercial Auto Coverage (**CA-00-01**) or equivalent.

Type of Coverage: Occurrence Basis
Amount of Coverage: $1,000,000 combined single limit

a) Policy will include the following additional insured language: Puerto Rico Department of Housing (**PRDOH**), Puerto Rico Government, US Department of Housing and Urban Development **(HUD)**, **ASEM,** its officers, officials, agents, and employees, will be named as additional insureds with respect to liability arising out of the activities performed by or on behalf of the **DESIGN-BUILD CONTRACTOR**.

b) Policy will contain a waiver of subrogation against: Puerto Rico Department of Housing (**PRDOH**), Puerto Rico Government, US Department of Housing and Urban Development **(HUD)**, **ASEM,** its officers, officials, agents, and employees, for losses arising from work performed by or on behalf of the **DESIGN-BUILD CONTRACTOR**.

4. Workers' Compensation and Employer's Liability Insurance

The **DESIGN-BUILD CONTRACTOR** must provide or cause those conducting the work to provide Worker's Compensation Insurance with "Statutory Limits" as required by Act 45 of April 18, 1935, as amended, known as "The Workmen's Accident Compensation Act" (*Ley del Sistema de Compensaciones por Accidentes del Trabajo*).

The **DESIGN-BUILD CONTRACTOR** must provide or cause those conducting the work to provide Employer Liability Insurance covering its legal obligation to pay

damages because of bodily injury or occupational disease (including resulting death) sustained by an employee.

Amount of Coverage:	$1,000,000 bodily injury by accident $1,000,000 bodily injury by disease $1,000,000 policy limit

5. Umbrella/Excess Liability

The **DESIGN-BUILD CONTRACTOR** must provide or cause those conducting the work to provide Umbrella/Excess Liability insurance limits as follows:

Coverage: Written on a following form basis over the primary policies: Commercial General Liability, Employers' Liability and Automobile Liability Insurance.

Limits	Each occurrence	$50,000,000
	General Aggregate	$50,000,000
	SIR	$10,000

a) Any such excess insurance shall be at least as broad as the **DESIGN-BUILD CONTRACTOR's** primary insurance.

b) Policy will include the following additional insured language: Puerto Rico Department of Housing (**PRDOH**), Puerto Rico Government, US Department of Housing and Urban Development **(HUD), ASEM,** its officers, officials, agents, and employees, will be named as additional insureds with respect to liability arising out of the activities performed by or on behalf of the **DESIGN-BUILD CONTRACTOR**.

c) Duration of Coverage: umbrella/excess liability policies shall continue coverage for a minimum of five (**5**) years for Completed Operations liability coverage. Such Insurance must be maintained, and evidence of insurance must be provided for at least five (**5**) years after completion of the contract of work.

6. Contractors Pollution Liability to indemnify for bodily injury, property damage, or amounts which the **DESIGN-BUILD CONTRACTOR**, its employees, its agents, or its Subcontractors are legally obligated to pay for cleanup/remediation work arising out of or related to the services to be provided under this "Agreement". Pollution Liability policy must include contractual liability coverage.

Amount of Coverage:	Per Loss	$5,000,000
	Aggregate	$5,000,000

a) Coverage shall apply to sudden and gradual pollution conditions resulting from the escape or release of smoke, vapors, fumes, acids, alkalis, toxic chemicals, liquids, or gases, natural gas, waste materials, or other irritants, contaminants, or pollutants (including asbestos). Policy shall cover the **DESIGN-BUILD CONTRACTOR** completed operations.

b) If the coverage is written on a **claims-made basis**, the **DESIGN-BUILD CONTRACTOR** warrants that any retroactive date applicable to coverage under the policy precedes the effective date of this Contract; and that continuous coverage will be maintained, or an extended discovery period will be exercised for a period of five (**5**) years beginning from the time that work under this contract is completed.

c) The policy shall be endorsed to include the following as Additional Insureds: Puerto Rico Department of Housing (**PRDOH**), Puerto Rico Government, US Department of Housing and Urban Development **(HUD)**, **ASEM,** its officers, agents, and employees named as an additional insured with respect to liability and defense of suits arising out of the activities performed by, or on behalf of the **DESIGN-BUILD CONTRACTOR**, including completed operations.

d) Endorsements CA9948 and MCS-90 are required on the Automobile Liability Coverage if the **DESIGN-BUILD CONTRACTOR** or its Subcontractors transports any type of hazardous materials.

7. Professional Liability Insurance – Project-Specific Policy

The **DESIGN-BUILD CONTRACTOR** shall procure and maintain **Project-Specific Professional Liability Insurance** covering negligent or wrongful acts, errors or omissions, or failure to render professional services arising out of or in connection with the **Design-Build of Puerto Rico's New Trauma Hospital project**.

Coverage shall apply to professional services performed by or on behalf of the **DESIGN-BUILD CONTRACTOR** in connection with its turn-key responsibilities for the **Project**, including **design, engineering, architectural services, professional supervision, project and construction administration, and other professional services** required for the design and construction of the Project.

The policy shall be specifically written for the **Design-Build of Puerto Rico's Trauma Hospital project**, and the required limits shall be dedicated exclusively to the Project. Such limits shall not be shared with, reduced, impaired, or eroded by

claims, payments, settlements, judgments, defense costs, claim expenses, or any other amounts, expenditures, or disbursements arising from any other project, operation, or professional services of the **DESIGN-BUILD CONTRACTOR** or any other insured.

Amount of Coverage:	Per Claim	$10,000,000
	Aggregate	$10,000,000

a) If coverage is written on a **claims-made basis**, the retroactive date shall precede the commencement of any professional services performed in connection with the Project. Continuous coverage shall be maintained, or an **Extended Reporting Period** shall be provided, for a minimum of **five (5) years** following completion of the professional services under the Project.

8. Builders' Risk Insurance

Unless otherwise provided, **DESIGN-BUILD CONTRACTOR** will procure, pay for, and maintain, Builders' risk (and/or Installation Floater) in the amount of the initial Contract Sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a value-at-risk-at-time-of-loss (**VARTOL**) valuation clause (as defined in the builders' risk policy).

a) Such Builders' Risk insurance shall end when the first of the following occurs:

i. The **PRDOH** interest in the Work ceases;
ii. the policy expires or is cancelled; or
iii. the Work is accepted by **PRDOH**.

b) **DESIGN-BUILD CONTRACTOR** is responsible for the deductible for any claim made against the policy. A separate certificate of insurance evidencing the coverage required herein shall be provided to **ASEM** and **PRDOH.**

c) **ASEM** and **PRDOH** shall be added as Additional Named Insured and Loss Payee.

d) Policy must provide coverage from the time any covered property becomes the responsibility of the **DESIGN-BUILD CONTRACTOR**, and continue without interruption during construction, renovation, or installation, including any time during which the covered property is being transported to the construction installation site, or awaiting

installation, whether on or off site.

e) Builders' Risk Coverage shall be on a Special Covered Cause of Loss Form and shall include theft, vandalism, malicious mischief, collapse, false-work, temporary buildings and debris removal including demolition, increased cost of construction, architect's fees and expenses, flood (including water damage), earthquake, and if applicable, all below and above ground structures, piping, foundations including underground water and sewer mains, piling including the ground on which the structure rests and excavation, backfilling, filling, and grading. Equipment Breakdown Coverage (a.k.a. Boiler & Machinery) shall be included as required by the Contract Documents or by law, which shall specifically cover insured equipment during installation and testing (including hot testing, where applicable).

f) The Builders' Risk shall be written for 100% of the completed value (replacement cost basis) of the work being performed. The Builders' Risk shall include the following provisions:
   i. Replacement Cost Basis - including modification of the valuation clause to cover all costs needed to repair the structure or work (including overhead and profits) and will pay based on the values figured at the time of rebuilding or repairing, not at the time of loss.

g) If the project does not involve new or major reconstruction, at the option of **ASEM** and Puerto Rico Department of Housing (**PRDOH**), the **DESIGN-BUILD CONTRACTOR** may provide an Installation Floater Policy in lieu of a Builders' Risk policy, with similar coverage as the Builders' Risk policy. For such projects, an Installation Floater shall be obtained that provides for the improvement, remodel, modification, alteration, conversion or adjustment to existing buildings, structures, processes, machinery and equipment. The Property Installation Floater shall provide property damage coverage for any building, structure, machinery or equipment damaged, impaired, broken, or destroyed during the performance of the Work, including during transit, installation, and testing at the **DESIGN-BUILD CONTRACTOR's** site.

9. Other Coverages:

ASEM and **PRDOH** reserve the right to require the **DESIGN-BUILD CONTRACTOR** to obtain and maintain additional insurance coverages, provided that such requests are reasonable and consistent with industry standards. The **DESIGN-BUILD CONTRACTOR** shall secure these additional coverages within a reasonable time frame following the Department's request, ensuring continuous compliance with contractual obligations.

C. Other Provisions

1. Acceptability of Insurers

The insurance company providing any of the insurance coverage required herein shall be an Insurance Company duly authorized to do business in Puerto Rico and approved by the Office of the Commissioner Insurance of Puerto Rico and classified by A.M. Best Co. with a rating of no less than financial strength of A or have a financial size of IV or better.

If at any time an insurer issuing any such policy does not meet the minimum A. M. Best rating, the **DESIGN-BUILD CONTRACTOR** shall obtain a policy with an insurer that meets the A. M. Best rating and shall submit another certificate of insurance as required in the contract.

2. Premiums, Deductibles and Self-Insured Retentions

The **DESIGN-BUILD CONTRACTOR** shall be responsible for payment of premiums for all of the insurance coverages required under this Section. The **DESIGN-BUILD CONTRACTOR** further agrees that for each claim, suit or action made against insurance provided hereunder, with respect to all matters for which the **DESIGN-BUILD CONTRACTOR** is responsible hereunder, the **DESIGN-BUILD CONTRACTOR** shall be solely responsible for all deductibles and self-insured retentions. Any deductible or self-insured retentions over **$50,000.00** in the **DESIGN-BUILD CONTRACTOR's** insurance must be declared and approved in writing by **ASEM** and **PRDOH**.

3. Claims Made Policies

If any coverage required is written on a claims-made coverage form:

a) The retroactive date must be shown, and this date must be before the execution date of the contract or the beginning of contract work.
b) Insurance must be maintained, and evidence of insurance must be provided for at least five (**5**) years after completion of contract work.

c) If coverage is canceled or non-renewed, and not replaced with another claims-made policy form with a retroactive date prior to the contract effective, or start of work date, the **DESIGN-BUILD CONTRACTOR** must purchase extended reporting period coverage for a minimum of five (**5**) years after completion of contract work.
d) A copy of the claims reporting requirements must be submitted to the Entity for review.

4. Proof of Insurance

The **DESIGN-BUILD CONTRACTOR** shall submit proof of the Comprehensive General Liability (**CGL**) insurance and Workers' Compensation insurance policies to **ASEM** and **PRDOH** before the execution of the Grant Agreement. The **DESIGN-BUILD CONTRACTOR** shall also ensure that all other insurance policies and bonds required under this Agreement are secured by its subcontractors. The **DESIGN-BUILD CONTRACTOR** is responsible for providing **ASEM** and **PRDOH** evidence of these additional insurance policies and bonds within five (**5**) days after the execution of each individual subcontract agreement.

5. Verification of Coverage

The **DESIGN-BUILD CONTRACTOR** shall provide a Certificate or Certificates of Insurance, in a form satisfactory to **ASEM** and Puerto Rico Department of Housing **(PRDOH)** (i.e., an ACORD Certificate), before commencing any work under the contract or agreement.

Certificates of Insurance shall:

a) Be in the form acceptable to **ASEM** and **PRDOH** (i.e.: an ACORD Certificate);
b) Disclose any Deductible, Self-Insured Retention, Aggregate Limit or any exclusion to the policy that materially changes the coverage required by the contract.;
c) Project/contract number and project description shall be noted on the certificate of insurance.;
d) Be signed by an authorized representative of the Insurance carriers; and
e) Contain the following language in the Description of Operations/Locations/Vehicles section:

"Additional Insured protection afforded is on a primary and non-contributory basis. A waiver of subrogation is granted in favor of the Additional Insureds."

Only original documents (Certificate(s) and any Endorsements or other attachments) or electronic versions of the same that can be directly traced back to the Insurer, Agent or Broker via e-mail distribution or similar means will be accepted.

ASEM and **PRDOH** reserve the right to require complete certified copies of all required insurance policies, including endorsements, required by these specifications, at any time.

All certificates required by this Agreement shall be sent directly to ASEM.

6. Renewal Policies

DESIGN-BUILD CONTRACTOR shall promptly deliver **ASEM** and **PRDOH** a certificate of insurance with respect to each renewal policy, as necessary to demonstrate the maintenance of the required insurance coverage for the terms specified herein. Such certificate shall be delivered to **ASEM** not less than 30 days prior to the expiration date of any policy and bear a notation evidencing payment of the premium thereof.

7. Cancellation and Modification of Insurance Coverages

DESIGN-BUILD CONTRACTOR shall be responsible for immediately notifying **ASEM** and **PRDOH** in writing of any changes or cancellations of its insurance or may be found in breach of the contract and the contract could be terminated. This notice requirement does not waive the insurance requirements contained herein.

8. Policies Primary and Non-Contributory

All policies required above are to be primary and noncontributory with any insurance programs carried by **ASEM** and **PRDOH**.

9. Waiver of Subrogation

DESIGN-BUILD CONTRACTOR hereby grants to **ASEM** and **PRDOH** a waiver of any right to subrogation which any insurer of said **DESIGN-BUILD CONTRACTOR** may acquire against **ASEM** and **PRDOH** by virtue of the payment of any loss under such insurance. **DESIGN-BUILD CONTRACTOR** agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation, but this provision applies regardless of whether or not **ASEM** or **PRDOH** has received a waiver of subrogation endorsement from the insurer.

Attachment 5: INSURANCE REQUIREMENTS AND BONDING SPECIFICATIONS

10. Special Risks or Circumstances

ASEM and PRDOH reserve the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other circumstances.

11. Subcontractors

The **DESIGN-BUILD CONTRACTOR** and its Contractors shall include all Subcontractors as insureds under its policies or shall be responsible for verifying and maintaining the certificates provided by each Subcontractor. Subcontractors shall be subject to all of the requirements stated herein. The agency reserves the right to request copies of Subcontractors' certificates at any time.

12. No Recourse

There shall be no recourse against **ASEM** for the payment of premiums or other amounts with respect to the insurance required from the **DESIGN-BUILD CONTRACTOR** under this Section.

13. Limits of Coverage

If the **DESIGN-BUILD CONTRACTOR** maintains higher limits than the minimums shown below, **ASEM** and **PRDOH** require and shall be entitled to coverage for the higher limits maintained by the **DESIGN-BUILD CONTRACTOR**. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to **ASEM** and **PRDOH**.

14. Indemnification/Hold Harmless Agreement

DESIGN-BUILD CONTRACTOR agrees to protect, defend, indemnify, save, and hold harmless, Puerto Rico Department of Housing (**PRDOH**), Puerto Rico Government, US Department of Housing and Urban Development (**HUD**), **ASEM,** its officers, officials, agents, employees, and volunteers, from and against any and all claims, damages, expenses, and liability arising out of injury or death to any person or the damage, loss, or destruction of any property which may occur, or in any way grow out of, any act or omission of **DESIGN-BUILD CONTRACTOR**, its Contractors, agents, servants, and employees, or any and all costs, expenses and/or attorney fees incurred by **DESIGN-BUILD CONTRACTOR** as a result of any claims, demands, suits or causes of action, except those claims, demands, suits, or causes of action arising out of the negligence of Puerto Rico Department of Housing (**PRDOH**), Puerto Rico Government, US Department of Housing and Urban Development (**HUD**), **ASEM**, its officers, officials, agents, employees, and volunteers. **DESIGN-**

BUILD CONTRACTOR agrees to investigate, handle, respond to, provide defense for and defend any such claims, demands, suits, or causes of action at its sole expense and agrees to bear all other costs and expenses related thereto, even if the claims, demands, suits, or causes of action are groundless, false or fraudulent.

15. Conflict or Difference between the Specifications of the Tendering, Procedure and Special Insurance Conditions and Bonds

In the event of any conflict or difference in the description of coverage or in amounts or limits, etc., with respect to insurance requirements, the conditions of insurance and bonds established in these Insurance Requirements and Bonding Specifications shall prevail over any other insurance specifications.

Attachment 6: MODEL CONTRACT

GOVERNMENT OF PUERTO RICO
PUERTO RICO HEALTH SERVICES ADMINISTRATION

Disclaimer: This contract template contains the basic mandatory provisions applicable to design and build services to be awarded through the RFP process and funded with CDBG-MIT funds. It may be subject to certain modifications to adapt its wording to the type of legal entity selected through the award process for this bid.

CONTRACT NO.:2027-00xxxx
ACCOUNT NO.: xx.xxxx.xxxxx

CONTRACT FOR "DESIGN-BUILD SERVICES UNDER CDBG-MIT PROGRAM
PUERTO RICO'S NEW TRAUMA HOSPITAL"

PREAMBLE

-------THE FIRST PARTY: The Puerto Rico Medical Services Administration, a public instrument, created by Act No. 66 of June 22, 1978, represented by its Executive Director, Dr. Regino Colón Alsina, of legal age, married and a resident of San Juan, Puerto Rico; hereinafter referred to as "ASEM" and/or "Owner". ----------

-------THE SECOND PARTY: _____, a limited liability company created and existing under the Acts of the Government of Puerto Rico with registration number _____, represented by its _____, who in turn is represented by the _____, of legal age, ____, _____ and resident of _____, _____, whose authorization is contained in the Certificate of Eligibility of the Sole Registry of Bidders of the General Services Administration number _____, submitted to ASEM, hereinafter referred to as the "Builder" and/or "Contractor". ----------

----- THE CONTRACTOR notifies ASEM, that it has selected to carry out the design work of this project _____, of legal age, ____, _____ with a professional license number _____ and a resident of _____, _____; whose authorization is stated in the Certificate of Eligibility of the Sole Registry of Professional Service Providers of the General Services Administration number _____ submitted to ASEM hereinafter referred to as the "Designer". ----------

-----The parties declare that they are fully authorized to enter into this Agreement and, to that end, freely and voluntarily: ----------

RECITALS

WHEREAS ASEM is authorized to formalize all contracts that are necessary and convenient to carry out the activities, programs, and operations to fulfill any public purpose that applies to ASEM as conferred on it by Act No. 66 of June 22, 1978, as amended, better known as the "Puerto Rico Medical Services Administration Act." ----------

WHEREAS, the Contractor has the necessary capacity and experience to comply with the obligations and responsibilities assumed by this contract and certifies that he/she is aware of the ethical standards of his/her profession and assumes responsibility for his/her actions. ---------

THEREFORE, the parties have agreed to sign this contract under the following: ----------

TERMS AND CONDITIONS

1. JOB DESCRIPTION: The Contractor shall supply all labor, materials, equipment, services and shall fully perform all the work required in the Request of Proposal (RFP) number ASEM-ACME-2027-001-27DJ00415, referred to as Addendum A and the Contractor proposal referred as Addendum B, which are incorporated and made part of this contract. ----------

2. SERVICES TO BE PROVIDED: ----------

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2.1 Builder: The Contractor agrees to provide its services for the Project *Design-Build of Puerto Rico's New Trauma Hospital.* ----------

a. The Contractor shall provide technically qualified personnel under its supervision. The contractor shall comply with all safety regulations (e.g., OSHA, by using the necessary safety materials and equipment to protect its employees). Any damage to ASEM's property or facilities caused by the work to be performed shall be the responsibility of the contractor, who must remedy the damage and cover the costs of repairing the affected area. ----------

b. The Contractor shall be responsible for obtaining all necessary permits from the relevant regulatory authorities, as required in the request for proposals specifications. ----------

c. The Contractor shall be responsible for access to the work site, including, but not limited to, scaffolding, ladders, cranes, barricades, fences, temporary enclosures, and signage. ----------

d. The Contractor shall comply with the Puerto Rico Building Code and any other applicable codes, as well as with relevant state and federal laws, rules, and regulations; the institution's current rules and regulations; and the requirements of the accrediting bodies that regulate Puerto Rico's medical facilities. It shall be ASEM's responsibility to ensure that the design complies with applicable codes, Acts, and regulations. ----------

e. The contractor must ensure that access to the property remains unobstructed, safe, and uninterrupted for all occupants, patients, visitors, employees, etc. -------

f. The contractor shall be responsible for protecting its property against all adverse weather conditions that may occur during the performance of the work, regardless of local conditions. The parties agree and acknowledge that this contract may be temporarily suspended in cases where weather conditions or emergency situations prevent the provision of the contracted services. ----------

g. The contractor shall pay its employees, in addition to their corresponding wages, federal insurance, the Worker's Compensation Insurance, and contributions related to its staff, as required by law. ----------

h. The contractor must submit a copy of its safety program to ASEM. ----------

i. The contractor shall inform ASEM of any anomaly or damage that occurs or is detected during the performance of the work to be carried out. The Contractor shall be responsible for keeping the walkways free of obstacles and shall be responsible for the collection and disposal of debris generated during construction. ----------

j. If applicable, the Contractor guarantees that it will comply with the provisions of Act No. 79 of June 9, 2002, as amended, Act for the Survey of Records and Sewers at the Taxiing Level. The Contractor acknowledges that final payment is subject to evidence of compliance with such Act, as well as compliance with other requirements for final payment. ----------

k. This contract complies with the public policy of the Government of Puerto Rico, to reserve at least twenty percent (20%) of the purchases and contracting Construction Services for services rendered by a Local Construction Services Business or Provider, under Act No. 42 of January 21, 2018, as amended, the Law on Preference for Local Construction Contractors and Suppliers. ----------

l. The Contractor shall comply with the provisions of Act No. 109 of July 12, 1985, as amended, Act to Regulate the Use of Construction Materials Manufactured in Puerto Rico, in Public Works and Buildings that are Constructed, Reconstructed, Conserved or Repaired with Public Funds. Any natural or legal person who carries out any work in contravention of this Act shall not be compensated for any work performed on the work, shall be obliged to return any compensation received for work performed on such work, shall also be obliged to demolish and remove the

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illegally constructed at the request of the Commonwealth and, in addition, shall indemnify the State for any damage and prejudice suffered, if any. ----------

m. The Contractor commits itself, in case of labor conflicts (strikes, unemployment, etc.) which may prevent or delay the fulfillment of this contract, to notify and send the Agency all relevant data and information related to these conflicts, within a period of no later than twenty-four (24) hours after being initiated. --------

2.2 DESIGN: The Designer agrees with the Parties to provide their Professional Services for the Project *Design-Build of Puerto Rico's New Trauma Hospital.* ----------

a. Should any change of the Designer arise, it will be subject to ASEM's approval and will require that such change be made by amendment to this contract. ----------

b. The Builder does not assume the risks of the Designer and the Designer does not assume the risks of the Builder. The risks will be distributed in accordance with the provisions of the General Uniform Conditions for the Contracting of Public Works in Puerto Rico, Regulation No. 7998 of the Department of Transportation and Public Works. This does not prevent ASEM from being presented with all the required guarantees, such as bonds, policies, etc. ----------

c. INTELLECTUAL PROPERTY: The term Intellectual Property shall mean all proprietary rights and other rights in and over: (i) trademarks, service marks, certification marks, trade dress, false names, trade names, and other indications of origin; (ii) patents, inventors' certificates, and invention disclosures; (iii) trade secrets and other non-public or confidential business information, including ideas, formulas, compositions, inventions, discoveries and improvements, know-how, manufacturing and production processes and techniques, and research and development information (patentable or not); drawings, specifications, designs, plans, proposals and technical data; and financial information, pricing and cost information, business and marketing plans, and customer and supplier information and lists; (iv) writings and other works of authorship, whether or not copyrightable, including computer programs, databases, and related documentation, and all copyrights in any of the foregoing; (v) work mask; (vi) right, title and interest in knowledge, technical information, processes, practices and systems, whether or not protected by patents, copyrights or trade secrets; (vii) moral rights; (viii) rights to limit the use or disclosure of confidential information by any person; (ix) any tangible or similar intangible intellectual property, or proprietary rights, information, and technology; (x) the registrations and applications for registration of any of the foregoing with any governmental agency or authority and any renewal or extension thereof, (xi) the goodwill associated with each of the foregoing and (xii) any claim or cause of action arising out of or in connection with any infringement or misappropriation of any of the foregoing. ----------

d. The Contractor acknowledges that all documents, writings, recommendations and/or reports produced under this contract shall be the exclusive intellectual property of ASEM. All material, product, document or information, as well as applications, programming and/or any other product developed and/or product of the contracted Services, will be the property of ASEM. It is expressly agreed that all property, code, source, research, studies, designs, photographs and/or material created and/or recognized under the Acts of the United States of America and Puerto Rico as intellectual property, regardless of the medium in which it is reflected, will become the property of ASEM and ASEM is authorized to reproduce it without having to pay the Contractor any compensation for such production and/or rights therein, in addition to the compensation set forth in this Agreement. The Parties clarify that this Agreement does not contemplate the creation of intellectual property that may be subject to this Clause, since the Services are contracted. ----------

e. Perpetual and exclusive license and assignment of all derivatives and materials created and generated in connection with this Agreement. All products and/or results of the Services provided (the "Work") are performed for and for the exclusive benefit of ASEM. The Contractor acknowledges and agrees that the Work (and all rights) therein, including, but not limited to, copyright, patent, intellectual property, trademark, among others, shall be the exclusive and perpetual property of ASEM.

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Notwithstanding the foregoing, the Contractor also assigns and transfers to ASEM all right, title, and interest in and to all copyrights, trademarks, patents, and intellectual property in and to the Work; all related copyright registrations and applications, as well as all renewals and extensions thereof; all works based on, derived and/or incorporated in the Work; all revenues, royalties, damages, claims, and payments now or hereafter payable with respect to the Work and all causes of action, whether at Act or in equity, past and present, including but not limited to future intellectual property infringements; and all rights to the foregoing throughout the world. The Contractor agrees to take all necessary measures to guarantee ASEM and/or its representative the rights assigned in this place. The parties clarify that this Agreement does not contemplate the creation of any Work that may be subject to this clause. ----------

f. OBLIGATION TO RETURN MATERIALS: The Contractor must deliver and return to ASEM all writings, files, reports, materials, programs, and/or requests ("the Materials") that are delivered and/or produced in connection with this Agreement and/or that are in its possession as a result of the contractual relationship with ASEM as soon as their assignments are completed, when they are required and/or after the termination of the contractual relationship, as appropriate in each case. ASEM shall be entitled to unrestricted and unrestricted use of such materials. If this Agreement is terminated and/or terminated prior to the expiration date set forth in this Agreement, delivery of the materials must be made upon such notice, no later than fifteen (15) days from the notice. ----------

g. Representations and Indemnification. The Contractor represents and warrants to ASEM that its materials, programs, processes, systems, or applications do not infringe or violate in any way state and federal intellectual property Acts, including, but not limited to, patents, trademarks, copyrights, among others. ASEM will not be responsible for the acts or omissions of the Contractor in the execution of the agreed Services and that are related to damages to third parties due to violation of the intellectual property of third parties. The Contractor undertakes to defend, exempt and hold harmless and to indemnify ASEM and its successors for any claims, causes of action, direct and/or indirect claims of any nature, and in any forum, brought by third parties and arising from the intellectual property used by the Consultant in the provision of the Services that are the subject of this Agreement. The Contractor agrees to pay any expenses, costs and attorney's fees that ASEM may have to incur in its defense. ----------

3. CONTRACT PRICE: The Contractor will receive partial payments for the execution of the work object of this contract, subject to deductions and additions as established in the specifications up to the total sum of _____. Payments for the services subject to this contract will be made against the accounts xx.xxxx.xxxxx. This agreement will remain in force according to the availability of funds and may be terminated without notice if funds are not available for payment. ----------

4. The contract will be registered with the Office of the Comptroller of Puerto Rico under the name of the Contractor and payments will be issued in the name of said The Contractor. This is due to the limitation that the contract is registered under a single entity, and the law prohibits the Association of The Contractors and Designers under the same legal entity. ---

5. INVOICE: ASEM will fully comply with the provisions, terms, and conditions established in the Uniform General Conditions of Public Works, Supplementary Conditions, and Additional Provisions related to the payment process. ----------

a. ASEM will process payment for contracted and rendered services, as well as for work performed, in accordance with the respective applicable Acts and regulations. The invoice must: ----------

i. contain, among other things, the name of the contracted entity; ----------
ii. contract number; ----------
iii. disaster designation number; ----------
iv. CDBG-MIT grant number; ----------
v. information of the contracted entity, including postal address, telephone number, and email address; ----------

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vi. Billing period; ----------
vii. invoice number; ----------
viii. invoice issue date; ----------
ix. amount due; ----------
x. include a certification indicating that the services were rendered or work was performed but has not yet been paid; ----------
xi. certification of voidability; ----------
xii. certification of the accuracy of the invoice content; ----------
xiii. Breakdown for Payment; ----------
xiv. Certified payrolls (using the designated form); ----------
xv. Supporting documentation for any invoiced materials or equipment; ----------
xvi. Photographs identifying the work performed; ----------
xvii. Updated Project Schedule; ----------
xviii. DBRA compliance certification; ----------
xix. Certification of affirmative steps regarding Section 3 or M/W/VBE; and ----------
xx. Certification of no debt issued by the corresponding government entities (only last invoice). ----------
xxi. Other documents required by ASEM. ----------

b. ASEM will withhold 5% of the total amount of each partial invoice, as submitted, for construction works. ASEM may withhold up to ten percent (10%) of the payment due to the Contractor for services rendered, as provided in Section 1062.03 of the 2011 Puerto Rico Internal Revenue Code, as amended, in accordance with the regulations approved by the Secretary of the Treasury, unless otherwise evidenced by the presentation of the corresponding Withholding Release Certificate (total or partial) issued by the Department of the Treasury. It is understood that this withholding will apply to the amount exceeding the first five hundred dollars ($500.00) paid during the calendar year. ----------

c. Section 1062.03 (b) of the 2011 Puerto Rico Internal Revenue Code, as amended, and Department of Treasury Circular Letter 17-02 provide that payments for construction services do not require withholding if the Contractor provides an affidavit affirming the provisions of the circular letter. To that end, the Contractor, has filed the affidavit affirming that the payment to be received is not subject to withholding under section 1062.03(b). ----------

d. The Contractor acknowledges the fact that it is an essential requirement to submit the affidavit every calendar year. If it's not submitted, the Contractor will be subject to the withholding of contributions as appropriate. ----------

e. Pursuant to Act No. 48-2013, if applicable, ASEM will withhold at source from each payment for professional services contracts (aggregate contracting) provided by the Contractor, a special contribution equivalent to one and a half percent (1.5%) of the total amount of said contract, which will be allocated according to this Act. The calculation of aggregate contracting includes all agencies, instrumentalities of the Government of Puerto Rico, public corporations, as well as the Legislative Branch, the Office of the Comptroller, the Office of the Ombudsman, and the Judicial Branch, or any other entity created by state or federal Act, whose funds originate, in whole or in part, from the General Fund. To claim this exemption, the Contractor must submit, along with the signed contract, a Sworn Statement to that effect, using Form SC 1350.

f. The Contractor will pay the Designer the entirety of its invoice, within the applicable term; deducting from the latter, only the withholding of contributions that corresponds to payments for professional services, which the Contractor will notify the Department of Treasury. ASEM will not make any withholding of the portion that corresponds to the services provided by the Designer, thus avoiding a double withholding to the licensed professional. ----------

g. The Contractor acknowledges its responsibility to render and pay the corresponding contributions to the Federal Social Security and the Income Tax Bureau of the Department of Treasury. ASEM will notify such bureaus, as well as any other local or Federal agency as required by Act, of the amount accrued by the Contractor by way of this contract. ----------

h. The Contractor further undertakes to cancel any debt that cannot be clarified with

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the Department of Treasury, through the mechanism of withholding on the payments to which it is entitled to receive under this contract. ----------

i. All invoices will be processed for payment only after review and approval by the designated ASEM representative. ASEM reserves the right to request additional information before proceeding with payment. The Fiscal Resources Office also reserves the right to review the accuracy of invoices and conduct any audits it deems necessary. ----------

j. All invoices must include the following certification, indicating the absence of any interest on the part of the executive agency's officials and employees in the profits or benefits derived from the contract in question. ----------

"Under penalty of absolute nullity, I certify that no ASEM public servant is a party to or has any interest in the profits or benefits derived from the contract covered by this invoice, and if any such party or interest is involved, a prior waiver has been granted. The sole consideration for supplying the goods or services covered by the contract has been the payment agreed upon with the authorized representative of (name of the entity). The amount on this invoice is fair and correct. The construction work has been completed, the products have been delivered, and the services have been rendered, and no payment has been received for them." ----------

k. All invoices must be submitted in original, including two (2) copies, to the Office of Engineering and Environmental Care or to the ASEM representative authorized for this purpose. ----------

l. Prior to the approval of the Schedule of Value and Breakdown for Payment, the Contractor must submit to ASEM a formal request for its intention to invoice for materials on-site. This request must include a detailed narrative describing the mitigation measures to avoid adverse impacts on other project activities, the safety and security measures applicable to the storage and handling of the materials, and the Contractor's acknowledgment and acceptance of any tests, inspections, or analyses that ASEM may require prior to installation or use. The Contractor must certify that the materials will be used exclusively for the project, that they are covered by the corresponding insurance, and that it accepts the obligation to reimburse the funds if installation is not completed. The Contractor must also detail the daily material inspection process and provide any other information or certification that ASEM may request. ----------

m. Once the complete request is received, ASEM will issue its determination within a period not exceeding fifteen (15) calendar days. The determination issued will be final and not subject to reconsideration by ASEM. ----------

6. The Contractor will include as an annex to your invoice, the invoice that corresponds to the services of the Designer, only for administrative purposes. The responsibility for payment and withholding of the contributions to the services of the Designer will correspond to the Contractor. ----------

7. CONTRACTUAL RELATIONSHIP: The contractual relationship between THE PARTIES will be governed by: ----------

a. Request for Sealed Proposal, including Notifications, Scope of Works, Addenda.---
b. This agreement. ----------
c. HUD 4010. ----------
d. THE GENERAL UNIFORM CONDITIONS FOR PUBLIC WORKS IN PUERTO RICO, Regulation number 7998 of the Department of Transportation and Public Works of the Government of Puerto Rico, of March 3, 2011. ----------
e. SUPPLEMENTARY CONDITIONS. ----------
f. CONTRACTUAL CLAUSES, Appendix II, 2 CFR Part 200. ----------
g. HUD GENERAL PROVISIONS AND OTHER FEDERAL STATUES, REGULATIONS, AND PRDOH REQUIREMENTS OF HEALTHCARE STRENGTHENING SET-ASIDE. ----------
h. INSURANCE REQUIREMENTS. ----------
i. AGREEMENT FOR COMPLIANCE WITH HIPAA AND RED FLAG RULE. ----------
j. AFFIDAVIT-Internal Revenue Circular No. 17-02. ----------

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k. AFFIDAVIT ACT NO. 48 OF JUNE 30, 2013, AS AMENDED, MODEL SC 1350. ----------
l. CONTRACTOR CERTIFICATION- FOMB. ----------
m. CERTIFICATION REGARDING LEGAL ENTITIES. ----------
n. DBIA-525 AGREEMENT BETWEEN OWNER AND DESIGN-BUILDER (LUMP SUM). ----------
o. DBIA-535- GENERAL CONDITIONS OF CONTRACT BETWEEN OWNER AND DESIGN-BUILDER. ----------
p. DBIA -555- AGREEMENT BETWEEN DESIGN-BUILDER AND GC (LUMP SUM). ----------
q. E-BIMWD – BUILDING INFORMATION MODELING EXHIBIT. ----------
r. E-DEI – DIVERSITY, EQUITY & INCLUSION EXAMPLE PROVISIONS. ----------
s. E-SUSWD – SUSTAINABLE PROJECT GOALS EXHIBIT (WORKING DRAFT). ----------
t. DBIA- 565- AGREEMENT BETWEEN DESIGN-BUILDER AND DESIGN-BUILD SUBCONTRACTOR (LUMP SUM). ----------
u. DBIA- 570- AGREEMENT BETWEEN DESIGN-BUILDER AND SUBCONTRACTOR (SUB DOES NOT PROVIDE DESIGN SERVICES). ----------
v. DBIA-575- AGREEMENT BETWEEN DESIGN CONSULTANT AND DESIGN-BUILD SUB CONSULTANT. ----------
w. Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and the contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party, the contract shall forthwith be physically amended to make such insertion or correction. ----------

8. CONDENSED FORMS TO BE USED DURING THE EXECUTION OF THE CONTRACT: The Owner, the Contractor, and the subcontractor, as applicable, must use the following forms in the execution of the contract. ----------

a. 500-D1- PROJECT SCHEDULE OF VALUES (PDF + EXCEL). ----------
b. 500-D3- DESIGN-BUILD'S AFFIDAVIT OF FINAL RELEASE. ----------
c. 500-D4- CERTIFICATE OF SUBSTANTIAL COMPLETION. ----------
d. 500-D6- CONSENT OF SURETY TO REDUCTION IN OR PARTIAL RELEASE OF RETAINAGE. -
e. 500-D6GC- CONSENT OF SURETY TO REDUCTION IN OR PARTIAL RELEASE OF RETAINAGE TO GENERAL CONTRACTOR. ----------
f. 500-D6S- CONSENT OF SURETY TO REDUCTION IN OR PARTIAL RELEASE OF RETAINAGE TO SUBCONTRACTOR. ----------
g. 500-D7- CONSENT OF SURETY TO FINAL PAYMENT. ----------
h. 500-D7GC- CONSENT OF SURETY TO FINAL PAYMENT TO GENERAL CONTRACTOR. -----
i. 500-D7S- CONSENT OF SURETY TO FINAL PAYMENT TO SUBCONTRACTOR. ----------
j. 500-D8- CERTIFICATE OF FINAL COMPLETION. ----------
k. 500-D9- DESIGN-BUILDER'S REQUEST. ----------
l. 500-D10- DESIGN-BUILDER'S REQUEST LOG. ----------
m. 620 – Performance Bond ----------
n. 625 – Payment Bond ----------

9. EFFECTIVE TERM: The validity of this contract will be from its signature until ____ of ____ of 20__. Project commencement will begin on the date specified in the "Notice to Procced" issued by ASEM. This contract will remain in effect in accordance with the availability of funds for the fiscal year for which it has been awarded. The contract will be extended, subject to agreement by both parties, and funds are available in the appropriate budget line. It may be terminated without prior notice if funds are not available for payment. ------

10. LIQUIDATED DAMAGES: Time is of the essence in the performance of the Work. The Design-Builder acknowledges that failure to achieve Substantial Completion, Final Completion, or any Contract Milestone established in the Contract Documents within the required time may cause ASEM, PRDOH, the Government of Puerto Rico, HUD, patients, healthcare providers, emergency services, and the public to incur substantial damages, including, but not limited to, administrative costs, extended oversight and inspection costs, delayed availability of critical healthcare services, disruption to campus operations, extended project management costs, and other impacts that are difficult or impracticable to determine with precision at the time of contract execution.----------

a. Accordingly, if the Design-Builder fails to achieve Substantial Completion, Final Completion, or any Contract Milestone by the applicable date established in the Contract Documents, as such date may be adjusted only by an approved Change Order or written time extension issued in accordance with the Contract Documents,

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the Design-Builder shall be liable to ASEM for liquidated damages in the amounts set forth below. The parties agree that these amounts represent a reasonable estimate of damages likely to be incurred as a result of delay and are not intended as a penalty. The following liquidated damages shall apply for each calendar day of delay beyond the applicable milestone date: ----------

i. Failure to achieve Substantial Completion of Phase I: $25,000.00 per calendar day until Substantial Completion of Phase I is achieved. -------

ii. Failure to achieve Substantial Completion of Phase II: $15,000.00 per calendar day until Substantial Completion of Phase II is achieved. ------

b. Liquidated damages may be assessed separately for each missed milestone; however, ASEM shall not impose duplicative liquidated damages for the same period of delay for the same portion of the Work unless the delay affects separate and independently required milestones. If delay to an interim milestone also delays Substantial Completion or Final Completion, ASEM may assess liquidated damages for the milestone that best reflects the impact of the delay, or as otherwise provided in the Contract Documents. ----------

c. ASEM may deduct liquidated damages from any amounts due or to become due to the Design-Builder, including progress payments, retainage, final payment, or any other compensation payable under the Contract. Assessment or deduction of liquidated damages shall not constitute a waiver of ASEM's right to pursue any other remedy available under the Contract Documents or applicable Act for separate breaches, defective work, noncompliance, fraud, misrepresentation, abandonment, default, or other damages not compensated by the liquidated damages. ----------

d. The Design-Builder shall not be liable for liquidated damages to the extent the delay is caused by an excusable delay for which the Design-Builder is entitled to a time extension under the Contract Documents, provided that the Design-Builder gives timely notice, demonstrates the impact on the critical path, and obtains written approval of the time extension in accordance with the Contract Documents. No oral statement, field discussion, meeting note, schedule update, pay application, or informal communication shall modify a milestone date or waive liquidated damages unless expressly approved in writing by ASEM through a duly executed Change Order or other authorized written contract modification. ----------

e. In addition to the provisions of Article 9.5 of Regulation No. 7998, Uniform General Conditions for Public Works, if the Contractor fails to comply with federal statutes and regulations, ASEM may take one or more of the following actions: ----------

a) Temporarily withhold cash payments pending correction of the deficiency by the Contractor. ----------
b) Disallow all or part of the cost of the activity or action not in compliance.
c) Initiate suspension or debarment proceedings as authorized under 2 C.F.R. part 180. ----------
d) Withhold further Federal awards for the project or program. ----------
e) Take other remedies that may be legally available. ----------

11. CERTIFICATIONS OF COMPLIANCE WITH FISCAL RESPONSIBILITY----------

a. The contractor certifies compliance with any obligation before the Municipal Tax Collection Center (CRIM), the Puerto Rico Department of Treasury (HACIENDA), the Administration for the Enforcement of Child Support (ASUME) or the elderly, the Puerto Rico Department of Labor and Human Resources (DTRH), and any other government agency or department that is required. ----------

b. The contractor certifies and guarantees that it has fulfilled its tax responsibilities during the past five (5) years, including the filing of income tax returns and the CRIM personal property return; which it demonstrates with a certification that accredits it. It also certifies that it does not owe it to this entity for such concept or for contributions on movable or real property or for contributions to the Government of Puerto Rico of Puerto Rico or that it is covered by a payment plan, for which it attaches certification

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in this regard and that it will settle the debt before the expiration of this contract. "It is expressly recognized that this is an essential condition of this contract, and if the above certification is not correct in whole or in part, this causes the nullity of the contract and the contractor will have to reimburse ASEM for all sums of money received under this contract." ----------

c. The contractor has delivered a copy of the Merchant Registration Certificate and undertakes to comply with the provisions established in Act No. 72-2015, which oblige the seller to pay sales and use tax (IVU). By virtue of this, the contractor will comply, and this will be the effect, if applicable. The contractor certifies and guarantees that it has filed the Monthly Sales and Use Form; accredited by official certification provided for this purpose. If you are exempt from filing, you must provide official evidence to that effect. ----------

d. The contractor certifies that it is complying with the orders issued in its name as employer for the withholding of the wages of its employees for the payment of alimony or subsistence of minor children, or related to the maintenance of elderly persons; for which it provides a certification in this regard, in accordance with Act No. 5 of December 30, 1986, as amended, known as the "Organic Act of the Administration for the Support of Minors" and Act No. 168 of August 12, 2000, as amended, known as the "Act for the Strengthening of Family Support and Support of the Elderly", if applicable. In addition, it certifies that, if any obligation arises, it will be kept up to date according to the terms of the same. ----------

e. The contractor certifies that it has complied with its obligations to the Department of Finance (HACIENDA), the Administration for the Support of Minors (ASUME) and the Municipal Tax Collection Center (CRIM); this is stated in the authorized search through the Electronic Identity System of Online Access (IDEAL), as required by Act Number 85 of August 20, 2009, Act on Electronic Certificates and Receipts, as amended and Executive Order OE-2021-008 or through the certification of the Certificate of Eligibility of the Single Registry of Bidders of the General Services Administration. Any certification that was not provided by the IDEAL System has been delivered and is part of the contract file. The contractor will be responsible for keeping all documents up to date in the Single Registry of Professional Service Providers during the term of this contract. Payment will not be processed until all required supporting documents have been submitted to ASEM. ----------

f. The contractor will be responsible for keeping all documents up to date during the term of this contract. You acknowledge that this contract has the documentation required for its formalization, which is made part of this contract. ----------

12. AGREEMENT FOR COMPLIANCE WITH HIPAA AND RED FLAG RULE: As part of the services provided by the contractor, it is estimated that they may be in contact with protected health information (PI) of ASEM patients, which makes said contractor become a "Business Associate" of ASEM for purposes of the Regulations issued under the Federal Health Insurance Portability and Accountability Act (HIPAA). Therefore, it is an integral part of this Agreement that the contractor, as required by federal Act, agrees to and complies with the provisions of Addendum ___. ----------

    a. To the extent required by the provisions of "HIPAA" and the Regulations approved under it, the contractor undertakes and warrants to ASEM that any information of a protected nature under this statute to which it has had access by reason of this contract will be discarded as soon as it is no longer needed. ----------

13. CREDENTIALS: THE CONTRACTOR certifies that all personnel assigned to offer services in accordance with the provisions of this contract, have valid licenses and professional credentials corresponding to the profession they practice, namely: Professional License, Specialty Certificate, Registration of Professionals and Continuing Education, Membership, and other pertinent documents such as the Certificate of "Good Standing", in order to offer services in accordance with the provisions of this contract, you have professional malpractice insurance as required by your profession or by ASEM. The contractor relieves ASEM of liability for any damage derived from the failure of its personnel to comply with the licensing, certification or insurance requirements related to the profession they practice. ----------

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a. ASEM may require the contractor to provide evidence of licenses, credentials, insurance and other documents, evidence of the preparation and aptitude of the personnel assigned by the contractor to provide services under this contract. ----------

b. The contractor certifies that it has all the permits, insurances and licenses associated with its business or practice and will make them available when ASEM requires it. -----

c. In the event that the contractor has been accused, administratively or criminally, or convicted of having fraudulently obtained any credential, this will be sufficient reason for ASEM to terminate this contract immediately. ----------

d. It is clearly established that, if the contractor is deprived of the licenses, credentials or insurance necessary for its business or professional practice, or the personnel assigned by the contractor to provide services do not have the required licenses or credentials, this will be sufficient reason to terminate this contract immediately. -------

e. The Contractor certifies and warrants that, in accordance with the Contract Documents, the provision of any engineering, architecture, surveying, and landscape architecture services in Puerto Rico under this contract will be commissioned to a licensed professional or professional services organization pursuant to Act No. 173 of August 12, 1988, as amended, Act of the Board of Examiners of Engineers, Architects, Land Surveyors and Landscape Architects of Puerto Rico, and Act No. 319 of May 15, 1938, as amended, Act of the College of Engineers and Land Surveyors of Puerto Rico. The Contractor hereby expressly acknowledges that only engineers, architects, surveyors, and landscape architects duly authorized and licensed to practice in the Commonwealth of Puerto Rico may perform professional services in Puerto Rico under this contract. In the event that a professional services company performs the services mentioned above under this contract, under a professional association or professional corporation, all partners or directors of such entity must be licensed in their respective professions and be registered in the appropriate Register of Professional Associations. If the professional services company is a corporation, all shareholders shall be licensed in their respective professions and such corporation shall be organized as a professional corporation in accordance with the provisions of Act No. 164 of December 19, 2009, as amended, General Corporations Act of Puerto Rico. The Contractor certifies and warrants that the professional services agreement between the Contractor and the licensed professional or professional services organization at all levels, as applicable, shall include the following clause: ----------

"The professional services organization or licensed professionals herein hired to perform any engineering, architecture, surveying and landscape architecture services under this contract, hereby certifies and warrants that it is properly organized and existing and holds the certification accrediting validity under the Acts of Puerto Rico, particularly Act No. 173 of August 12, 1988, as amended, Act of the Board of Examiners of Engineers, Architects, Land Surveyors and Landscape Architects of Puerto Rico, and Act No. 319 of May 15, 1938, as amended, Act of the College of Engineers and Land Surveyors of Puerto Rico, authorized to do business in the Commonwealth and with full right, power and legal authority to execute, deliver and perform the aforementioned professional services under any applicable Act." ----------

14. JOINT COMMISSION: EXPECTATIONS OF THE SERVICES: The contractor is committed to complying with quantifiable performance indicators that allow ASEM to objectively evaluate the quality, safety and effectiveness of the services provided. These indicators will be monitored continuously and reported periodically. If there are specific indicators, they will be included in a document annexed to this contract. ----------

a. THE CONTRACTOR agrees to comply with at least the following general parameters:

I. Quality aspects (as applicable to the service). ----------
II. Security measures. ----------
III. Compliance with rules and regulations. ----------
IV. Competencies and credentials. ----------
V. Satisfaction and perception for the services provided. ----------
VI. Compliance with schedules and staffing pattern. ----------

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VII. Reports requested. ----------

b. ASEM reserves the right to monitor these reports and/or request evaluations of additional indicators based on institutional needs, regulatory changes, or requirements of accrediting agencies. ----------

c. In order to verify the quality of the service provided, the contractor acknowledges and accepts that ASEM may carry out periodic evaluations of the services offered by the contractor. Therefore, the contractor will be subject to periodic evaluation of performance, professional ethics and other related aspects. If any fault is found, the contractor will be informed so that it can be corrected within the terms established by ASEM and if it is not corrected, it may be justified cause for the immediate cancellation of this contract. ----------

15. INDEPENDENT CONTRACTOR: The contractor is an independent contractor and nothing herein shall be construed to imply that it is an employee, partner, agent, representative and/or affiliate of ASEM. The contractor shall be solely responsible for the withholding and/or payment of all federal and/or local income tax, social security and/or any other payroll withholding, in relation to its employees. Since the contractor is an independent contractor, there is no worker-employer relationship, and the requirements for the acquisition of goods and services provided for in the regulations of the General Services Administration will not apply. ----------

16. SMOKE-FREE WORK SCENARIO: The contractor commits to the provisions of Act No. 40 of August 3, 1993, as amended, known as the "Act for the Regulation of the Practice of Smoking in Certain Public and Private Places"; and to the Regulation of the Secretary of Health and the Police of Puerto Rico No. 7304, as amended, which prohibit the practice of smoking in their facilities, including indoor and outdoor areas, both open and closed, among others. The contractor and its employees will refrain from using any tobacco product or derivative in the areas surrounding the facilities of ASEM and Participating Entities. If these products are consumed, it will be done in the areas designated for such purpose in accordance with applicable state and federal Act and regulation. ----------

17. GOVERNMENT ETHICS: THE PARTIES certify that this contract complies with Act No. 1 of January 3, 2012, as amended, known as the Government Ethics Act of Puerto Rico; being aware that a contract granted in violation of the Government Ethics Act may be subject to an action or nullity. ASEM certifies that no public official or government employee has a pecuniary interest in this contract. ----------

18. THE CONTRACTOR CODE OF ETHICS AND GOVERNMENT ETHICS ACT: THE CONTRACTOR AGREES TO COMPLY WITH THE PROVISIONS OF Act No. 2 of January 4, 2018, as amended, known as the Anti-Corruption Code for New Puerto Rico and Act No. 1 of January 3, 2012, as amended, known as the Government Ethics Act. ----------

a. The contractor, certifies that during the last ten years she has not committed any crime that has not been convicted, nor has probable cause been found for her arrest, for any crime against the public treasury, faith and public function; against the exercise of government; or that involves funds or public property at the state or federal level, of any of the offenses listed in Article 3.4 of Act No. 2-2018, as amended, and Article 6.8 of Act No. 8-2017, as amended. ----------

b. This clause shall apply in the case of a legal entity, in which case it certifies that neither it nor any of its shareholders, partners, officers, principals, employees, subsidiaries or parent companies has been convicted, nor has probable cause been found for its arrest, of any crime against the public treasury, faith and public function; against the exercise of government; or that involve funds or public property at the state or federal level. ----------

c. The contractor, meaning neither the undersigned nor the corporation or special partnership it represents, nor any of its shareholders, partners, officers, principals, employees, subsidiaries or parent companies, are under investigation in any legislative, judicial or administrative proceeding, whether in Puerto Rico, the United States of America or any other country for any of the crimes listed in Article 3.4 of Act No. 2-2018, as amended and Article 6.8 of Act No. 8-2017, as amended: The contractor certifies that THE DIRECTORS AND SHAREHOLDERS OF THE CONTRACTOR,

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during the last ten (10) years have not committed any crime against the treasury, faith, or public function involving funds or public property. ----------

d. Furthermore, the contractor certifies that it has not been the subject of any investigation, prosecution, or conviction for the aforementioned crimes, either at the federal or state level; therefore, he or she is not listed in the Puerto Rico Department of Justice's Registry of Persons Convicted of Corruption Offenses. The contractor hereby acknowledges that, should an investigation be initiated and probable cause be established for your arrest for the alleged commission of any of the aforementioned crimes, this contract shall be terminated immediately. ----------

e. The contractor hereby states that it is not the subject of civil or criminal investigation or proceedings for acts related to any of the crimes mentioned in the preceding clause. In addition, it states that it is clear and recognizes its duty to continuously inform ASEM of any situation that occurs during all stages of this contracting and during the execution of this contract that is related to the commission of any of the crimes mentioned in Article 3.4 of Act No. 2-2018, as amended. ----------

f. Likewise, the contractor accepts that it will be justified cause for the termination of this contract, if it is guilty of the aforementioned crimes at the state or federal level. -

19. ABSENCE OF PECUNIARY INTEREST: The contractor certifies that: ----------

a. If necessary, the contractor shall have submitted and provided, prior to the signing of the contract, the corresponding waiver from the Government Ethics Office, which shall become part of this contract. ----------

b. No public official or employee who is authorized to contract on behalf of the agency for which he or she works may enter into a contract between his or her agency and an entity or business in which he or a member of his or her household has or has had during the last four (4) years prior to taking up his or her position. directly or indirectly, pecuniary interest. ----------

c. No agency may enter into a contract in which any of its officers or employees or any member of their family units has or has had during the last four (4) years before taking office, directly or indirectly, a pecuniary interest, unless the Governor, on the recommendation of the Secretary of the Treasury and the Secretary of Justice, authorizes it. ----------

d. No public official or employee may be a party to any interest in the profits or benefits arising from a contract with any other executive agency or governmental agency unless expressly authorized by the Governor, upon the recommendation of the Secretary of the Treasury and the Secretary of Justice. ----------

e. No public official or employee who has the authority to approve or authorize contracts may evaluate, consider, approve, or authorize a contract between an executive agency and an entity or business in which he or any member of his or her household has or has had during the last four (4) years prior to his or her position, directly or indirectly, pecuniary interest. ----------

f. No public official or employee may grant or authorize a contract with a private person or know that this person in turn is representing particular interests in cases or matters involving conflicts of interest or public policy between the contracting government agency and the particular interests represented by such private person. To this end, any government agency shall require any private person with whom it contracts to include a contractual clause in which such person certifies that he or she is not involved in a conflict of interest or public policy as described in this subsection. ----------

g. No executive agency shall contract with or for the benefit of persons who have been public officers or employees of such executive agency, until two (2) years have elapsed since such person has ceased to perform his functions as such. The Governor may issue a waiver as to the applicability of this provision provided that such waiver would be in the interest of the public service. This prohibition shall not apply to contracts for the presentation of pro bono services. ----------

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h. It is understood that a family unit includes the spouse of the officer or employee, the dependent children of the official or employee, or those persons who share with the employee or official his or her legal residence or whose financial affairs are under his or her legal control. ----------

20. ADMINISTRATION AND TRANSFORMATION OF THE HUMAN RESOURCES OF THE GOVERNMENT OF PUERTO RICO (OATRH). ----------

    a. The contractor, meaning the undersigned, the corporation or special partnership it represents, any of its shareholders, partners, officers, principals, employees, subsidiaries or parent companies, certifies that it has not been removed from public service and/or disqualified from contracting with the government. If you have incurred in any of the disqualifying causes, you must submit the Resolution issued by the Director of the Office of Administration and Transformation of Human Resources of the Government of Puerto Rico (OATRH) certifying your authorization, a copy of which will be attached to this contract. ----------

21. POLITICAL CODE: Designer: In the event that the Designer works as a regular employee of a public agency or instrumentality is empowered by Act to offer the services that are the subject of this contract under the provisions of Article 177 of the Political Code of 1902, as amended. ----------

22. CONFLICTS OF INTEREST: The Contractor recognizes that in the discharge of his services, it will have a duty of absolute/complete loyalty toward the Agency, which includes not having any adverse interests towards this government Agency. In addition, agree to keep this information considered ABSOLUTELY CONFIDENTIAL. These adverse interests include: the representation of clients that have or could possibly have opposing interests with the Agency. this duty also includes the continuous on-going obligation of disclosing to the Agency all circumstances involving these relationships with clients and third parties or any other interests that could influence the Agency at the moment of granting the Contract and throughout its enforcement or applicability. The Contractor represents opposing interests when, in a client's benefit the Agency has the duty to promote what should be opposed to in execution of its obligations, towards another former, actual or potential client. It also represents a conflict of interests, when its conduct is described as such in the recognized work ethic/rules of the said profession, or within the Acts and regulations of the Government of Puerto Rico. The Contractor recognizes the power of auditing by the Executive Director in relation to the compliance of the prohibitions contained within this Contract. If the Executive Director understands that adverse interests exist or have arisen for the Contractor, it will notify the Contractor in writing of these findings and the intention of dissolving the Contract within a thirty (30) day term. The Contractor agrees to immediately notify the Executive Officer, those acts, of which it may have proper and personal knowledge, which constitute violations to any Act, regulation and/or established code. The Agency's determination of noncompliance by the Contractor in this duty shall be sufficient cause for the immediate rescission of this contract. ----------

23. LITIGATION: The contractor certifies that at the time of signing this contract there is no litigation in process against any government agency or instrumentality, including ASEM, or that if it does, it does not conflict with this contract. ----------

24. FIRST-TIER SUB CONTRACTOR: an entity subcontracted directly by the prime contractor to provide supplies, materials, equipment, or services of any kind required under the prime contractor a first-tier subcontract. ----------

    a. Prior to awarding a Contract, ASEM must obtain Contractor and First Tier Sub-Contractor clearance. To obtain clearance, ASEM will search https://www.sam.gov/SAM/ to verify whether the Contractor and First Tier Sub-Contractor are debarred or not. Therefore, the Proposer(s) and First Tier Sub-Contractor must be registered in the System for Award Management (SAM) at the time of the Proposal submission or initiate the registration process upon Proposal submission. For more information about SAM go to https://www.sam.gov/SAM/. Awards will only be issued to entities which are cleared and not ineligible for award of a Contract due to suspension, debarment, or HUD imposed limited denial of participation. ----------

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b. Please be advised that all subcontractors must strictly comply with the requirements applicable to government contracting, as well as with all provisions, regulations, and obligations related to the CDBG-MIT program to which the contracting party is subject. ----------

c. Prior to awarding a Contract, the ASEM must obtain Contractor and First Tier Sub-Contractor clearance. To obtain clearance, the ASEM will search https://www.sam.gov/SAM/ to verify whether the Contractor and First Tier Sub-Contractor are debarred or not. ----------

d. The contract resulting from this RFP shall incorporate all applicable federal contract provisions required by 2 CFR Part 200, Appendix II, HUD requirements, and PRDOH CDBG-MIT requirements. ----------

e. All First-Tier Subcontractors must be registered in the General Services Administration's RUL or RUP, as applicable, and have eligible and active status in the SAM. ----------

f. It is the Contractor's responsibility to present to ASEM the corresponding evidence of registration, within a term of no less than ten (10) calendar days from the date on which the subcontracting is finalized. ----------

g. The contractual relationship between the contractor and the First-Tier Subcontractor shall be governed by the documents attached to this contract. The contractor must use the contract templates as provided. ----------

25. AMENDMENT AGREEMENT AND CHANGE ORDERS: Any amendment to this agreement must be in writing in order to be in full force and effect. No verbal agreement before, contemporaneous or subsequent to the signing of this contract may prevail over the clauses and conditions of the same. The parties agree that all terms and conditions of their contractual relationship are contained herein and there is no agreement or oral understanding whatsoever that can prevail over them. No representation, promise, offer, or assertion about the intention of the parties other than those expressly established and contained in this contract shall bind the contracting parties. This agreement shall be in full force and effect as of the day on which it is signed and may be extended by such subsequent terms as may be agreed upon by the parties to the extent that an amendment signed by both parties is processed and it has been filed for registration with the Office of the Comptroller in accordance with the provisions of Act No. 18 of October 30, 1975, as amended. ----------

a. Change Orders: Before proceeding to authorize changes of orders and make amendments to the amount of this contract, the availability of funds for such work must be consulted with ASEM. To this end, a draft Letter of Request and Justification of Change will be issued for approval by ASEM. Once the application has been approved, the following procedure will be followed: ----------

b. THE CONTRACTOR must submit a proposal for evaluation and recommendation by the authorized representative of ASEM. All the necessary data and information that justifies the need for the change must be included. No work on the Change Order will be carried out until the Change Order has been approved and the contract has been amended in writing. ----------

26. NOTICE: All written notices required or permitted under this Agreement shall be deemed duly given when delivered to the other party through the methods determined by ASEM. The date of transmission shall be deemed the date of notice, except in the case of notices of a change of mailing address, which must be received by ASEM to be effective. ----------

If one of the Parties fails to notify the other of any change of address, any notice sent by one Party to the other shall be deemed duly delivered if it was sent in accordance with this section. ----------

ASEM: ASEM
P.O. BOX 2129
SAN JUAN, PR 00922-2129

THE CONTRACTOR:

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26. The services provided by the contractor shall not be transferable. The assignment of this contract shall constitute sufficient grounds for its immediate termination, unless the assignment is made to a parent company, a subsidiary, an affiliate, or a legal successor of the assignor, in which case written notice to ASEM and the assignor's consent shall suffice; the assignor may not withhold such consent without just cause. If ASEM does not accept the assignment, it shall terminate the contract by written notice, without this entailing any charge, penalty, or obligation for ASEM. A breach of this clause shall render THE CONTRACTOR liable for any damage or loss caused to ASEM, whether directly or indirectly.

27. TERMINATION: This Agreement may be terminated: ----------

a) Insufficient funds shall be sufficient cause for immediate termination or modification of the Indemnification clause of this contract. ----------

b) There will be sufficient causes for ASEM to declare the contract terminated immediately, due to the infringement or non-compliance by the contractor to the following conditions and ASEM is relieved of all obligation and responsibility under it:
c) The violation or infractions by the contractor of Act No. 1 of January 3, 2012, as amended, known as the Government Ethics Act of Puerto Rico. ----------

d) The negligent performance by the contractor of its functions or by the abandonment of these. ----------

e) Failure by the contractor to comply with the Regulations and Procedures established by ASEM. ----------

f) The conviction or determination of probable cause against the contractor for the commission of any crime against the treasury, faith or public function; against the exercise of government; or that involves public funds or property, at the federal or state level. ----------

g) The contractor is disbarred from contracting with the government. ----------

h) If the contractor incurs in acts that are in contravention of Public Policy legislation, such as: Sexual Harassment, Discrimination and Use and Abuse of Controlled Substances. ----------

i) Failure to comply with the professional credentials necessary to carry out the work for which they are hired, issued by the corresponding Accreditation Board. ----------

j) In the event that the contractor has been accused, administratively or criminally, or convicted of having fraudulently obtained any credential. ----------

k) If the contractor is deprived of its professional license during the term of the contract or does not maintain its professional license in force. ----------

l) The cancellation or modification of any of the insurance policies and bonds required of the contractor under this contract. ----------
m) ASEM may immediately terminate this agreement if ASEM determines in its sole and absolute discretion that the contractor has violated ASEM's privacy, confidentiality, and security agreements regarding the use and disclosure of ASEM's protected health information of patients. Failure to notify ASEM of any violation of the handling of Protected Health Information (PHI) by the contractor, its associates and/or sub The Contractors will be grounds for termination of the contract. ASEM reserves the right to refer uncured violations of the contractor to the U.S. Department of Health and Human Services. ----------

n) Failure to comply with any clause of the contract will be sufficient cause for the immediate termination of the same. ----------

o) The Governors Chief of Staff will have the power to terminate this contract at any time. ----------

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p) Failure to comply with the policies established by the Financial Oversight and Management Board regarding contracting with the Government of Puerto Rico and its instrumentalities applicable to the contractor (BOARD POLICY: REVISION OF CONTRACTS of November 6, 2017, modified on April 30, 2021). ----------

q) Failure to comply with the provisions of Executive Order OE2021-029 of April 27, 2021, or any subsequent amendments thereto where applicable. ----------

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It is expressly agreed that the contractor will complete any work that remains pending until the time of termination. Once resolved, the service rendered will be remunerated for the date of its resolution once the invoice has been certified and accepted. ----------

27. NEGLIGENCE OR ABANDONMENT: Negligence, abandonment of duties or failure to comply with the provisions of this contract by the contractor will constitute sufficient cause to terminate it immediately without the need for prior notice. ASEM will subsequently notify the contractor of its determination to terminate the contract for any of the reasons indicated above. ----------

28. REGISTRY OF PERSONS CONVICTED OF CORRUPTION: ASEM may terminate this contract without prior notice in the event that the contractor is convicted of crimes against the public treasury, faith and public function or that involve public funds or property at the state or federal level. ----------

It is expressly recognized that this is an essential condition of this contract and if he appears in the registry as a person convicted of corruption, ASEM will immediately terminate it, and the contractor will have to reimburse the contracting party any sum of money received under this contract. ----------

29. LIABILITY FOR DAMAGES: The contractor acknowledges and will abide by the ethical standards of its profession or service, that it will render its services in accordance with the best practices of its profession and will comply with all local and federal rules and regulations, as well as Acts applicable to this contract or the performance thereof and assumes responsibility for its actions. The contractor shall be liable for any damage caused by the negligent performance or abandonment of the obligations assumed under this contract and relieves ASEM of any obligation and liability arising as a consequence of the contractor's actions. ----------

30. TERMINATION CLAUSE: The Governors Chief of Staff will have the power to terminate this contract at any time. ----------

31. FINANCIAL OVERSIGHT AND MANAGEMENT BOARD CONTRACT REVIEW POLICY FOR PUERTO RICO: ASEM and the CONTRACTOR acknowledge that the CONTRACTOR has submitted the certification entitled " The Contractor Certification Requirement," required pursuant to the Financial Oversight and Management Board Contract Review Policy for Puerto Rico, signed under penalty of perjury by the Executive Director of the Contractor (or the equivalent highest-ranking officer). Included as an annex to this Contract, a signed copy of the " The Contractor Certification Requirement". ----------

32. CERTIFICATION OF TRANSFER OF SKILLS AND TECHNICAL KNOWLEDGE: Designer: The Certified Fiscal Plan requires that every professional services contract has an adequate transfer of skills and technical knowledge to the relevant ASEM personnel to the extent that such contract contemplates recurring professional services that can be performed by ASEM personnel properly trained. To this end, the Designer certifies that: ----------

☐ You will appropriately transfer your skills and technical knowledge to the relevant ASEM personnel as stipulated in this Agreement. ----------

☐ You are not obliged to transfer your skills and technical knowledge, because the services contemplated in this Contract are not of a recurring nature, so they cannot be performed by existing ASEM personnel. ----------

☐ You are not required to transfer your skills and technical knowledge, because the services contemplated in this Contract are of a specialized nature and/or require independence in order to be performed, as defined by the Code of Conduct of the Financial Oversight and Management Board, so they cannot be performed by existing

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ASEM personnel. ----------

32. PROHIBITION OF LOBBYING ACTIVITIES CLAUSE: The Contractor certifies that it has read and is aware of the provisions of the "Code of Ethics for Contractors, Suppliers, and Applicants for Incentives of the Government of Puerto Rico," included as part of the provisions of Act No. 2-2018, as amended, known as the "Anti-Corruption Code for New Puerto Rico." Specifically, the Contractor recognizes that, pursuant to Article 3.2(h) of Act No. 2-2018, it may not intervene "in matters that may lead to a conflict of interest or that have the appearance of one." To this end, the Contractor acknowledges that it has read and is aware of the regulations contained in Memorandum No. OSG-2025-001 issued by the Office of the Chief of Staff, and certifies and guarantees that, during the term of this contract, the latter, its shareholders, officers or employees, will not engage in lobbying activities, direct or indirect, as defined in the aforementioned Memorandum No. OSG-2025-001, against the contracting government entity herein or any of its attached entities. The Contractor recognizes that this is an essential condition of this contract and of this contract incurring in a violation of the regulations established in the "Code of Ethics for contractors, suppliers, and applicants for incentives of the Government of Puerto Rico" of Law No. 2-2018 and/or in Memorandum No. OSG-2025-001, will be sufficient cause for this contract to be terminated and cancelled immediately. ----------

33. CONTRACTUAL RELATIONS WITH OTHER GOVERNMENT ENTITIES: ----------

Check the one that applies: ----------

( ) At the time of signing this contract, the contractor maintains a contractual relationship in force with the following entities of the Government of Puerto Rico: A list is attached. The contractor certifies that the aforementioned entities are all entities of the Government of Puerto Rico with which it has a contractual relationship. In addition, the contractor acknowledges and agrees that failure to mention any governmental entity with which it has a current contractual relationship may result in the termination of this contract if required by ASEM. ----------

( ) THE CONTRACTOR certifies that, at the time of signing this contract, it does not maintain a current contractual relationship with other entities of the Government of Puerto Rico. In addition, the contractor acknowledges and accepts that the failure to mention any governmental entity with which it has a current contractual relationship may result in the termination of this contract if required by ASEM. ----------

34. ADMINISTRATIVE BULLETIN OE-2021-029 AND CIRCULAR LETTER OGP-CC-013-2021: Designer: ASEM certifies that the Designer was selected as the provider of the professional services described in this contract in accordance with the provisions of Executive Order 2021-029. Likewise, both parties certify that they are aware of the provisions of said Executive Order and Circular Letter and that any contracting covered by it that has not followed the processes and requirements established therein will be terminated. ----------

35. PUERTO RICO INNOVATION AND TECHNOLOGY SERVICE (PRITS): BOTH PARTIES commit to comply with the Government of Puerto Rico's Policy for Cyber Security promulgated on October 29, 2021 and PRITS' supporting standards. Any vendors, vendors, partners, the Contractors, service providers, and other third parties with access to government information systems must comply with the policy requirements applicable to them. Any violation of this policy may subject any employee, third-party vendor, or any other affiliated agency to disciplinary action, civil penalties, and/or criminal prosecution. ---------

a. Both parties acknowledge that the services to be provided under contract must have prior authorization of the PRITS Office as established in Administrative Order PRITS-2021-001. ----------

b. The contractor is committed to complying with the special provisions established in administrative order PRITS 2023-001 of the PUERTO RICO INNOVATION AND TECHNOLOGY SERVICE (PRITS). ----------

c. The Contractor is required to register in the Registry of Technology Providers (RPT), as required by Administrative Order PRITS 2023-001 of the PUERTO RICO INNOVATION AND TECHNOLOGY SERVICE (PRITS). The contractor undertakes to register and provide the Certification as an integral part of this contract. ----------

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d. Both PARTIES commit to comply with the guidelines established by the PUERTO RICO INNOVATION AND TECHNOLOGY SERVICE (PRITS), as well as with the recommendations offered in the Information Brochure of the Office of the Comptroller of Puerto Rico "Planning, Contracting, Provision of Services and Aspects Related to Disbursements for Technology Projects in the Government, as applicable:

e. All technology services contracted or acquired by the Agencies shall be the property of the Government of Puerto Rico and shall be under the supervision and jurisdiction of PRITS as established in Act-75 and Act-151. ----------

i. The development and implementation of any application or software must be fully documented by the Contractor or supplier for the benefit of the Agency and/or the Government using standard or commonly used development and documentation methodologies. ----------

ii. The source codes that are not proprietary or exclusive to the Contractor or supplier (whether or not contractually agreed) of the developed programs, will be delivered to PRITS in electronic format in a version control system (e.g. Github, DevOps) provided by the agency. ----------

iii. Any design, model or product derived from the contracting or acquisition is certified to be considered the intellectual property of the Government, which will have absolute rights to it at its sole discretion, without having to impose additional licensing costs on the Government for the code or development. --

iv. Every contract must expressly agree that in any development or creation the doctrine of work for hire will prevail, with the Government remaining the owner of the right(s) and the documentation. It may only be contracted outside the doctrine of work for hire, with express dispensation from PRITS. ----------

v. During the implementation phase of the application or software, the Contractor or supplier must commit to providing training and/or technical training to users and Agency personnel to ensure the corresponding transfer of knowledge. ----------

vi. The Agency is responsible for establishing, in coordination with PRITS, the plan that will contain the methodology for maintenance and/or updates of the software to guarantee the availability, continuity and integrity of the solution once put into production. This plan must be submitted to PRITS. ----------

vii. The Agency must ensure that it has complete and up-to-date documentation of the application in production at all times. ----------

viii. No information or development will remain in the custody of third parties and will remain under the supervision and custody of the Government on its servers or cloud as determined by PRITS. ----------

ix. All cloud services have to be contracted directly through PRITS. The hosting service or any storage of data on third-party servers, whether by contract or independent service, is strictly prohibited. For information on available cloud services, you can contact the PRITS Technical Support Area through support@prits.pr.gov. ----------

x. *"The Contractor or Supplier certifies that in no way will this contracting impact and/or adversely affect contractual commitments in force with said Government Agencies of the Government of Puerto Rico. The Contractor specifically represents that this contract or purchase order will in no way negatively impact other obligations of the Contractor or supplier, its affiliates, subsidiaries and/or related entities to the Government of Puerto Rico. Such adverse impact includes, but is not limited to, price, tariff, execution time, duplication of goods or services provided to the Government of Puerto Rico. At any time that the Contractor or Supplier becomes aware of such a possible adverse impact, the Agency in turn is authorized to contact the component of the Government of Puerto Rico related to the adverse situation to consult a solution, which may include that the contract or purchase order remains unaltered. be amended, or be rescinded, with the Contractor or Supplier*

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remaining responsible for any impairment suffered by the Government of Puerto Rico if, due to its negligence or non-compliance, it allows the adverse situation to materialize. Proactively, the Contractor or Supplier undertakes not to enter into any additional contract or purchase order with the Government of Puerto Rico, if it can reasonably foresee that it does not have the capacity to assume a new contract or purchase order that adversely affects the obligations assumed by the Contractor or Supplier through a Contract or Purchase Order." ----------

xi. The use of Cloud Technologies shall comply with all applicable state and federal privacy and confidentiality Acts and regulations. The Agency that acquires the Cloud Technology services will be responsible for ensuring that the roles and responsibilities related to data handling and data privacy and confidentiality are clearly and adequately defined in the Cloud Technology provider's service agreement. ----------

xii. The Agency must determine the reason or justification for using a Cloud Technology model, which may include the following, but not limited to: ---------

i. Greater efficiency or effectiveness in the provision of a technological service. ----------

ii. The need for a specific attribute of Cloud Technologies (e.g. elasticity, scalability, utilization-based model). ----------

iii. The need to implement a technological service in a short period of time.

iv. The need to implement new or improved contingency mechanisms, disaster recovery, or strategies to ensure business continuity. ----------

v. As a strategy to establish development, testing, quality control or any other need in line with the best practices in the software development cycle. ----------

f. The agency must be clear about all costs associated with the Cloud Solutions lifecycle, not just the implementation. ----------

g. Service Level Agreements should be established where supplier response levels are established in any incident. ----------

h. The Agency should have a migration plan in place in case you need to change Cloud Technologies solution provider or want to bring the solution into the agency's technology infrastructure. This seeks to reduce and avoid being tied to a single provider or type of technology, guaranteeing the entry and exit of the cloud. ---------

i. "The Contractor, vendor, or provider of the good or service that is the subject of this invoice or contract, consents and agrees that the Puerto Rico Innovation and Technology Service ("PRITS") may contact and request any and all information about the goods and/or services provided to the Government of Puerto Rico without the intervention or consent of the contracting agency and/or acquirer." ----------

j. THE CONTRACTOR represents and warrants to both PRITS and ASEM that it maintains a Business Continuity Plan ("BCP"), and as part thereof, an up-to-date and adequate Disaster Recovery Plan ("DRP") for the services subject to this contract. The "DRP" must guarantee to the greatest extent the recovery of data, hardware and software, so that the Government of Puerto Rico can maintain or restart digital services in the event of a natural or man-made disaster. The "BCP" must be based on and in accordance with established professional continuity practices and in harmony with any governmental continuity plan that the Government of Puerto Rico maintains or in the future adopts, amends, or modifies. To this end, it shall provide the detailed model action plan for the disaster. In the event of an event or occurrence of this nature, the Contractor undertakes to provide PRITS with detailed information within a period of no more than twenty-four (24) hours from its origin. ----------

k. The goods or services proposed must have some type of guarantee associated with them. In the case of goods, the warranty must include a period within which the

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supplier of the good is responsible for all repairs to the good and replacement if necessary. In the case of services, the guarantee consists of having to re-provide the services of these services without being accepted by the contracting agency. -------

I. THE CONTRACTOR will submit progress reports on the services, as requested by ASEM in order to notify them in the Quarterly Report of the Strategic Plan required by Act 75-2019, as amended, "Puerto Rico Innovation and Technology Service Act. ----------

36. SERVICES OUTSIDE OF CONTRACT: The contractor has the duty of diligence to ensure that ASEM complies with all the contractual formalities required by Act. Any goods and/or services delivered, supplied or provided by the contractor without a valid, signed and valid purchase order and/or contract or its amendment, will not be paid for by any governmental entity and only the contractor will assume the loss. It is the duty and obligation of the contractor to require ASEM to strictly comply with the contractual formalities before delivering and/or supplying any good, carrying out work and/or providing a service. Resolutions of payment or retroactive amendments will be considered null and void. ----------

45 CONFIDENTIALITY: ASEM and the contractor shall treat as confidential any documentation, data or information requested in connection with this contract to include as complementary documentation, except in cases where the disclosure of the information is required by Act. ----------

46 ASEM and the CONTRACTOR acknowledge that this Agreement with all its annexes constitutes the entire agreement between the Parties and nullifies any negotiation or agreement that conflicts with what is agreed herein. ----------

47 AUDIT: The contractor must retain and keep for a minimum period of six (6) years one (1) intervention of the Comptroller's Office, whichever occurs first, the files of work reports, related documents and expenses incurred in the services for which this contract is derived. In addition, it will have available all the documents that are related to the services contracted here for review by ASEM and will be obliged to render any report when required. The contractor will make available all information pertinent to this government contract, at no cost to the treasury. ----------

48 COMPTROLLER: ASEM and the Contractor acknowledge and accept that no service or consideration subject to this contract may be demanded until it has been presented for registration in the Office of the Comptroller in accordance with the provisions of Act No. 18 of October 30, 1975, as amended. ----------

49 ULTRA VIRES: In accordance with the law and the rules that govern the contracting of services, the parties to this contract are aware that services will not continue to be provided under this contract from its expiration date, unless on the expiration date there is already an amendment signed by the Parties. No payment will be made for services rendered in violation of this clause, as any officer who solicits and accepts services from the other party in violation of this provision is doing so without any legal authority. ----------

50 SEVERABILITY OF CLAUSES: The provisions of this agreement are independent and separate from each other and if any part, section, provision or sentence of this agreement is declared unconstitutional, null or void by a court of competent jurisdiction and competence, the determination to that effect shall not affect the validity of the remaining provisions, which remain in full force and effect. ----------

51 APPLICABLE LAW: This contract shall always be subject to the Laws of the Government of Puerto Rico, Federal Laws and shall be construed in accordance with applicable Laws and Regulations. Should situations arise that are not contemplated or governed by the provisions of this contract, they will be governed by the Health Services Administration Regulations, State or Federal Law, applicable case law, and usage and customs in their proper sense. Any legal action or litigation arising out of the interpretation, validity, enforcement, or termination of this contract shall be heard exclusively before the Court of First Instance of the Superior Court of San Juan, Puerto Rico. ----------

ACCEPTANCE AND SIGNATURE

The parties affirm that they have read this contract in all its parts and find it drafted in

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accordance with what was agreed, for which they accept and ratify it in its entirety and for the record they sign it on the last page and write their initials on the left margin of all its pages.

In San Juan, Puerto Rico on __de _____, 2027. ----------

First Party

REGINO COLÓN ALSINA
Executive Director
ASEM
66-0433853

Second Party

_____
_____
_____
EIN _____

Designer

_____
_____
EIN _____

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Internal Revenue Circular No. 17-02

_____ **Name of the Taxpayer**	**Identification Number:** _____ **Employer (or Social Security)**

AFFIDAVIT
WITHHOLDING ON PAYMENTS MADE FOR SERVICES RENDERED

I, **[name of the declarant]**, of legal age, resident of **[town of residence, country of residence]**, **[married or single]**, and **[profession or position held in the entity, if the taxpayer is an entity]**, declare under oath the following:

1. That my personal circumstances are those stated above.
2. That the name of the entity is _____ (if applicable).
3. That the entity is engaged in **[business to which the taxpayer is dedicated, i.e., construction, health, etc.]** and that it is duly registered and organized under the Laws of Puerto Rico or authorized to do business in Puerto Rico by the Department of State of Puerto Rico (**if an individual, must indicate which industry or business they are engaged in within Puerto Rico**).
4. That the employer identification number of the entity (or the social security number of the individual taxpayer) is _____ and the merchant registration number is _____.
5. That the physical and postal address of the corporation (or that of the individual taxpayer) is the following:

   _____
   _____
   _____
6. That the entity was organized under the Laws of Puerto Rico and registered or authorized to do business in Puerto Rico by the Department of State of Puerto Rico on the _____ day of _____, _____(if applicable or explain the constitution of the entity).
7. That the tax period of the entity (or of the individual taxpayer) begins on the ____ day of _____ of _____ and ends on the ____ day of _____ of _____.
8. That the payment for services rendered is not subject to withholding pursuant to the provisions of **Section 1062.03(b)**___ (**indicate under which specific paragraph the payment is not subject to withholding**) of the Puerto Rico Internal Revenue Code of 2011, as amended.
9. That this affidavit was prepared to comply with the requirements established in Internal Revenue Circular Letter No. 17-02 dated February 16, 2017, issued by the Department of the Treasury.

In _____, ***Puerto Rico, today, this _ day of*** _____, 20__.

_____

Affidavit No. _____

Sworn and subscribed before me by _____, ***of the circumstances described above, whom I attest to knowing personally or identified through the permitted means established by the Notarial Law, in*** _____, **Puerto Rico, today** __ day of _____ of 20__.

_____
Notary Public

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Model SC 1350
CC1300-07-21
Oct 9, 2021

GOVERNMENT OF PUERTO RICO

_____
Agency

AFFIDAVIT
Act No. 48 of June 30, 2013, as amended

I_____, of legal age, _____, _____
Name **Marital status** **Profession**
and a resident of _____, Puerto Rico, under oath declared the following:

People

1. That my name and other personal circumstances are expressed above.

2. That I am prepared to provide professional and/or consultative services to any agency, dependency or instrumentality of the Government of Puerto Rico, the Legislative Branch, the Judicial Branch, the Office of the Comptroller, the Office of the Citizen Advocate or any other entity created by state or federal law whose funds come, in whole or in part, from the General Fund.

3. That as required by Act 48-2013, any contractor that as of April 1, 2020 has an aggregate contracting amount equal to or greater than three hundred thousand dollars ($300,000.00) per year will be subject to a special contribution equivalent to 1.5% of the total amount of its contract with the Government of Puerto Rico and/or any of its branches or instrumentalities, as mentioned in paragraph 2 of this declaration.

4. That I hereby declare that the aggregate amount of my contracts with the Government of Puerto Rico and/or any of its branches or instrumentalities, as mentioned in paragraph 2 of this statement, **does not** exceed the amount of $300,000.00 per year, so the 1.5% withholding corresponding to the Special Contribution established in Law 48-2013 should not be made.

5. What I have stated is the truth and nothing but the truth and in witness whereof, I hereby sign this declaration

In witness whereof, I hereby swear and sign this document in _____ Puerto Rico to _____de _____of 20__.

_____
Signature of Affiant

Affidavit Number: _____

SWORN AND SIGNED before me, by _____, of the personal circumstances described above, whom I identify by _____o I attest to know personally.

In _____, Puerto Rico this _____ of _____of 20 ___.

Notary Seal

_____
NOTARY PUBLIC

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Contractor Certification

The following certification shall be provided to the Oversight Board and the Commonwealth's Contracting Government Entity by the Chief Executive Officer (or equivalent highest rank officer) of each proposed contractor under contracts submitted for review:

1. The expected contractor's subcontractor(s) in connection with the proposed contract[1] is (are) the following:

   (Name of individual or firm, including names of principals, principal stakeholders, and owners of the latter)

   (Principal terms and conditions of the contractual relation and role of the subcontractor) (Amount of proposed contract payable to each subcontractor)

2. Neither the contractor nor any of its owners[2], partners, directors, officials or employees, has agreed to share or give a percentage of the contractor's compensation under the contract to, or otherwise compensate, any third party, whether directly or indirectly, in connection with the procurement, negotiation, execution or performance of the contract, except as follows:

   (Name of individual or firm, including names of principals, principal stakeholders, and owners of the latter)

   (Principal terms and conditions of the compensation sharing arrangement and consideration for such benefit)

3. To the best knowledge of the signatory (after due investigation), no person has unduly intervened in the procurement, negotiation or execution of the contract, for its own benefit or that of a third person, in contravention of applicable law.

4. To the best knowledge of the signatory (after due investigation), no person has: (i) offered, paid, or promised to pay money to; (ii) offered, given, or promised to give anything of value to; or (iii) otherwise influenced any public official or employee with the purpose of securing any advantages, privileges or favors for the benefit of such person in connection with the contract (such as the

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[1] As used herein, the term "contract" is inclusive of any amendments, modifications or extensions.

[2] For purposes of this certification, a contractor's "owner" shall mean any person or entity with more than a ten percent (10%) ownership interest in the contractor.

execution of a subcontract with contractor, beneficial treatment under the contract, or the written or unwritten promise of a gift, favor, or other monetary or non-monetary benefit).

5. Neither the contractor, nor any of its owners, partners, directors, officials or employees or, to the best of its knowledge (after due investigation), its representatives or sub-contractors, has required, directly or indirectly, from third persons to take any action with the purpose of influencing any public official or employee in connection with the procurement, negotiation or execution of the contract, in contravention of applicable law.

6. Any incorrect, incomplete or false statement made by the contractor's representative as part of this certification shall cause the nullity of the proposed contract and the contractor must reimburse immediately to the Commonwealth any amounts, payments or benefits received from the Commonwealth under the proposed contract.

The above certifications shall be signed under penalty of perjury by the Chief Executive Officer (or equivalent highest rank officer) in the following form:

"I hereby certify under penalty of perjury that the foregoing is complete, true and correct."

By:

Date:

Signature:

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Circular Letter No. 013-2021 Office of Management and Budget

CERTIFICATION REGARDING LEGAL ENTITIES

I, _____, holding the position of _____ at the legal entity named _____, hereby certify the following:

1. That the entity mentioned in this certification is interested in providing professional services to _____ (name of the Executive Branch entity).
2. That the contracting entity is a legal entity that is not a public company whose shares are publicly traded on the stock exchange.
3. That the following persons are all of its owners, shareholders, or partners whose participation in the legal entity is 25% or more:

	Name	**% Participation**
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

4. That the following persons are all the corporate officers with significant responsibility to control, manage, or direct the decision-making of the ordinary business of the legal entity:

	Name	**Title / Role**
1.		
2.		
3.		
4.		
5.		

5. That all information included in this Certification is correct.
6. That the veracity of all information included in this document and certified by my signature is an essential condition to be able to provide services to the aforementioned Executive Branch entity, and that, if it is incorrect, in whole or in part, such circumstances shall be sufficient grounds for the termination of the professional services contract signed between both parties.
7. That I fully understand and acknowledge the legal, ethical, criminal, or administrative consequences of this Certification in the event that its content is false.

And in witness whereof, I sign today, the _____ day of _____, 20___.

_____

Signature of the Representative of the Legal Entity

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Project Schedule of Values

For use with DBIA Document No. 535 Standard Form of General Conditions of Contract Between Owner and Design-Builder and in accordance with Article 6.7 of the General Conditions of Contract.

Project:
Application No.
Application Date:
Period From To

No.	Description of Work Item	Scheduled Value	Value of Work Completed		Materials Stored (Not in 2 or 3)	Total Value (2+3+4)	% Complete (1/5)	Amount Retained
			To Last Application	This Period				
		1	2	3	4	5	6	7
1						0.00	#DIV/0!	
2						0.00	#DIV/0!	
3						0.00	#DIV/0!	
4						0.00	#DIV/0!	
5						0.00	#DIV/0!	
6						0.00	#DIV/0!	
7						0.00	#DIV/0!	
8						0.00	#DIV/0!	
9						0.00	#DIV/0!	
10						0.00	#DIV/0!	
11						0.00	#DIV/0!	
12						0.00	#DIV/0!	
13						0.00	#DIV/0!	
14						0.00	#DIV/0!	
15						0.00	#DIV/0!	
16						0.00	#DIV/0!	
17						0.00	#DIV/0!	
18						0.00	#DIV/0!	
19						0.00	#DIV/0!	
20						0.00	#DIV/0!	
21						0.00	#DIV/0!	
22						0.00	#DIV/0!	
23						0.00	#DIV/0!	
24						0.00	#DIV/0!	
25						0.00	#DIV/0!	
	TOTAL	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**#DIV/0!**	**$0.00**

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Design-Builder's Application For Payment

For use with DBIA Document No. 535 Standard Form of General Conditions of Contract Between Owner and Design-Builder and in accordance with Article 6.7 of the General Conditions of Contract.

Period from _____ to _____ Application No: _____

To Owner: _____ Project: _____

From Design-Builder: _____ Design-Builder's Project No: _____

1.	Original Contract Price:		
2.	Net Change by Change Orders No(s)	to:	$0.00
3.	Contract Price to Date:		$0.00
4.	Value of Work Completed To Date (Sum of Columns 2 & 3 on attached Project Schedule of Values):		
5.	Value of Materials (Column 4 on attached Project Schedule of Values):		$0.00
6.	Total Value of Work and Materials (Column 5 on attached Project Schedule of Values):		$0.00
7.	Retainage Amount (% or amount stated at Column 7 on attached Project Schedule of Values):		$0.00
8.	Total Value of Work and Materials Less Retainage:		$0.00
9.	Total of Previous Applications for Payment:		
10	Total Due This Application and Certified Below:		**$0.00**

The undersigned Design-Builder represents that to the best of its knowledge, information and belief, the Work covered by this Application for Payment has been performed consistent with the Contract Documents and has progressed to the point indicated in the attached Schedule of Values, that Design-Builder has paid for Work covered by previous Applications for Payment and for which Owner has paid Design-Builder, and that the amount certified herein is properly due.

Subscribed and sworn to before me this _____ day of _____ 20_____

DESIGN-BUILDER:

_____
(Signature)

_____
Public Notary

_____
(Printed Name)

My Comission Expires _____

_____
(Title)

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DBIA Contract Document #500-D3

Design-Builder's Affidavit of Final Release

Document No. 500-D3
Third Edition, 2022

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Washington, D.C.

Design-Builder's Affidavit of Final Release

For use with DBIA Document No. 535 *Standard Form of General Conditions of Contract Between Owner and Design-Builder* and in accordance with Article 6.7 of the General Conditions of Contract.

Project:	Design-Builder's Project No: Date of Agreement:
Owner:	Design-Builder:

Design-Builder hereby certifies that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect Owner's interests.

Conditioned upon final payment by Owner, Design-Builder hereby releases Owner from all claims except for those claims specifically listed below that were previously made in writing to Owner and remain unsettled at the time of final payment (if necessary, attach list):

DESIGN-BUILDER:

By: _____
(Signature)

_____
(Printed Name)

_____
(Title)

Subscribed and sworn to before me on this date:

_____

Public Notary:

_____

My Commission Expires:

_____

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Certificate of Substantial Completion

Document No. 500-D4
Third Edition, 2022

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Washington, D.C.

Certificate of Substantial Completion

For use with DBIA Document No. 535 *Standard Form of General Conditions of Contract Between Owner and Design-Builder* and in accordance with Article 6.7 of the General Conditions of Contract.

Date of Substantial Completion: **, 20**	
Project:	Design-Builder's Project No: Date of Agreement:
Owner:	Design-Builder:

This Certificate of Substantial Completion applies to all Work as defined in DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder*, (2022 Edition) or to the following portion of the Work only:

Owner and Design-Builder have jointly inspected the Work and have verified that the Work identified above was substantially complete in accordance with the requirements of the Contract Documents on the above-stated Date of Substantial Completion. The following items of Work remain to be completed prior to final payment (if necessary, attach list):

Owner's and Design-Builder's responsibilities pending final payment, if not otherwise stated in the Contract Documents, are as follows:

	Owner	**Design-Builder**
Security		
Maintenance		
Utilities		
Insurance		

Except as noted below, warranties related to the Work identified above to which this Certificate of Substantial Completion applies, commence to run on the date of Substantial Completion:

Issued by OWNER:

(Signature): _____

Printed Name: _____

Title: _____

Date: _____

(Signature): _____

Printed Name: _____

Title: _____

Date: _____

Accepted by DESIGN-BUILDER:

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Consent of Surety to Reduction in or Partial Release of Retainage

Document No. 500-D6
First Edition, 2015

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Washington, D.C.

Design-Build Institute of America – Contract Documents
LICENSE AGREEMENT

By using the DBIA Contract Documents, you agree to and are bound by the terms of this License Agreement.

1. **License.** The Design-Build Institute of America ("DBIA") provides DBIA Contract Documents and licenses their use worldwide. You acknowledge that DBIA Contract Documents are protected by the copyright laws of the United States. You have a limited nonexclusive license to: (a) Use DBIA Contract Documents on any number of machines owned, leased, or rented by your company or organization; (b) Use DBIA Contract Documents in printed form for bona fide contract purposes; and (c) Copy DBIA Contract Documents into any machine-readable or printed form for backup or modification purposes in support of your permitted use.
2. **User Responsibility.** You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results and for the installation, use, and results obtained from the DBIA Contract Documents. You acknowledge that you understand that the text of the DBIA Contract Documents has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You will not represent that any of the contract documents you generate from DBIA Contract Documents are DBIA documents unless (a) the document text is used without alteration or (b) all additions and changes to, and deletions from, the text are clearly shown.
3. **Copies.** You may not use, copy, modify, or transfer DBIA Contract Documents, or any copy, modification, or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification, or portion merged into another document or program.
4. **Transfers.** You may not transfer possession of any copy, modification, or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.
5. **Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.
6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.
7. **Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings, or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.
8. **Acknowledgement.** You acknowledge that you have read this agreement, understand it, and agree to be bound by its terms and conditions, and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

CONSENT OF SURETY TO REDUCTION IN OR PARTIAL RELEASE OF RETAINAGE

This form has been endorsed by the National Association of Surety Bond Producers and The Surety & Fidelity Association of America

PROJECT: *(Name and location)*	**TO OWNER/OBLIGEE:** *(Name and address)*
DESIGN-BUILDER/PRINCIPAL: *(Name and address)*	**SURETY:** *(Name and address)*
DESIGN-BUILD AGREEMENT DATED:	**Copies To:** □ Owner □ Design-Builder □ Surety □ Other: _____

In accordance with the provisions of the Design-Build Agreement between the Owner and the Design-Builder, the Surety on the bond(s) of Design-Builder hereby approves of the reduction in, or partial release of, retainage to the Design-Builder. The Surety also agrees that such reduction in, or partial release of, retainage to the Design-Builder shall not relieve the Surety of any of its obligations to Owner as set forth in the Surety's bond(s) for this Project.

In Witness Whereof, the Surety Company has hereunto set its hand on this ___ day of ____, 20_.

_____ Surety _____ Signature of authorized representative _____ Printed name _____ Title	Attest: _____ (SEAL)

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Consent of Surety to Reduction in or Partial Release of Retainage to General Contractor

Document No. 500-D6GC
First Edition, 2015

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8. **Acknowledgement.** You acknowledge that you have read this agreement, understand it, and agree to be bound by its terms and conditions, and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

CONSENT OF SURETY TO REDUCTION IN OR PARTIAL RELEASE OF RETAINAGE TO GENERAL CONTRACTOR

This form has been endorsed by The National Association of Surety Bond Producers and The Surety & Fidelity Association of America

PROJECT: *(Name and location)*	**TO DESIGN-BUILDER /OBLIGEE:** *(Name and address)*
GENERAL CONTRACTOR/PRINCIPAL: *(Name and address)*	**SURETY:** *(Name and address)*
AGREEMENT BETWEEN DESIGN-BUILDER AND GENERAL CONTRACTOR DATED:	**Copies To:** □ Design-Builder □ General Contractor □ Surety □ Other: _____

In accordance with the provisions of the Agreement between the Design-Builder and General Contractor, the Surety on the bond(s) of General Contractor hereby approves of the reduction in, or partial release of, retainage to the General Contractor. The Surety also agrees that such reduction in, or partial release of, retainage to the General Contractor shall not relieve the Surety of any of its obligations to Design-Builder as set forth in the Surety's bond(s) for this Project.

In Witness Whereof, the Surety Company has hereunto set its hand on this ___ day of ____, 20_.

_____ Surety _____ Signature of authorized representative _____ Printed name _____ Title	Attest: _____ (SEAL)

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Consent of Surety to Reduction in or Partial Release of Retainage to Subcontractor

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First Edition, 2015

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8. **Acknowledgement.** You acknowledge that you have read this agreement, understand it, and agree to be bound by its terms and conditions, and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

CONSENT OF SURETY TO REDUCTION IN OR PARTIAL RELEASE OF RETAINAGE TO SUBCONTRACTOR

This form has been endorsed by The National Association of Surety Bond Producers and The Surety & Fidelity Association of America

PROJECT: *(Name and location)*	**TO DESIGN-BUILDER /OBLIGEE:** *(Name and address)*
SUBCONTRACTOR/PRINCIPAL: *(Name and address)*	**SURETY:** *(Name and address)*
SUBCONTRACT AGREEMENT DATED:	**Copies To:** □ Design-Builder □ Subcontractor □ Surety □ Other: _____

In accordance with the provisions of the Subcontract Agreement between the Design-Builder and Subcontractor, the Surety on the bond(s) of Subcontractor hereby approves of the reduction in, or partial release of, retainage to the Subcontractor. The Surety also agrees that such reduction in, or partial release of, retainage to the Subcontractor shall not relieve the Surety of any of its obligations to Design-Builder as set forth in the Surety's bond(s) for this Project.

In Witness Whereof, the Surety Company has hereunto set its hand on this ___ day of ____, 20_.

_____ Surety _____ Signature of authorized representative _____ Printed name _____ Title	Attest: _____ (SEAL)

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Consent of Surety to Final Payment

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8. **Acknowledgement.** You acknowledge that you have read this agreement, understand it, and agree to be bound by its terms and conditions, and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

CONSENT OF SURETY TO FINAL PAYMENT

This form has been endorsed by The National Association of Surety Bond Producers and The Surety & Fidelity Association of America

PROJECT: *(Name and location)*	**TO OWNER/OBLIGEE:** *(Name and address)*
DESIGN-BUILDER/PRINCIPAL: *(Name and address)*	**SURETY:** *(Name and address)*
DESIGN-BUILD AGREEMENT DATED:	**Copies To:** □ Owner □ Design-Builder □ Surety □ Other: _____

In accordance with the provisions of the Design-Build Agreement between the Owner and the Design-Builder, the Surety on the bond(s) of Design-Builder hereby approves of the release of final payment to the Design-Builder. The Surety also agrees that final payment to the Design-Builder shall not relieve the Surety of any of its obligations to Owner as set forth in the Surety's bond(s) for this Project.

In Witness Whereof, the Surety Company has hereunto set its hand on this ___ day of ____, 20_.

_____ Surety _____ Signature of authorized representative _____ Printed name _____ Title	Attest: _____ (SEAL)

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CONSENT OF SURETY TO FINAL PAYMENT TO GENERAL CONTRACTOR

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PROJECT: *(Name and location)*	**TO DESIGN-BUILDER/OBLIGEE:** *(Name and address)*
GENERAL CONTRACTOR/PRINCIPAL: *(Name and address)*	**SURETY:** *(Name and address)*
AGREEMENT BETWEEN DESIGN-BUILDER AND GENERAL CONTRACTOR DATED:	**Copies To:** □ Design-Builder □ General Contractor □ Surety □ Other: _____

In accordance with the provisions of the Agreement between the Design-Builder and General Contractor, the Surety on the bond(s) of General Contractor hereby approves of the release of final payment to the General Contractor. The Surety also agrees that final payment to the General Contractor shall not relieve the Surety of any of its obligations to Design-Builder as set forth in the Surety's bond(s) for this Project.

In Witness Whereof, the Surety Company has hereunto set its hand on this ___ day of ____, 20_.

_____ Surety _____ Signature of authorized representative _____ Printed name _____ Title	Attest: _____ (SEAL)

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CONSENT OF SURETY TO FINAL PAYMENT TO SUBCONTRACTOR

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PROJECT: *(Name and location)*	**TO DESIGN-BUILDER/OBLIGEE:** *(Name and address)*
SUBCONTRACTOR/PRINCIPAL: *(Name and address)*	**SURETY:** *(Name and address)*
SUBCONTRACT AGREEMENT DATED:	**Copies To:** □ Subcontractor □ Design-Builder □ Surety □ Other: _____

In accordance with the provisions of the Subcontract Agreement between the Subcontractor and the Design-Builder, the Surety on the bond(s) of Subcontractor hereby approves of the release of final payment to the Subcontractor. The Surety also agrees that final payment to the Subcontractor shall not relieve the Surety of any of its obligations to Design-Builder as set forth in the Surety's bond(s) for this Project.

In Witness Whereof, the Surety Company has hereunto set its hand on this ___ day of ____, 20_.

_____ Surety _____ Signature of authorized representative _____ Printed name _____ Title	Attest: _____ (SEAL)

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Certificate of Final Completion

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6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.
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CERTIFICATE OF FINAL COMPLETION

PROJECT: *(Name and location)*	**OWNER:** *(Name and address)*
DATE OF FINAL COMPLETION:	**DESIGN-BUILDER:** *(Name and address)*

Description of Work (or Designated Area) Being Certified for Final Completion:
(describe here)

The above-described Work has been reviewed and found to be complete in accordance with the Construction Documents, except as noted below:
(list any exceptions here)

Article 1

Affidavit and Release

1.1 The undersigned on behalf of Design-Builder, after being duly sworn upon his/her oath, swears that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect Owner's interests.

1.2 Design-Builder agrees that upon receipt of final payment to Design-Builder, it waives and releases all claims against Owner, except those claims previously made in writing to Owner and which remaining unsettled at the time of final payment. For clarity, Design-Builder identifies those unsettled claims as follows:
(identify all unsettled claims below, or write "None" if there are no such claims pending)

Article 2

Certification

2.1 Design-Builder certifies that it has achieved Final Completion of all Work described in this Certificate of Final Completion.

2.2 Design-Builder represents that it has:

.1 furnished to Owner a consent of Design-Builder's surety, if any, to final payment;

.2 provided Owner with all operating manuals, warranties and other deliverables required by the Contract Documents; and

.3 furnished Owner with certificates of insurance confirming that required coverages will remain in effect consistent with the requirements of the Contract Documents.

2.3 The undersigned is authorized to make this affidavit, release and certification on behalf of Design-Builder.

Notary:	**Design-Builder:**
Sworn to me and subscribed in my presence this _____ day of _____, 20___. Signature of Notary for State of _____: _____ My Commission Expires: _____ *(NOTE: users should check the notary jurat for compliance with applicable state law)*	_____ Signature of authorized representative _____ Printed name _____ Title _____ **Date**

Article 3

Acceptance

3.1 The Owner agrees that Final Completion of the above-described Work has been achieved as of the date stated above. Signing of this Certificate of Final Completion by the Owner in no way alters the responsibility of the Design-Builder under the Agreement and the Contract Documents including, without limitation, all warranties and guarantees.

Owner:

_____
Signature of authorized representative

_____
Printed name

_____
Title

_____
Date

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3.2 Optional Third Party Certification.

(NOTE: If the Agreement between Design-Builder and Owner requires the certification of a third-party for Final Completion, complete this Section. If not, check appropriate box below).

□ Required □ Not required

The above-described Work performed by Design-Builder has been reviewed and found, to the best of the undersigned's knowledge, information and belief, to be complete, subject to any exceptions noted herein.

By:

_____
Signature

_____
Printed name

_____
Title

_____
Date

Caution: You should sign an original DBIA document which has this caution printed in blue. An original assures that changes will not be obscured as may occur when documents are reproduced.

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Design-Builder's Request

Document No. 500-D9
First Edition, 2015

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Washington, D.C.

Design-Build Institute of America – Contract Documents
LICENSE AGREEMENT

By using the DBIA Contract Documents, you agree to and are bound by the terms of this License Agreement.

1. **License.** The Design-Build Institute of America ("DBIA") provides DBIA Contract Documents and licenses their use worldwide. You acknowledge that DBIA Contract Documents are protected by the copyright laws of the United States. You have a limited nonexclusive license to: (a) Use DBIA Contract Documents on any number of machines owned, leased, or rented by your company or organization; (b) Use DBIA Contract Documents in printed form for bona fide contract purposes; and (c) Copy DBIA Contract Documents into any machine-readable or printed form for backup or modification purposes in support of your permitted use.
2. **User Responsibility.** You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results and for the installation, use, and results obtained from the DBIA Contract Documents. You acknowledge that you understand that the text of the DBIA Contract Documents has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You will not represent that any of the contract documents you generate from DBIA Contract Documents are DBIA documents unless (a) the document text is used without alteration or (b) all additions and changes to, and deletions from, the text are clearly shown.
3. **Copies.** You may not use, copy, modify, or transfer DBIA Contract Documents, or any copy, modification, or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification, or portion merged into another document or program.
4. **Transfers.** You may not transfer possession of any copy, modification, or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.
5. **Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.
6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.
7. **Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings, or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.
8. **Acknowledgement.** You acknowledge that you have read this agreement, understand it, and agree to be bound by its terms and conditions, and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

DESIGN-BUILDER'S REQUEST (DBR)

PROJECT: *(Name and location)*	**DBR No.**	**DATE OF REQUEST:**
TO RECIPIENT: *(Name and address)*	**FROM SENDER:** *(Name and address)*	
Request: The Sender requests the following: *(Describe the request here, whether a meeting, clarification, information, etc.)*		
References: *(List specific documents related to this request)*		
Specification Section(s):	Drawing(s):	
Other Reference:	Attachments: *(check appropriate box)* □ See attached; □ Nothing attached	
Recipient's Reply: *(Provide response below)*		
By:	**DATE OF REPLY:**	
Name/Title:	Copy to:	
Company:		

Note: Unless otherwise specifically indicated, nothing in this Reply authorizes any change in contract time, price or schedule. If Sender believes these instructions provide the basis for such a change, submit such request in accordance with the Contract Documents with reference to this DBR.

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Design-Builder's Request Log

Document No. 500-D10
First Edition, 2015

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Washington, D.C.

Design-Build Institute of America – Contract Documents
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2. **User Responsibility.** You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results and for the installation, use, and results obtained from the DBIA Contract Documents. You acknowledge that you understand that the text of the DBIA Contract Documents has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You will not represent that any of the contract documents you generate from DBIA Contract Documents are DBIA documents unless (a) the document text is used without alteration or (b) all additions and changes to, and deletions from, the text are clearly shown.
3. **Copies.** You may not use, copy, modify, or transfer DBIA Contract Documents, or any copy, modification, or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification, or portion merged into another document or program.
4. **Transfers.** You may not transfer possession of any copy, modification, or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.
5. **Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.
6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.
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DESIGN-BUILDER'S REQUEST (DBR) LOG

PROJECT:
(Name and location)

OWNER:
(Name and address)

DESIGN-BUILDER:
(Name and address)

PROJECT NO.:

DBR No.	Date Received	Description of the Request	Response Date	Related Documents

© 2014 Design-Build Institute of America

Standard Form of Agreement Between Owner and Design-Builder – Lump Sum

Document No. 525
Third Edition, 2024

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Washington, D.C.



Design-Build Institute of America - Contract Documents

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4. **Transfers.** You may not transfer possession of any copy, modification or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.
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7. **Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.
8. **Acknowledgment.** You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

INSTRUCTIONS

For DBIA Document No. 525 Standard Form of Agreement Between Owner and Design-Builder - Lump Sum (2022 Edition)

Checklist

Use this Checklist to ensure that the Agreement is fully completed and all exhibits are attached.

_____	Page 1	Owner's name, address and form of business
_____	Page 1	Design-Builder's name, address and form of business
_____	Page 1	Project name and address
_____	Section 2.1.3	Identify other exhibits to the Agreement
_____	Section 4.2	Note the optional provisions that are provided
_____	Section 4.3.2	Complete blanks for additional sum for use of Work Product
_____	Section 5.2.1	Complete blanks for calendar days and note the optional language that is provided
_____	Section 5.2.2	Insert any interim milestones (optional)
_____	Section 5.4	Complete blanks for liquidated damages and note the optional provisions that are provided
_____	Section 5.5	If the parties select the option provided they have to insert an amount
_____	Section 5.6	Complete blanks for early completion bonus and note the optional provision that is provided
_____	Section 5.7	Note the optional provisions that are provided
_____	Section 6.1	Complete blanks for Contract Price
_____	Section 6.2	Insert markups for changes and note optional provisions
_____	Section 6.3.4	Note the optional provision that is provided
_____	Section 6.4.1	Note optional provision to include an Exhibit for performance provisions.
_____	Section 7.1.1	Complete blanks for day of month
_____	Section 7.2.1	Complete blanks for retention percentage and note optional provision
_____	Section 7.4	Complete blanks for interest rate
_____	Section 8.1	Choose overhead/profit method for termination for convenience
_____	Section 8.2.1	Complete blanks for percentages
_____	Section 8.2.2	Complete blanks for percentages
_____	Section 9.1.1	Insert Owner's Senior Representative's name, etc. (optional)
_____	Section 9.1.2	Insert Owner's Representative's name, etc. (optional)
_____	Section 9.2.1	Insert Design-Builder's Senior Representative's name, etc. (optional)
_____	Section 9.2.2	Insert Design-Builder's Representative's name, etc. (optional)
_____	Section 10.1	Attach Insurance Exhibit
	Section 10.2	Insert amount and conditions of bonds or other security and note the options that are provided
_____	Section 11.1	Insert any other provisions (optional)
_____	Last Page	Owner's and Design-Builder's execution of the Agreement

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General Instructions

No.	Subject	Instruction
1.	Standard Forms	Standard form contracts have long served an important function in the United States and international construction markets. The common purpose of these forms is to provide an economical and convenient way for parties to contract for design and construction services. As standard forms gain acceptance and are used with increased frequency, parties are able to enter into contracts with greater certainty as to their rights and responsibilities.
2.	DBIA Standard Form Contract Documents	Since its formation in 1993, the Design-Build Institute of America ("DBIA") has regularly evaluated the needs of owners, design-builders, and other parties to the design-build process in preparation for developing its own contract forms. Consistent with DBIA's mission of promulgating best design-build practices, DBIA believes that the design-build contract should reflect a balanced approach to risk that considers the legitimate interests of all parties to the design-build process. DBIA's Standard Form Contract Documents reflect a modern risk allocation approach, allocating each risk to the party best equipped to manage and minimize that risk, with the goal of promoting best design-build practices.
3.	Use of Non-DBIA Documents	To avoid inconsistencies among documents used for the same project, DBIA's Standard Form Contract Documents should not be used in conjunction with non-DBIA documents unless the non-DBIA documents are appropriately modified on the advice of legal counsel. Moreover, care should also be taken when using different editions of the DBIA Standard Form Documents on the same project to ensure consistency.
4.	Legal Consequences	DBIA Standard Form Contract Documents are legally binding contracts with important legal consequences. Contracting parties are advised and encouraged to seek legal counsel in completing or modifying these Documents.
5.	Reproduction	DBIA hereby grants to purchasers a limited license to reproduce its Documents consistent with the License Agreement accompanying these Documents. At least two original versions of the Agreement should be signed by the parties. Any other reproduction of DBIA Documents is strictly prohibited.
6.	Modifications	Effective contracting is accomplished when the parties give specific thought to their contracting goals and then tailor the contract to meet the unique needs of the project and the design-build team. For that reason, these Documents may require modification for various purposes including, for example, to comply with local codes and laws, or to add special terms. DBIA's latest revisions to its Documents provide the parties an opportunity to customize their contractual relationship by selecting various optional contract clauses that may better reflect the unique needs and risks associated with the project. At no time should a document be re-typed in its entirety. Re-creating the document violates copyright laws and destroys one of the advantages of standard forms – familiarity with the terms.
7.	Execution	It is good practice to execute two original copies of the Agreement. Only persons authorized to sign for the contracting parties may execute the Agreement.

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Specific Instructions

Section	Title	Instruction
General	Purpose of This Agreement	DBIA Document No. 525 (“Agreement”) should be used only when the parties intend that Owner pay Design-Builder a lump sum fixed price for the completion of all design and construction services. There will be greater mutual understanding and cooperation if the lump sum is established based on Owner’s Project Criteria that are well defined. If there is uncertainty about Owner’s Project Criteria, or it remains to be developed by Owner and Design-Builder jointly, a cost-plus/guaranteed maximum price (“GMP”) contracting approach may be more suitable. In such case, the parties should use DBIA Document No. 530.
General	Purpose of These Instructions	These Instructions are not part of this Agreement, but are provided to aid the parties in their understanding of the Agreement and in completing the Agreement.
General	Related Documents	This Agreement shall be used in conjunction with the General Conditions of Contract. Other related Contract Documents are listed in Article 2 of this Agreement.
General	Date	On Page 1, enter the date when both parties reach a final understanding. It is possible, due to logistical reasons, that the dates when the parties execute the Agreement may be different. Once both parties execute the Agreement, the effective date of the Agreement will be the date recorded on Page 1. This date does not, however, determine Contract Time, which is measured according to the terms of Article 5.
General	Parties: Owner and Design-Builder	On Page 1 enter the legal name and full address of Owner and Design-Builder, as well as the legal form of each entity, e.g., corporation, partnership, limited partnership, limited liability company, or other.
2.1.2	Basis of Design Documents	The Basis of Design Documents are critical in establishing the scope of work. These documents include the Owner’s Project Criteria and may include Design-Builder’s Proposal, and the Deviation List, if any, contained in the Design-Builder’s Proposal. Prior to the execution of this Agreement, Design-Builder will have submitted its Proposal based on Owner’s Project Criteria. To avoid ambiguities or conflicts between Owner’s Project Criteria and Design-Builder’s Proposal, Design-Builder’s Proposal shall specifically list any deviations from Owner’s Project Criteria. Design-Builder’s Deviation List shall, if accepted by Owner, become a Contract Document and shall have precedence over Owner’s Project Criteria.
2.1.5	Construction Documents	After execution of the Agreement, and consistent with the requirements of Section 2.4 of the General Conditions of Contract, Design-Builder will prepare Construction Documents subject to Owner’s review and approval.
3.2	Order of Precedence	The Contract Documents are listed in Section 2.1 in the order of their precedence. This hierarchy of documents reflects DBIA’s belief that the Basis of Design Documents are critical documents that take precedence over other Contract Documents existing at the time the Agreement is executed. This section also makes clear that if a Deviation List exists it takes precedence over the Owner’s Project Criteria. Moreover, Section 2.1.3 recognizes that there may be other exhibits attached to this Agreement. If this is the case, the parties should discuss whether these exhibits should be part of the Basis of Design Documents. If these exhibits are not made part of the Basis of Design Documents, these exhibits will not take priority over the Basis of Design Documents in the event of a conflict.
3.3	Definitions	Terms, words and phrases used in the Agreement shall have the same meanings used in the General Conditions of Contract.

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Section	Title	Instruction
3.4	Design Specification	The Owner is cautioned that if the Project Criteria include design specifications, there is case law holding that the Design-Builder is entitled to rely on such information, and to the extent such information is not accurate, the Design-Builder will be entitled to an adjustment in the Contract Price and/or Contract Time. Accordingly, to avoid such potential liability, the Owner should consider using performance specifications.
4.1	Work Product	This Agreement provides that the Design-Builder shall retain ownership of the Work Product it produces, but obligates Design-Builder to grant a limited license to Owner to use the Work Product according to the terms and circumstances described in Sections 4.2, 4.3, 4.4 and 4.5.
4.2	Owner's Limited License Upon Payment in Full	Design-Builder shall grant Owner, at Owner's sole risk, a limited license to use the Work Product at the completion of the Work in connection with Owner's occupation of the Project. This Section also provides the parties with the option of transferring ownership of some or all of the Work Product to the Owner upon payment in full for all Work performed. Generally, where the Owner desires ownership of Work Product, it is sufficient to transfer ownership of unique architectural and design elements.
4.3	Owner's Limited License Upon Owner's Termination for Convenience or Design-Builder's Election to Terminate	Owner should not use the Termination for Convenience Clause to obtain Design-Builder's valuable design concepts, and then seek bids from other design-builders. Therefore, where Owner terminates this Agreement for its convenience, and then decides to complete the Project with its own or third-party forces, Design-Builder shall grant Owner the rights set forth in Section 4.2, provided Owner pays Design-Builder all amounts due Design-Builder as required by the Contract Documents, including paying Design-Builder an additional sum per Section 4.3.2 for the use of the Work Product. In the event Design-Builder elects to terminate this Agreement for cause, for reasons set forth in Section 11.4 of the General Conditions of Contract, these same conditions apply to Owner's use of the Work Product.
4.3.2	Additional Compensation	To minimize disputes, the parties should negotiate prior to execution of the Agreement the amount Owner shall pay Design-Builder for the use of Design-Builder's Work Product in the event Owner terminates this Agreement for its convenience or Design-Builder elects to terminate this Agreement for cause. Enter this amount.
4.4	Owner's Limited License Upon Design-Builder's Default	If Design-Builder is properly terminated for default, Owner is granted a limited license to use the Work Product to complete the Project, and Owner shall thereafter have the same rights and obligations as set forth in Section 4.2.
4.5	Owner's Indemnification for Use of Work Product	Owner's use or alteration of the Work Product shall be at its sole risk, and Owner must agree to defend, indemnify and hold harmless Design-Builder and anyone working by or through Design-Builder, including Design Consultants of any tier.
5.1	Date of Commencement	Design-Builder's obligation to commence work is triggered by its receipt of a Notice to Proceed unless the parties mutually agree otherwise.
5.2.1	Substantial Completion of the Entire Work	Enter the calendar days duration by which Substantial Completion has to be achieved. The parties in this Section have the option of modifying the definition of Substantial Completion set forth in the General Conditions of Contract if they want to use a Temporary Certificate of Occupancy as the benchmark. If this option is selected, Substantial Completion will be deemed to be achieved no later than the date a Temporary Certificate of Occupancy is issued, if applicable to the Project.

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Section	Title	Instruction
5.2.2	Interim Milestones	It may be that some portions of the Work must be completed in phases or within a prescribed period of time to accommodate Owner's needs. The parties may, at their option, identify these portions of the Work to be completed prior to Substantial Completion of the entire Work. Enter the number of calendar days, starting from the Date of Commencement, for achieving Substantial Completion of these identified portions of the Work. If these portions of the Work are required to be substantially completed by certain milestone dates, enter those dates. The form does not provide a remedy to the Owner if an interim milestone is not met. If the Owner has special requirements as it relates to interim milestones, the Owner may want to consider a remedy for the Design-Builder's failure to meet an interim milestone, as well as providing a bonus to the Design-Builder for satisfying such interim milestone.
5.4	Liquidated Damages	Owner should make a good faith evaluation of the amount that is reasonably necessary to compensate it for delay. Owner should not establish liquidated damages to penalize Design-Builder. Section 5.4 establishes a grace period between the Scheduled Substantial Completion Date and the assessment of liquidated damages in order to prevent disputes as to which party bears responsibility for only a few days of delay. The parties should enter the calendar days that may pass following the Scheduled Substantial Completion Date before liquidated damages will be assessed. The parties are also provided the option of establishing liquidated damages if the Design-Builder fails to achieve Final Completion within a specified number of days after Substantial Completion. If this option is selected, the parties must negotiate both the number of days and the liquidated damages amount. In negotiating liquidated damages, the parties should keep in mind that the amount of liquidated damages for failing to achieve Final Completion should be a considerably scaled down amount and should reflect the financial harm to the Owner. In no case should the total amount of liquidated damages for the Project exceed an amount that is reasonably necessary to compensate Owner for Project delay. The parties also have the option here of eliminating liquidated damages altogether, in which case the Owner can recover actual damages for Project delay at an amount that is capped by the parties. The Owner is cautioned that even if this option for actual damages is selected it still cannot recover consequential damages, as these are waived under Section 10.5.1 of the General Conditions of Contract.
5.5	Liquidated Damages Cap	The parties can agree to cap liquidated damages for delay at a negotiated amount.
5.6	Early Completion Bonus	If the Project economics justify liquidated damages, then it may also be appropriate to couple these liquidated damages with an early completion bonus. The parties should enter the number of calendar days prior to the Scheduled Substantial Completion Date that will set the Bonus Date. Also, enter the amount of the bonus to be paid per day that will allow Owner to share with Design-Builder the economic benefits of early completion. The parties also have the option in Section 5.6 of capping the early completion bonus at a negotiated amount.
5.7	Compensation for Force Majeure Events	The parties are provided the opportunity of providing the Design-Builder the right to receive compensation for Force Majeure Events. By selecting this option, the parties agree to modify Section 8.2.2 of the General Conditions of Contract, in which case the parties have to negotiate how many cumulative days of Force Majeure delays must occur before the Design-Builder is entitled to either a negotiated amount per day for delay or the direct costs it has incurred as a result of such delay.
6.1	Contract Price	Enter the lump sum price Owner will pay Design-Builder for the Scope of Work. The Contract Price should compensate Design-Builder for the services it provides and the risk it assumes in providing single point responsibility to Owner.

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Section	Title	Instruction
6.2	Markups for Changes	Enter the markups agreed upon by Design-Builder and Owner to be used for pricing Changes to the Work. Prior to negotiating or agreeing to these markups, both parties should familiarize themselves with Article 9 of the General Conditions of Contract, Changes to the Contract Price and Time. For additive Change Orders, the parties have to negotiate the Fee the Design-Builder will receive. For deductive Change Orders, parties have the option by checking the appropriate box of whether there will be no additional reduction or whether there will be an additional reduction based on a negotiated percentage.
6.3.4	Allowance Value	This section recognizes that the parties may agree that certain items of Work should be treated as an Allowance Item and priced based on Allowance Values. The Allowance Value for which the Design-Builder will be entitled to receive compensation includes direct cost of labor, materials, equipment, transportation, taxes and insurance associated with the Allowance Item. All other costs associated with the Allowance Item, such as design fees, general conditions costs and fee, are deemed to be included in the Contract Price. However, the parties agree that in the event the actual cost of the Allowance Item is greater than or less than the Allowance Value by a negotiated percentage, then Design-Builder's right to Fee and markup shall be determined pursuant to Section 6.2.
6.4	Performance Incentives	There may be performance incentives that will influence Project success. Such incentives may include award fees tied to the Design-Builder achieving certain standards relative to client satisfaction, safety and personnel retention. The parties are encouraged to discuss the use of such incentives during negotiation of this Agreement. Any agreement on the use of incentives should be set forth in an exhibit attached to this Agreement.
7.1.1	Progress Payments	Enter the day of the month when Design-Builder shall submit its Application for Payment.
7.2.1	Retainage	Enter the percentage Owner will retain from Progress Payments to Design-Builder until fifty percent (50%) of the Work is completed. Owner should recognize that it creates undue hardship to hold retainage on Subcontractors that have completed their work early in the Project. Owner should accordingly consider releasing retainage on Subcontractors that complete work early in the Project, providing that these Subcontractors have satisfactorily performed their portion of the Work. The parties are provided the option of modifying the retainage provision by checking the box. This option excludes from retainage the Design-Builder's general conditions costs and amounts paid to Design-Builder's Design Consultant. The rationale for selecting this option is that the Design-Builder is obligated to pay its general conditions costs in full each month and that under the design-bid-build delivery method, the Owner typically does not retain sums from its designer.
7.4	Interest	The parties should enter the rate at which interest will accrue on Design-Builder's payments if unpaid five (5) days after due. Late payment creates a hardship for Design-Builder, its Design Consultants and Subcontractors.
7.5	Record Keeping	The Owner is provided access to Design-Builder's accounting information as it relates to changes to the Work. However, if the parties have agreed to multipliers or markups for changes, the time to challenge and negotiate those percentages is at the time the parties execute the Agreement and not during the Project or after it has been completed. Accordingly, the Owner can at any time audit these percentages only to confirm that such percentage has been properly charged and not to challenge the composition of such percentage.

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Section	Title	Instruction
8.1	Termination for Convenience: Overhead and Profit	The parties should choose prior to execution of the Agreement the method that will be used to determine overhead and profit paid to Design-Builder in the event Owner terminates Design-Builder for its convenience. The parties may choose to set percentage rates for overhead and profit prior to execution of the Agreement, or may choose to determine reasonable sums to be paid for overhead and profit at the time of the termination. If the parties choose to set overhead and profit rates prior to execution of the Agreement, the percentages should be entered in Section 8.1.
8.2	Termination for Convenience: Additional Payments	Although it is important for Owner to have a process for terminating this Agreement for convenience, the process must consider the interests of Design-Builder. If Owner terminates this Agreement for its own convenience, compensating Design-Builder for its costs will not be adequate because Design-Builder will have committed its resources for a small amount of revenue. Therefore, in addition to the overhead and profit paid in Section 8.1, Owner shall pay Design-Builder an additional sum, calculated as a percentage of the remaining balance of the Contract Price. Enter the percentages Owner shall pay Design-Builder if Owner terminates this Agreement for its own convenience prior to or after the start of construction.
8.3	Termination for Convenience: Owner's Use of Work Product	Owner should not use the Termination for Convenience clause to obtain Design-Builder's valuable design concepts and then seek lower bids from another design-builder. If Owner terminates this Agreement for its own convenience, and chooses to proceed with the Project using Design-Builder's Work Product, Owner should pay an additional sum for the use of Design-Builder's Work Product pursuant to Section 4.3.
Article 9	Representatives of the Parties	Enter the name, title, address and telephone number of Owner's Senior Representative and Owner's Representative at Sections 9.1.1 and 9.1.2, respectively. Enter the name, title, address and telephone number of Design-Builder's Senior Representative and Design-Builder's Representative at Sections 9.2.1 and 9.2.2, respectively. The parties can elect to establish Representatives during the performance of the Project rather than at the time of execution of this Agreement. If Representatives are identified after execution of the Agreement, an appropriate amendment should be made to the Agreement at the time these individuals are designated.
10.1	Insurance	Attach an Insurance Exhibit setting forth in detail the insurance coverages required for the Project. Parties are advised to familiarize themselves with the terms of Article 5 of the General Conditions of Contract, Insurance and Bonds, and to consult their insurance advisor.
10.2	Bonds	Enter the type and amount of bonds or other performance security required for the Project. Where bonding is not required by statute, Owner may want to evaluate the project risks versus the bonding costs in deciding what type of performance security to require.
11.1	Other Provisions	Insert any other provisions. For example, the parties may elect to have disputes resolved through litigation rather than arbitration in which case the optional language in this Section should be included.

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Standard Form of Agreement Between Owner and Design-Builder - Lump Sum

This document has important legal consequences. Consultation with an attorney is recommended with respect to its completion or modification.

This **AGREEMENT** is made as of the _____ day of _____ in the year of 20_____, by and between the following parties, for services in connection with the Project identified below.

OWNER:
(Name and address)

DESIGN-BUILDER:
(Name and address)

PROJECT:
(Include Project name and location as it will appear in the Contract Documents)

In consideration of the mutual covenants and obligations contained herein, Owner and Design-Builder agree as set forth herein.

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Article 1

Scope of Work

1.1 Design-Builder shall perform all design and construction services, and provide all material, equipment, tools and labor, necessary to complete the Work described in and reasonably inferable from the Contract Documents.

Article 2

Contract Documents

2.1 The Contract Documents are comprised of the following:

2.1.1 All written modifications, amendments, minor changes and Change Orders to this Agreement issued in accordance with DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2022 Edition) ("General Conditions of Contract");

2.1.2 The Basis of Design Documents, including the Owner's Project Criteria, Design-Builder's Proposal and the Deviation List, if any, contained in the Design-Builder's Proposal, which shall specifically identify any and all deviations from Owner's Project Criteria;

2.1.3 This Agreement, including all exhibits and attachments, executed by Owner and Design-Builder (List for example, performance standard requirements, performance incentive requirements, markup exhibits, allowances, or unit prices);

2.1.4 The General Conditions of Contract; and

2.1.5 Construction Documents prepared and approved in accordance with Section 2.4 of the General Conditions of Contract.

Article 3

Interpretation and Intent

3.1 Design-Builder and Owner, prior to execution of the Agreement, shall carefully review all the Contract Documents, including the various documents comprising the Basis of Design Documents, for any conflicts or ambiguities. Design-Builder and Owner will discuss and resolve any identified conflicts or ambiguities prior to execution of the Agreement.

3.2 The Contract Documents are intended to permit the parties to complete the Work and all obligations required by the Contract Documents within the Contract Time(s) for the Contract Price. The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted in a manner consistent with construction and design industry standards. In the event inconsistencies, conflicts, or ambiguities between or among the Contract Documents are discovered after execution of the Agreement, Design-Builder and Owner shall attempt to resolve any ambiguity, conflict or inconsistency informally, recognizing that the Contract Documents shall take precedence in the order in which they are listed in Section 2.1 hereof. Conflicts existing within Section 2.1.2 shall be resolved by giving precedence first to the Deviation List, if any, then the Owner's Project Criteria, and then the Design-Builder's Proposal.

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3.3 Terms, words and phrases used in the Contract Documents, including this Agreement, shall have the meanings given them in the General Conditions of Contract.

3.4 If Owner's Project Criteria contain design specifications: (a) Design-Builder shall be entitled to reasonably rely on the accuracy of the information represented in such design specifications and their compatibility with other information set forth in Owner's Project Criteria, including any performance specifications; and (b) Design-Builder shall be entitled to an adjustment in the Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance have been adversely impacted by such inaccurate design specification.

3.5 The Contract Documents form the entire agreement between Owner and Design-Builder and by incorporation herein are as fully binding on the parties as if repeated herein. No oral representations or other agreements have been made by the parties except as specifically stated in the Contract Documents.

Article 4

Ownership of Work Product

4.1 Work Product. All drawings, specifications and other documents and electronic data, including such documents identified in the General Conditions of Contract, furnished by Design-Builder to Owner under this Agreement ("Work Product") are deemed to be instruments of service and Design-Builder shall retain the ownership and property interests therein, including but not limited to any intellectual property rights, copyrights and/or patents, subject to the provisions set forth in Sections 4.2 through 4.5 below.

4.2 Owner's Limited License Upon Project Completion and Payment in Full to Design-Builder. Upon Owner's payment in full for all Work performed under the Contract Documents, Design-Builder shall grant Owner a limited license to use the Work Product in connection with Owner's occupancy of the Project, conditioned on Owner's express understanding that its alteration of the Work Product without the involvement of Design-Builder is at Owner's sole risk and without liability or legal exposure to Design-Builder or anyone working by or through Design-Builder, including Design Consultants of any tier (collectively the "Indemnified Parties"), and on the Owner's obligation to provide the indemnity set forth in Section 4.5 below.

[At the parties' option, the following may be used in lieu of Section 4.2.]

☐ Upon Owner's payment in full for all Work performed under the Contract Documents, Design-Builder: (a) grants Owner a limited license to use the Work Product in connection with Owner's occupancy of the Project; and (b) transfers all ownership and property interests, including but not limited to any intellectual property rights, copyrights and/or patents, in that portion of the Work Product that consists of architectural, engineering and other design elements and specifications that are unique to the Project. The parties shall specifically designate those portions of the Work Product for which ownership in the Work Product shall be transferred. Such grant and transfer are conditioned on Owner's express understanding that its alteration of the Work Product without the involvement of Design-Builder is at Owner's sole risk and without liability or legal exposure to Design-Builder or anyone working by or through Design-Builder, including Design Consultants of any tier (collectively the "Indemnified Parties"), and on the Owner's obligation to provide the indemnity set forth in Section 4.5 below.

4.3 Owner's Limited License upon Owner's Termination for Convenience or Design-Builder's Election to Terminate. If Owner terminates this Agreement for its convenience as set forth in Article 8 hereof, or if Design-Builder elects to terminate this Agreement in accordance with Section 11.4 of the General Conditions of Contract, Design-Builder shall, upon Owner's payment in full of the amounts due Design-Builder under the Contract Documents, grant Owner a limited license to use the Work Product to

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complete the Project and subsequently occupy the Project, and Owner shall thereafter have the same rights as set forth in Section 4.2 above, conditioned on the following:

4.3.1 Use of the Work Product is at Owner's sole risk without liability or legal exposure to any Indemnified Party and on the Owner's obligation to provide the indemnity set forth in Section 4.5 below; and

4.3.2 Owner agrees to pay Design-Builder the additional sum of _____ Dollars ($ _____) as compensation for the right to use the Work Product to complete the Project and subsequently use the work Product in accordance with Section 4.2 if Owner resumes the Project through its employees, agents, or third parties.

4.4 Owner's Limited License upon Design-Builder's Default. If this Agreement is terminated due to Design-Builder's default pursuant to Section 11.2 of the General Conditions of Contract, then Design-Builder grants Owner a limited license to use the Work Product to complete the Project and subsequently occupy the Project, and Owner shall thereafter have the same rights and obligations as set forth in Section 4.2 above. Notwithstanding the preceding sentence, if it is ultimately determined that Design-Builder was not in default, Owner shall be deemed to have terminated the Agreement for convenience, and Design-Builder shall be entitled to the rights and remedies set forth in Section 4.3 above.

4.5 Owner's Indemnification for Use of Work Product. If Owner is required to indemnify any Indemnified Parties based on the use or alteration of the Work Product under any of the circumstances identified in this Article 4, Owner shall defend, indemnify and hold harmless such Indemnified Parties from and against any and all claims, damages, liabilities, losses and expenses, including attorneys' fees, arising out of or resulting from the use or alteration of the Work Product.

Article 5

Contract Time

5.1 Date of Commencement. The Work shall commence within five (5) days of Design-Builder's receipt of Owner's Notice to Proceed ("Date of Commencement") unless the parties mutually agree otherwise in writing.

5.2 Substantial Completion and Final Completion.

5.2.1 Substantial Completion of the entire Work shall be achieved no later than _____ (_____) calendar days after the Date of Commencement ("Scheduled Substantial Completion Date").

[At the parties' option, the following supplemental language may be inserted at the end of Section 5.2.1 if the Project is subject to a Temporary Certificate of Occupancy.]

The parties agree that the definition for Substantial Completion set forth in Section 1.2.19 of the General Conditions of Contract is hereby modified to read as follows:

"*Substantial Completion* is the date on which the Work, or an agreed upon portion of the Work, is sufficiently complete in accordance with the Contract Documents so that Owner can occupy and use the Project or a portion thereof for its intended purposes, provided, however, that Substantial Completion shall be deemed to have been achieved no later than the date of issuance of a Temporary Certificate of Occupancy issued by the local building official."

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5.2.2 Interim milestones and/or Substantial Completion of identified portions of the Work ("Scheduled Interim Milestone Dates") shall be achieved as follows: *(Insert any interim milestones for portions of the Work with different scheduled dates for Substantial Completion.)*

5.2.3 Final Completion of the Work or identified portions of the Work shall be achieved as expeditiously as reasonably practicable. Final Completion is the date when all Work is complete pursuant to the definition of Final Completion set forth in Section 1.2.8 of the General Conditions of Contract.

5.2.4 All of the dates set forth in this Article 5 (collectively the "Contract Time(s)") shall be subject to adjustment in accordance with the General Conditions of Contract.

5.3 Time is of the Essence. Owner and Design-Builder mutually agree that time is of the essence with respect to the dates and times set forth in the Contract Documents.

5.4 Liquidated Damages. Design-Builder understands that if Substantial Completion is not attained by the Scheduled Substantial Completion Date, Owner will suffer damages which are difficult to determine and accurately specify. Design-Builder agrees that if Substantial Completion is not attained by _____ (_____) days after the Scheduled Substantial Completion Date (the "LD Date"), Design-Builder shall pay Owner _____ Dollars ($ _____) as liquidated damages for each day that Substantial Completion extends beyond the LD Date.

[The parties may want to consider the following supplemental language within Section 5.4 if they want to assess liquidated damages for failing to meet Final Completion. In this case, the first sentence in Section 5.2.3 should be deleted and the language below should be checked and completed.]

☐ Design-Builder understands that if Final Completion is not achieved within _____ days of the Substantial Completion Date, Owner will suffer damages which are difficult to determine and accurately specify. Design-Builder agrees that if Final Completion is not achieved within _____ _____days of Substantial Completion, Design-Builder shall pay to Owner _____ Dollars ($_____), as liquidated damages for each calendar day that Final Completion is delayed beyond the above-referenced number of days.

[In lieu of the liquidated damages specified in Section 5.4 or the alternate provided herein, the Parties may decide that the Agreement will provide for actual damages in the event of Project delay, with Owner being cautioned that there is a waiver of consequential damages under Section 10.5.1 of the General Conditions of Contract. In this case, delete Sections 5.4 and 5.5 and insert the following.]

☐ **5.4** Design-Builder and Owner have agreed not to provide for liquidated damages in this Agreement for failure of Design-Builder to achieve the Contract Time(s) set forth in this Article 5. Design-Builder understands, however, that Owner may suffer actual damages in the event the Contract Time(s) set forth herein are not timely achieved. Owner shall be able to recover such actual damages from Design-Builder to the extent it can demonstrate that actual damages have been incurred, are directly related and caused by Design-Builder's failure to meet the Contract Time(s) set forth herein, and are not waived by Section 10.5.1 of the General Conditions of Contract. Notwithstanding the foregoing, in no event shall Design-Builder's liability for actual damages for delays exceed _____Dollars ($_____).

5.5 Any liquidated damages assessed pursuant to this Agreement shall be in lieu of all liability for any and all extra costs, losses, expenses, claims, penalties and any other damages, whether special or consequential, and of whatsoever nature incurred by Owner which are occasioned by any delay in achieving the Contract Time(s).

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[The Parties may also desire to cap the liquidated damages payable under this Agreement, in which case the following language should be included at the end of Section 5.5.]

☐ Owner and Design-Builder agree that the maximum aggregate liability Design-Builder has for any liquidated damages that may be assessed under this Agreement for failure to achieve the Contract Time(s) shall be _____ Dollars ($_____).

5.6 Early Completion Bonus. If Substantial Completion is attained on or before _____ (_____) days before the Scheduled Substantial Completion Date (the "Bonus Date"), Owner shall pay Design-Builder at the time of Final Payment under Section 7.3 hereof an early completion bonus of _____Dollars ($ _____) for each day that Substantial Completion is attained earlier than the Bonus Date. *(If an early completion bonus is applicable to any dates set forth in Section 5.2.2 or 5.2.3 hereof, this Section 5.6 will need to be modified accordingly.)*

[The Parties may also desire to cap the early completion bonus payable under Section 5.6, in which case the following language should be included.]

☐ Owner and Design-Builder agree that the maximum aggregate amount that Design-Builder shall receive as the early Completion Bonus is _____ Dollars ($_____).

5.7 ***[The Parties may also desire to modify Section 8.2.2 of the General Conditions of Contract relative to compensability of delays that would cause the Contract Time(s) to be extended. In such case, the following option can be used.]***

☐ In addition to Design-Builder's right to a time extension for those events set forth in Section 8.2.1 of the General Conditions of Contract, Design-Builder shall also be entitled to an appropriate adjustment of the Contract Price for those events set forth in Section 8.2.1 of the General Conditions of Contract, provided, however, for Force Majeure Events, Design-Builder shall only be entitled to an increase in the Contract Price if said events exceed _____ cumulative days. Said additional compensation shall be limited to:

[Check one box only.]

☐ $ _____ dollars a day for each day work is delayed beyond the Scheduled Substantial Completion Date.

or

☐ the direct costs and expenses Design-Builder can demonstrate it has reasonably and actually incurred as a result of such event.

5.8 Owner's Review Time. The parties have established the following maximum and minimum amount of time for the Owner to review Design Submissions and the Project Schedule or any updates thereto unless the parties agree in writing otherwise.

5.8.1 The Owner shall have a minimum of _____ days of receipt by the Owner to review all Design Submissions, the Project Schedule, and any updates thereto.

5.8.2 The Owner shall review and (if applicable) provide a response to Design-Builder on all Design Submissions, the Project Schedule, and any updates thereto within ____ days of receipt by the Owner.

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Article 6

Contract Price

6.1 Contract Price. Owner shall pay Design-Builder in accordance with Article 6 of the General Conditions of Contract the sum of _____ Dollars ($ _____) ("Contract Price"), subject to adjustments made in accordance with the General Conditions of Contract. Unless otherwise provided in the Contract Documents, the Contract Price is deemed to include all sales, use, consumer and other taxes mandated by applicable Legal Requirements.

6.2 Markups for Changes. If the Contract Price requires an adjustment due to changes in the Work, and the cost of such changes is determined under Section 9.4.1 of the General Conditions of Contract, the following markups shall be allowed on such changes:

6.2.1 For additive Change Orders, including additive Change Orders arising from both additive and deductive items, it is agreed that Design-Builder shall receive a Fee of _____ _____percent (_____%) of the additional costs incurred for that Change Order, plus any other markups set forth at Exhibit _____ hereto.

6.2.2 For deductive Change Orders, including deductive Change Orders arising from both additive and deductive items, the deductive amounts shall include:

[Check one box only.]

☐ No additional reduction to account for Design-Builder's Fee or any other markup.

or

☐ An amount equal to the sum of: (a) _____ percent (_____%) applied to the direct costs of the net reduction (which amount will account for a reduction associated with Design-Builder's Fee); plus (b) any other markups set forth at Exhibit _____ hereto applied to the direct costs of the net reduction.

6.3 Allowance Items and Allowance Values.

6.3.1 Any and all Allowance Items, as well as their corresponding Allowance Values, are set forth in an Exhibit hereto.

6.3.2 Design-Builder and Owner have worked together to review the Allowance Items and Allowance Values based on design information then available to determine that the Allowance Values constitute reasonable estimates for the Allowance Items. Design-Builder and Owner will continue working closely together during the preparation of the design to develop Construction Documents consistent with the Allowance Values. Nothing herein is intended in any way to constitute a guarantee by Design-Builder that the Allowance Item in question can be performed for the Allowance Value.

6.3.3 No work shall be performed on any Allowance Item without Design-Builder first obtaining in writing advanced authorization to proceed from Owner. Owner agrees that if Design-Builder is not provided written authorization to proceed on an Allowance Item by the date set forth in the Project schedule, due to no fault of Design-Builder, Design-Builder may be entitled to an adjustment of the Contract Time(s) and Contract Price.

6.3.4 The Allowance Value for an Allowance Item includes the direct cost of labor, materials, equipment, transportation, taxes and insurance associated with the applicable Allowance Item. All other costs, including design fees, Design-Builder's overall project management and general

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conditions costs, overhead and fee, are deemed to be included in the original Contract Price, and are not subject to adjustment, regardless of the actual amount of the Allowance Item.

[In the alternative, the parties may want to delete Section 6.3.4 and add the following provision.]

☐ In the event the actual direct cost of labor, materials, equipment, transportation, taxes and insurance associated with an Allowance Item is _____percent (_____ %) greater than or less than the Allowance Value for such Allowance Item, Design-Builder and Owner agree that Design-Builder's right to Fee and markup shall be adjusted in accordance with Section 6.2.

6.3.5 Whenever the actual costs for an Allowance Item is more than or less than the stated Allowance Value, the Contract Price shall be adjusted accordingly by Change Order, subject to Section 6.3.4. The amount of the Change Order shall reflect the difference between actual costs incurred by Design-Builder for the particular Allowance Item and the Allowance Value.

6.4 Performance Incentives.

6.4.1 Owner and Design-Builder have agreed to the performance incentive arrangements set forth in Exhibit _____.

(The parties are encouraged to discuss and agree upon performance incentives that will influence project success. These incentives may consist of Award Fees, incentives for safety, personnel retention, client satisfaction and similar items.)

Article 7

Procedure for Payment

7.1 Progress Payments.

7.1.1 Design-Builder shall submit to Owner on the _____ (_____) day of each month, beginning with the first month after the Date of Commencement, Design-Builder's Application for Payment in accordance with Article 6 of the General Conditions of Contract.

7.1.2 Owner shall make payment within ten (10) days after Owner's receipt of each properly submitted and accurate Application for Payment in accordance with Article 6 of the General Conditions of Contract, but in each case less the total of payments previously made, and less amounts properly withheld under Section 6.3 of the General Conditions of Contract.

7.2 Retainage on Progress Payments.

7.2.1 Owner will retain _____ percent (_____%) of each Application for Payment provided, however, that when fifty percent (50%) of the Work has been satisfactorily completed by Design-Builder and Design-Builder is otherwise in compliance with its contractual obligations, Owner will not retain any additional retention amounts from Design-Builder's subsequent Applications for Payment. Owner will also reasonably consider reducing retainage for Work completed early in the Project.

[Design-Builder and Owner may want to consider substituting the following retainage provision.]

☐ Owner will retain _____ percent (_____%) from Design-Builder's Applications for Payment, exclusive of general conditions costs, and any amounts paid to Design-Builder's Design Consultant, from each Application for Payment provided, however, that

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when fifty percent (50%) of the Work has been satisfactorily completed by Design-Builder and Design-Builder is otherwise in compliance with its contractual obligations, Owner will not retain any additional amounts from Design-Builder's subsequent Applications for Payment. Owner will also reasonably consider reducing retainage for Work completed early in the Project.

[For public projects, Design-Builder and Owner may want to consider substituting the following retainage provision.]

☐ Owner will retain _____ percent (_____%) from Design-Builder's Applications for Payment pursuant to applicable state law.

[Design-Builder and Owner may want to consider substituting the following retainage provision.]

☐ Because Owner has obtained a performance bond and payment bond pursuant to Article 10 below, Owner will not retain retainage from Design-Builder on this Project.

7.2.2 Within fifteen (15) days after Substantial Completion of the entire Work or, if applicable, any portion of the Work, pursuant to Section 6.6 of the General Conditions of Contract, Owner shall release to Design-Builder all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less an amount equal to (a) the reasonable value of all remaining or incomplete items of Work as noted in the Certificate of Substantial Completion and (b) all other amounts Owner is entitled to withhold pursuant to Section 6.3 of the General Conditions of Contract.

7.3 Final Payment. Design-Builder shall submit its Final Application for Payment to Owner in accordance with Section 6.7 of the General Conditions of Contract. Owner shall make payment on Design-Builder's properly submitted and accurate Final Application for Payment within thirty (30) days after Owner's receipt of the Final Application for Payment, provided that Design-Builder has satisfied the requirements for final payment set forth in Section 6.7.2 of the General Conditions of Contract.

7.4 Interest. Payments due and unpaid by Owner to Design-Builder, whether progress payments or final payment, shall bear interest commencing five (5) days after payment is due at the rate of _____ _____ percent (_____%) per month until paid.

7.5 Record Keeping and Finance Controls. With respect to changes in the Work performed on a cost basis by Design-Builder pursuant to the Contract Documents, Design-Builder shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management, using accounting and control systems in accordance with generally accepted accounting principles and as may be provided in the Contract Documents. During the performance of the Work and for a period of three (3) years after Final Payment, Owner and Owner's accountants shall be afforded access to, and the right to audit from time-to-time, upon reasonable notice, Design-Builder's records, books, correspondence, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to changes in the Work performed on a cost basis in accordance with the Contract Documents, all of which Design-Builder shall preserve for a period of three (3) years after Final Payment. Such inspection shall take place at Design-Builder's offices during normal business hours unless another location and time is agreed to by the parties. Any multipliers or markups agreed to by the Owner and Design-Builder as part of this Agreement are only subject to audit to confirm that such multiplier or markup has been charged in accordance with this Agreement, with the composition of such multiplier or markup not being subject to audit.

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Article 8

Termination for Convenience

8.1 If Design-Builder is terminated for convenience pursuant to Section 11.6 of the General Conditions of Contract, and the parties have agreed to a payment to Design-Builder in the case of such termination for convenience, Owner shall pay Design-Builder for the following in addition to the amount set forth in Section 11.6.1 of the General Conditions of Contract:

[Choose one of the following.]

☐ The fair and reasonable sums for overhead and profit on the sum of items set forth in Section 11.6.1 of the General Conditions of Contract.

or

☐ Overhead and profit in the amount of _____percent (_____%) on the sum of items set forth in Section 11.6.1 of the General Conditions of Contract.

8.2 In addition to the amounts set forth in Section 8.1 above and Section 11.6.1 of the General Conditions of Contract, Design-Builder shall be entitled to receive one of the following if the parties agree to an additional payment:

8.2.1 If Owner terminates this Agreement prior to commencement of construction, Design-Builder shall be paid _____ percent (_____%) of the remaining balance of the Contract Price.

8.2.2 If Owner terminates this Agreement after commencement of construction, Design-Builder shall be paid _____ percent (_____%) of the remaining balance of the Contract Price.

8.3 The total amount to be paid to Design-Builder, exclusive of costs described in Section 11.6.1.2 of the General Conditions of Contract, shall not exceed the Contract Price.

[The following Article 9 should be used only if the Owner and Design-Builder agree to establish their respective representatives at the time the Agreement is executed rather than during the performance of the Project.]

Article 9

Representatives of the Parties

9.1 Owner's Representatives.

9.1.1 Owner designates the individual listed below as its Senior Representative ("Owner's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 10.2.3 of the General Conditions of Contract: *(Identify individual's name, title, address and telephone numbers.)*

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9.1.2 Owner designates the individual listed below as its Owner's Representative, which individual has the authority and responsibility set forth in Section 3.4 of the General Conditions of Contract: *(Identify individual's name, title, address and telephone numbers.)*

9.2 Design-Builder's Representatives.

9.2.1 Design-Builder designates the individual listed below as its Senior Representative ("Design-Builder's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 10.2.3 of the General Conditions of Contract: *(Identify individual's name, title, address and telephone numbers.)*

9.2.2 Design-Builder designates the individual listed below as its Design-Builder's Representative, which individual has the authority and responsibility set forth in Section 2.1.1 of the General Conditions of Contract: *(Identify individual's name, title, address and telephone numbers.)*

Article 10

Bonds and Insurance

10.1 Insurance. Design-Builder and Owner shall procure the insurance coverages set forth in the Insurance Exhibit attached hereto and in accordance with Article 5 of the General Conditions of Contract.

10.2 Bonds and Other Performance Security. Design-Builder shall provide the following performance bond and labor and material payment bond or other performance security:

Performance Bond.

[Check one box only. If no box is checked, then no bond is required.]

☐ Required ☐ Not Required

Payment Bond.

[Check one box only. If no box is checked, then no bond is required.]

☐ Required ☐ Not Required

Other Performance Security.

[Check one box only. If no box is checked, then no other performance security is required. If the "Required" box is checked, identify below the specific performance security that is being required and all salient commercial terms associated with that security.]

☐ Required ☐ Not Required

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Article 11

Other Provisions

11.1 Other provisions, if any, are as follows: *(Insert any additional provisions.)*

[In lieu of Sections 10.3.1 through 10.3.3 of the General Conditions of Contract, the parties may want to delete such sections and include the following alternative dispute resolution clause. The title of Section 10.3 of the General Conditions should also be revised to remove the reference to arbitration.]

[11.___]☐ Any claims, disputes, or controversies between the parties arising out of or related to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures set forth in Section 10.2 of the General Conditions of Contract shall be resolved in a court of competent jurisdiction in the state in which the Project is located.

[Section 2.9.1 of the General Conditions of Contract contains an option for the parties to establish a limited time frame for the Design-Builder's warranty. If the parties agree to such a limited time frame, the parties may insert it below. Insert a section number below and copy that reference number into the blank space provided in Section 2.9.1 of the General Conditions.]

[11.__]☐ The parties have agreed to limit the time frame that the Owner can make a claim pursuant to Section 2.9.1 of the General Conditions of Contract. Owner must make all claims pursuant to Section 2.9.1 of the General Conditions of Contract within _____ years of the date of Substantial Completion of the Project.

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In executing this Agreement, Owner and Design-Builder each individually represents that it has the necessary financial resources to fulfill its obligations under this Agreement, and each has the necessary corporate approvals to execute this Agreement, and perform the services described herein.

OWNER:	**DESIGN-BUILDER:**
_____	_____
(Name of Owner)	*(Name of Design-Builder)*
_____	_____
(Signature)	*(Signature)*
_____	_____
(Printed Name)	*(Printed Name)*
_____	_____
(Title)	*(Title)*
Date: _____	Date: _____

Caution: You should sign an original DBIA document which has this caution printed in blue. An original assures that changes will not be obscured as may occur when documents are reproduced.

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Standard Form of General Conditions of Contract Between Owner and Design-Builder

Document No. 535
Third Edition, 2022

© Design-Build Institute of America
Washington, D.C.



Design-Build Institute of America - Contract Documents

LICENSE AGREEMENT

By using the DBIA Contract Documents, you agree to and are bound by the terms of this License Agreement.

1. **License.** The Design-Build Institute of America ("DBIA") provides DBIA Contract Documents and licenses their use worldwide. You acknowledge that DBIA Contract Documents are protected by the copyright laws of the United States. You have a limited nonexclusive license to: (a) Use DBIA Contract Documents on any number of machines owned, leased or rented by your company or organization; (b) Use DBIA Contract Documents in printed form for bona fide contract purposes; and (c) Copy DBIA Contract Documents into any machine-readable or printed form for backup or modification purposes in support of your permitted use.
2. **User Responsibility.** You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results, and for the installation, use, and results obtained from the DBIA Contract Documents. You acknowledge that you understand that the text of the DBIA Contract Documents has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You will not represent that any of the contract documents you generate from DBIA Contract Documents are DBIA documents unless (a) the document text is used without alteration or (b) all additions and changes to, and deletions from, the text are clearly shown.
3. **Copies.** You may not use, copy, modify, or transfer DBIA Contract Documents, or any copy, modification or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification, or portion merged into another document or program.
4. **Transfers.** You may not transfer possession of any copy, modification or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.
5. **Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.
6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.
7. **Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.
8. **Acknowledgment.** You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

INSTRUCTIONS

For DBIA Document No. 535 Standard Form of General Conditions of Contract Between Owner and Design-Builder (2022 Edition)

General Instructions

No.	Subject	Instruction
1.	Standard Forms	Standard form contracts have long served an important function in the United States and international construction markets. The common purpose of these forms is to provide an economical and convenient way for parties to contract for design and construction services. As standard forms gain acceptance and are used with increased frequency, parties are able to enter into contracts with greater certainty as to their rights and responsibilities.
2.	DBIA Standard Form Contract Documents	Since its formation in 1993, the Design-Build Institute of America (DBIA) has regularly evaluated the needs of Owners, Design-Builders, and other parties to the design-build process in preparation for developing its own contract forms. Consistent with DBIA's mission of promulgating best design-build practices, DBIA believes that the design-build contract should reflect a balanced approach to risk that considers the legitimate interests of all parties to the design-build process. DBIA's Standard Form Contract Documents reflect a modern risk allocation approach, allocating each risk to the party best equipped to manage and minimize that risk, with the goal of promoting best design-build practices.
3.	Use of Non-DBIA Documents	To avoid inconsistencies among documents used for the same project, DBIA's Standard Form Contract Documents should not be used in conjunction with non-DBIA documents unless the non-DBIA documents are appropriately modified on the advice of legal counsel. Moreover, care should also be taken when using different editions of the DBIA Standard Form Document on the same project to ensure consistency.
4.	Legal Consequences	DBIA Standard Form Contract Documents are legally binding contracts with important legal consequences. Contracting parties are advised and encouraged to seek legal counsel in completing or modifying these Documents.
5.	Reproduction	DBIA hereby grants to purchasers a limited license to reproduce its Documents consistent with the License Agreement accompanying these Documents. At least two original versions of the Agreement should be signed by the parties. Any other reproduction of DBIA Documents is strictly prohibited.
6.	Modifications	Effective contracting is accomplished when the parties give specific thought to their contracting goals and then tailor the contract to meet the unique needs of the project and the design-build team. For that reason, these Documents may require modification for various purposes including, for example, to comply with local codes and laws, or to add special terms. DBIA's latest revisions to its Documents provide the parties an opportunity to customize their contractual relationship by selecting various optional contract clauses that may better reflect the unique needs and risks associated with the project. Any modifications to these Documents should be initialed by the parties. At no time should a document be re-typed in its entirety. Re-creating the document violates copyright laws and destroys one of the advantages of standard forms – familiarity with the terms.
7.	Execution	It is good practice to execute two original copies of the Agreement. Only persons authorized to sign for the contracting parties may execute the Agreement.

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Specific Instructions

Section	Title	Instruction
General	Purpose of This Document	The General Conditions of Contract provide the terms and conditions under which the Work of the Project will be performed. This document accompanies DBIA Document No. 525 and DBIA Document No. 530 (each referred to herein generally as "Agreement"). It may also be incorporated by reference into other related agreements, as between Design-Builder and Design Consultant, and Design-Builder and Subcontractor.
General	Checklist	The following Sections reference documents that are to be attached to the Agreement: • Section 3.5.1 – Owner's Permit List • Article 5 – Insurance and Bonds
2.1.3	Schedule	The parties are encouraged, if possible, to agree to a schedule for the execution of the Work upon execution of the Agreement or upon establishing the GMP.
2.2.1	Design Professional Services	The parties should be aware that in addition to requiring compliance with state licensing laws for design professionals, some states also require that the design professional have a corporate professional license.
2.3.1	Standard of Care for Design Professional's Services	Design-Builder's obligation is to deliver a design that meets prevailing industry standards. However, DBIA has provided the parties at Article 11 of the Agreement an optional provision whereby if Owner can identify specific performance standards that can be objectively measured, Design-Builder is obligated to design the Project to satisfy these standards if this optional provision is selected. To avoid any confusion and to ensure that the parties fully understand what their obligations are, the specific performance standards should be clearly identified and should be able to be objectively measured. Design-Builder should recognize that this is a heightened standard of care that has insurance ramifications that should be discussed with Design-Builder's insurance advisor.
3.5	Government Approvals and Permits	Design-Builder is responsible for obtaining all necessary permits, approvals, and licenses, except to the extent specific permits, approvals, and licenses are set forth in an Owner's Permit List, which must be attached as an exhibit to the Agreement. The parties, prior to execution of the Agreement, should discuss which permits, approvals and licenses need to be obtained for the Project and which party is in the best position to do so.
5.1.1	Design-Builder's Insurance Requirements	Design-Builder is obligated to provide insurance coverage from insurance carriers that meet the criteria set forth in the Insurance Exhibit attached to Section 10.1 of the Agreement.
5.1.2	Exclusions to Design-Build	Parties are advised that their standard insurance policies may contain exclusions for the design-build delivery method. This Section 5.1.2 requires that any such exclusions be deleted from the policy.
5.2	Owner's Insurance Requirements	Owner, in addition to providing the insurance set forth in this Section and Section 5.3, is also obligated to procure the insurance coverages for the amounts and consistent with the terms set forth in the Insurance Exhibit made part of the Agreement.
5.4	Bonds and Other Performance Security	Design-Builder is only obligated to provide bonds or other forms of performance security to the extent called for in Section 10.2 of the Agreement.

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Section	Title	Instruction
8.2.2	Compensability for Force Majeure Events	The parties are provided the option in the Agreement of negotiating whether Design-Builder is entitled to compensation for Force Majeure Events.
9.4.3	Payment/ Performance of Disputed Services	When Owner disputes Design-Builder's entitlement to a change order or disagrees with Design-Builder regarding the scope of Work, and nevertheless expects Design-Builder to perform the services, Design-Builder's cash flow and ability to complete the Work will be hampered if Owner fails to pay Design-Builder for the disputed services. This Section provides a balanced approach whereby Design-Builder is required to perform the services, but Owner is required to pay fifty percent (50%) of Design-Builder's reasonable estimated direct costs of performing such services until the dispute is settled. By so doing, Owner does not forfeit its right to deny total responsibility for payment, and Design-Builder does not give up its right to demand full payment. The dispute shall be resolved according to Article 10.
Article 10	Contract Adjustments and Disputes	DBIA endorses the use of partnering, negotiation, mediation and arbitration for the prevention and resolution of disputes. The General Conditions of Contract provides for the parties' Representatives and Senior Representatives to attempt to negotiate the dispute or disagreement. If this attempt fails, the dispute shall be submitted to mandatory, non-binding mediation. Any dispute that cannot be resolved by mediation shall then be submitted to binding arbitration, unless the parties elect in the Agreement to submit their dispute to a court of competent jurisdiction.
10.3.4	Prevailing Party Fees	The prevailing party in any arbitration, or any other final, binding dispute proceeding upon which the parties may agree, shall receive reasonable attorneys' fees from the other party. DBIA supports this "loser pays" provision to encourage parties to negotiate or mediate their differences and to minimize the number of frivolous disputes.
10.4	Duty to Continue Performance	Pending the resolution of any dispute or disagreement, both Owner and Design-Builder shall continue to perform their respective duties under the Contract Documents, unless the parties provide otherwise in the Contract Documents.
10.5	Consequential Damages	DBIA believes that it is inappropriate for either Owner or Design-Builder to be responsible to the other for consequential damages arising from the Project. This limitation on consequential damages in no way restricts, however, the payment of liquidated damages, if any, under Article 5 of the Agreement.
11.4	Design-Builder's Right to Terminate for Cause	If Design-Builder properly terminates the Agreement for cause, it shall recover from Owner in the same way as if Owner had terminated the Agreement for convenience under Section 11.6 of the General Conditions. Owner shall pay to Design-Builder its costs, reasonable overhead and profit on the costs, and an additional payment based on a percentage of the remaining balance of the Contract Price, all as set forth in Article 8 of the Agreement.
11.6.2	Termination for Convenience: Owner's Use of Work Product	Owner should not use the Termination for Convenience clause to obtain Design-Builder's valuable design concepts and then seek lower bids from another design-builder. If Owner terminates this Agreement for its own convenience, and chooses to proceed with the Project using Design-Builder's Work Product, Owner should pay an additional sum for the use of Design-Builder's Work Product pursuant to Section 4.3 of the Agreement.
Article 12	Electronic Data	Design-Builder and Owner shall agree on the software and format for the transmission of Electronic Data. Ownership of Work Product in electronic form is governed by Article 4 of the Agreement. The transmitting party disclaims all warranties with respect to the media transmitting the Electronic Data, but nothing in this Article is intended to negate duties with respect to the standard of care in creating the Electronic Data.

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Article 1

General

1.1 Mutual Obligations.

1.1.1 *Owner and Design-Builder* commit at all times to cooperate fully with each other and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents.

1.2 Basic Definitions.

1.2.1 *Agreement* refers to the executed contract between Owner and Design-Builder under either DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum* (2024 Edition); DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee With an Option for a Guaranteed Maximum Price* (2024 Edition); DBIA Document No. 544, *Standard Form of Progressive Design-Build Agreement* (2024 Edition); or DBIA Document No. 545, *Standard Form of Progressive Design-Build Agreement for Water and Wastewater Projects* (2024 Edition).

1.2.2 *Basis of Design Documents* are as follows: For DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee With an Option for a Guaranteed Maximum Price*, the Basis of Design Documents are those documents specifically listed in, as applicable, the GMP Exhibit or GMP Proposal as being the "Basis of Design Documents." For DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum*, for DBIA Document No. 544, *Standard Form of Progressive Design-Build Agreement*, the Basis of Design Documents are Owner's Project Criteria, Design-Builder's Proposal, and the Deviation List, if any. For DBIA Document No. 545, *Standard Form of Progressive Design-Build Agreement for Water and Wastewater Projects,* the Basis of Design Documents are Owner's Project Criteria, Design-Builder's Proposal and the Deviation List, if any.

1.2.3 *Construction Documents* are the documents, consisting of Drawings and Specifications, to be prepared or assembled by Design-Builder consistent with the Basis of Design Documents unless a deviation from the Basis of Design Documents is specifically set forth in a Change Order executed by both Owner and Design-Builder, as part of the design review process contemplated by Section 2.4 of these General Conditions of Contract.

1.2.4 *Day* or *Days* shall mean calendar days unless otherwise specifically noted in the Contract Documents.

1.2.5 *Design-Build Team* is comprised of Design-Builder, Design Consultant, and key Subcontractors identified by Design-Builder.

1.2.6 *Design Consultant* is a qualified, licensed design professional who is not an employee of Design-Builder, but is retained by Design-Builder, or employed or retained by anyone under contract with Design-Builder, to furnish design services required under the Contract Documents. A Design Sub-Consultant is a qualified, licensed design professional who is not an employee of Design Consultant but is retained by Design Consultant or employed or retained by anyone under contract to Design Consultant, to furnish design services required under the Contract Documents.

1.2.7 *Design Submission* means any and all documents, shop drawings, electronic information, including computer programs and computer generated materials, data, plans, drawings, sketches, illustrations, specifications, descriptions, models, and other information developed, prepared, furnished, delivered or required to be delivered by, or for, Design-Builder.

1.2.8 *Final Completion* is the date on which all Work is complete in accordance with the Contract Documents, including but not limited to, any items identified in the punch list prepared under

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Section 6.6.1 and the submission of all documents set forth in Section 6.7.2.

1.2.9 *Force Majeure Events* are those events that are beyond the control of both Design-Builder and Owner, including the events of war, floods, labor disputes, earthquakes, epidemics, adverse weather conditions not reasonably anticipated, and other acts of God.

1.2.10 *General Conditions of Contract* refer to this DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2022 Edition).

1.2.11 *GMP Exhibit* means that exhibit attached to DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee With an Option for a Guaranteed Maximum Price*, which exhibit will have been agreed upon by Owner and Design-Builder prior to the execution of the Agreement.

1.2.12 *GMP Proposal* or *Proposal* means that proposal developed by Design-Builder in accordance with Section 6.6 of DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder, Cost Plus Fee With an Option for a Guaranteed Maximum* Price or with Section 1.3 of DBIA Document No. 544, *Progressive Design-Build Agreement,* or DBIA Document No. 545, *Progressive Design-Build Agreement for Water and Wastewater Projects.*

1.2.13 *Hazardous Conditions* are any materials, wastes, substances and chemicals deemed to be hazardous under applicable Legal Requirements, or the handling, storage, remediation, or disposal of which are regulated by applicable Legal Requirements.

1.2.14 *Legal Requirements* are all applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the Project or Site, the practices involved in the Project or Site, or any Work.

1.2.15 *Owner's Project Criteria* are developed by or for Owner to describe Owner's program requirements and objectives for the Project, including use, space, price, time, site and expandability requirements, as well as submittal requirements and other requirements governing Design-Builder's performance of the Work. Owner's Project Criteria may include conceptual documents, design criteria, design performance specifications, design specifications, and LEED® or other sustainable design criteria and other Project-specific technical materials and requirements.

1.2.16 *Site* is the land or premises on which the Project is located.

1.2.17 *Subcontractor* is any person or entity retained by Design-Builder as an independent contractor to perform a portion of the Work and shall include materialmen and suppliers.

1.2.18 *Sub-Subcontractor* is any person or entity retained by a Subcontractor as an independent contractor to perform any portion of a Subcontractor's Work and shall include materialmen and suppliers.

1.2.19 *Substantial Completion* or *Substantially Complete* means the date on which the Work, or an agreed upon portion of the Work, is sufficiently complete in accordance with the Contract Documents so that Owner can occupy and use the Project or a portion thereof for its intended purposes.

1.2.20 *Work* is comprised of all Design-Builder's design, construction and other services required by the Contract Documents, including procuring and furnishing all materials, equipment, services and labor reasonably inferable from the Contract Documents.

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Article 2

Design-Builder's Services and Responsibilities

2.1 General Services.

2.1.1 Design-Builder's Representative shall be reasonably available to Owner and shall have the necessary expertise and experience required to supervise the Work. Design-Builder's Representative shall communicate regularly with Owner and shall be vested with the authority to act on behalf of Design-Builder. Design-Builder's Representative may be replaced only with the mutual agreement of Owner and Design-Builder.

2.1.2 Unless the parties agree on a different time period for submission of a status report, Design-Builder shall provide Owner with a monthly status report detailing the progress of the Work, including (i) whether the Work is proceeding according to schedule; (ii) whether discrepancies, conflicts, or ambiguities exist in the Contract Documents that require resolution; (iii) whether health and safety issues exist in connection with the Work; (iv) status of the contingency account to the extent provided for in the *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee With an Option for a Guaranteed Maximum Price*; and (v) other items that require resolution so as not to jeopardize Design-Builder's ability to complete the Work for the Contract Price and within the Contract Time(s). Status reports shall be submitted with Design-Builder's draft Payment Applications as a pre-requisite to payment.

2.1.3 Unless a schedule for the execution of the Work has been attached to the Agreement as an exhibit at the time the Agreement is executed, Design-Builder shall prepare and submit, at least three (3) days prior to the meeting contemplated by Section 2.1.4 hereof, a schedule for the execution of the Work for Owner's review and response. The schedule shall indicate the dates for the start and completion of the various stages of Work, including the dates when Owner information and approvals are required to enable Design-Builder to achieve the Contract Time(s). The schedule shall be revised as required by conditions and progress of the Work, but such revisions shall not relieve Design-Builder of its obligations to complete the Work within the Contract Time(s), as such dates may be adjusted in accordance with the Contract Documents. Owner's review of, and response to, the schedule shall not be construed as relieving Design-Builder of its complete and exclusive control over the means, methods, sequences and techniques for executing the Work.

2.1.4 The parties will meet within seven (7) days after execution of the Agreement to discuss issues affecting the administration of the Work and to implement the necessary procedures, including those relating to submittals and payment, to facilitate the ability of the parties to perform their obligations under the Contract Documents.

2.2 Design Professional Services.

2.2.1 Design-Builder shall, consistent with applicable state licensing laws, provide through qualified, licensed design professionals employed by Design-Builder, or procured from qualified, independent licensed Design Consultants, the necessary design services, including architectural, engineering and other design professional services, for the preparation of the required drawings, specifications and other design submittals to permit Design-Builder to complete the Work consistent with the Contract Documents. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any Design Consultant.

2.2.2 Design-Builder shall employ only Design Consultants and/or Design Subconsultants who are duly licensed and qualified to perform the Work consistent with the Contract Documents. Prior to the date that Design Consultants and/or Design Subconsultants perform Work on the Project, Design-Builder shall identify in writing to Owner all Design Consultants and Design Subconsultants. To the extent that Design-Builder has not selected a Design Consultant or Design Subconsultant prior to performing the Work, Design-Builder shall provide Owner in writing a list of any subsequently added Design Consultants and/or Design Subconsultants and their scope of Work

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prior to their performing Work on the Project. Owner may reasonably object to Design-Builder's selection of any Design Consultant or Design Subconsultant, provided that the Contract Price and/or Contract Time(s) shall be adjusted to the extent that Owner's decision impacts Design-Builder's cost and/or time of performance. Design-Builder shall not substitute a listed Design Consultant or Subconsultant without obtaining Owner's prior written consent; such consent shall not be unreasonably withheld. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any Design Consultant or Design Subconsultant, including but not limited to any third-party beneficiary rights.

2.3 Standard of Care for Design Professional Services.

2.3.1 The standard of care for all design professional services performed to execute the Work shall be the care and skill ordinarily used by members of the applicable profession practicing under similar conditions at the same time and locality of the Project.

2.4 Design Development Services.

2.4.1 Design-Builder and Owner shall, consistent with any applicable provision of the Contract Documents, agree upon any interim Design Submissions that Owner may wish to review, which interim Design Submissions may include design criteria, drawings, diagrams and specifications setting forth the Project requirements.

2.4.1.1 Design Submissions shall be consistent with the Owner's Project Criteria as well as the Basis of Design Documents, as the Basis of Design Documents may have been changed or supplemented through the design process set forth in this Section 2.4.1. By submitting Design Submissions, Design-Builder represents to the Owner that the Work depicted and otherwise shown, contained, or reflected in Design Submissions may be constructed in compliance with the then current Contract Price and Contract Time. Notwithstanding the above, Design-Builder may propose Design Submissions that may alter the Basis of Design Documents, the Contract Price and/or Contract Time; however, Design-Builder must provide notice thereof in accordance with Article 10 of the General Conditions and obtain a Change Order before such proposed Design Submissions are incorporated into the Construction Documents.

2.4.1.2 On or about the time of the Design Submissions, Design-Builder and Owner shall meet and confer about the Design Submissions, with Design-Builder identifying during such meetings, among other things, the evolution of the design and any changes to the Basis of Design Documents, or, if applicable, previously submitted Design Submissions. Changes to the Basis of Design Documents, including those that are deemed minor changes under Section 9.3.1, shall be processed in accordance with Article 9. Minutes of the meetings, including a full listing of all changes, will be maintained by Design-Builder and provided to all attendees for review. Following the design review meeting, Owner shall review and approve the interim Design Submissions and meeting minutes in a time that is consistent with the turnaround times set forth in Design-Builder's schedule.

2.4.1.3 Owner shall review and respond to Design Submissions, providing any comments and/or concerns about the Design Submissions. Owner shall provide all comments on the Design Submissions within the time provided by the Contract Documents. Design-Builder shall revise the Design Submissions (and any other deliverables) in response to Owner's comments and incorporate said responses into the next submission of Design Submissions.

2.4.1.4 If incorporation of Owner's comments results in a design that is inconsistent with or otherwise gives rise to a change in Owner's Project Criteria, the Basis of Design Documents, the Contract Price and/or the Contract Time, Design-Builder shall provide notice thereof in accordance with Articles 9 and 10 of the General Conditions. Changes to the Basis of Design Documents, the Contract Price and/or the Contract Time, including

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those that are deemed minor changes, shall be processed in accordance with Article 9 of the General Conditions.

2.4.2 Design-Builder shall submit to Owner Construction Documents setting forth in detail drawings and specifications describing the requirements for construction of the Work. The Construction Documents shall be consistent with the latest set of interim Design Submissions, as such submissions may have been modified in a design review meeting and recorded in the meeting minutes. The parties shall have a design review meeting to discuss, and Owner shall review and approve, the Construction Documents in accordance with the procedures set forth in Section 2.4.1 above. Design-Builder shall proceed with construction in accordance with the approved Construction Documents and shall submit one set of approved Construction Documents to Owner prior to commencement of construction.

2.4.3 Owner's review and approval of interim Design Submissions, meeting minutes, and the Construction Documents is for the purpose of mutually establishing a conformed set of Contract Documents compatible with the requirements of the Work. Neither Owner's review nor approval of any interim Design Submissions, meeting minutes, and Construction Documents shall be deemed to transfer any design liability from Design-Builder to Owner. Design-Builder shall provide Owner with sufficient time in the Project Schedule to review and approve the Design Submissions.

2.4.4 To the extent not prohibited by the Contract Documents or Legal Requirements, Design-Builder may prepare interim Design Submissions and Construction Documents for a portion of the Work to permit construction to proceed on that portion of the Work prior to completion of the Construction Documents for the entire Work.

2.5 Legal Requirements.

2.5.1 Design-Builder shall perform the Work in accordance with all Legal Requirements and shall provide all notices applicable to the Work as required by the Legal Requirements.

2.5.2 The Contract Price and/or Contract Time(s) shall be adjusted to compensate Design-Builder for the effects of any changes in the Legal Requirements enacted after the date of the Agreement affecting the performance of the Work, or if a Guaranteed Maximum Price is established after the date of the Agreement, the date the parties agree upon the Guaranteed Maximum Price. Such effects may include, without limitation, revisions Design-Builder is required to make to the Construction Documents because of changes in Legal Requirements.

2.6 Government Approvals and Permits.

2.6.1 Except as identified in an Owner's Permit List attached as an exhibit to the Agreement, Design-Builder shall obtain and pay for all necessary permits, approvals, licenses, government charges and inspection fees required for the prosecution of the Work by any government or quasi-government entity having jurisdiction over the Project.

2.6.2 Design-Builder shall provide reasonable assistance to Owner in obtaining those permits, approvals and licenses that are Owner's responsibility.

2.7 Design-Builder's Construction Phase Services.

2.7.1 Unless otherwise provided in the Contract Documents to be the responsibility of Owner or a separate contractor, Design-Builder shall provide through itself or Subcontractors the necessary supervision, labor, inspection, testing, start-up, material, equipment, machinery, temporary utilities and other temporary facilities to permit Design-Builder to complete construction of the Project consistent with the Contract Documents.

2.7.2 Design-Builder shall perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents. Design-

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Builder shall at all times exercise complete and exclusive control over the means, methods, sequences and techniques of construction.

2.7.3 Design-Builder shall employ only Subcontractors who are duly licensed and qualified to perform the Work consistent with the Contract Documents. Prior to the date that Subcontractors perform Work on the Project, Design-Builder shall identify in writing to Owner all Subcontractors. To the extent that Design-Builder has not selected a Subcontractor prior to performing the Work, Design-Builder shall provide Owner in writing a list of any subsequently added Subcontractors prior to their performing Work on the Project. Owner may reasonably object to Design-Builder's selection of any Subcontractor, provided that the Contract Price and/or Contract Time(s) shall be adjusted to the extent that Owner's decision impacts Design-Builder's cost and/or time of performance. Design-Builder may not substitute listed Subcontractors without Owner's prior written consent; such consent shall not be unreasonably withheld.

2.7.4 Design-Builder assumes responsibility to Owner for the proper performance of the Work of Subcontractors and any acts and omissions in connection with such performance. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any Subcontractor or Sub-Subcontractor, including but not limited to any third-party beneficiary rights.

2.7.5 Design-Builder shall coordinate the activities of all Subcontractors. If Owner performs other work on the Project or at the Site with separate contractors under Owner's control, Design-Builder agrees to reasonably cooperate and coordinate its activities with those of such separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

2.7.6 Design-Builder shall keep the Site reasonably free from debris, trash and construction wastes to permit Design-Builder to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas. Upon Substantial Completion of the Work, or a portion of the Work, Design-Builder shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit Owner to occupy the Project or a portion of the Project for its intended use.

2.8 Design-Builder's Responsibility for Project Safety.

2.8.1 Design-Builder recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting; (ii) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site; and (iii) all other property at the Site or adjacent thereto. Design-Builder assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work. Design-Builder shall, prior to commencing construction, designate a Safety Representative with the necessary qualifications and experience to supervise the implementation and monitoring of all safety precautions and programs related to the Work. Unless otherwise required by the Contract Documents, Design-Builder's Safety Representative shall be an individual stationed at the Site who may have responsibilities on the Project in addition to safety. The Safety Representative shall make routine daily inspections of the Site and shall hold weekly safety meetings with Design-Builder's personnel, Subcontractors and others as applicable.

2.8.2 Design-Builder and Subcontractors shall comply with all Legal Requirements relating to safety, as well as any Owner-specific safety requirements set forth in the Contract Documents, provided that such Owner-specific requirements do not violate any applicable Legal Requirement. Design-Builder will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to Owner's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.

2.8.3 Design-Builder's responsibility for safety under this Section 2.8 is not intended in any way

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to relieve Subcontractors and Sub-Subcontractors of their own contractual and legal obligations and responsibility for (i) complying with all Legal Requirements, including those related to health and safety matters; and (ii) taking all necessary measures to implement and monitor all safety precautions and programs to guard against injuries, losses, damages or accidents resulting from their performance of the Work.

2.9 Design-Builder's Warranty.

2.9.1 Design-Builder warrants to Owner that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship. If the parties have opted in Section ___ of the Agreement to establish a limited time frame for the warranty set forth in this Section, the warranty in this section shall be limited to the time frame set forth in Section ____ of the Agreement. Design-Builder's warranty obligation excludes defects caused by abuse, alterations, or failure to maintain the Work in a commercially reasonable manner. Nothing in this warranty is intended to limit any manufacturer's warranty which provides Owner with greater warranty rights than set forth in this Section 2.9 or the Contract Documents. Design-Builder will provide Owner with all manufacturers' warranties upon Substantial Completion.

2.10 Correction of Defective Work.

2.10.1 Design-Builder agrees to correct any Work that is found to not be in conformance with the Contract Documents, including that part of the Work subject to Section 2.9 hereof, within a period of one year from the date of Substantial Completion of the Work or any portion of the Work, or within such longer period to the extent required by any specific warranty included in the Contract Documents.

2.10.2 Design-Builder shall, within seven (7) days of receipt of written notice from Owner that the Work is not in conformance with the Contract Documents, take meaningful steps to commence correction of such nonconforming Work, including the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work affected by the nonconforming Work. If Design-Builder fails to commence the necessary steps within such seven (7) day period, Owner, in addition to any other remedies provided under the Contract Documents, may provide Design-Builder with written notice that Owner will commence correction of such nonconforming Work with its own forces. If Owner does perform such corrective Work, Design-Builder shall be responsible for all reasonable costs incurred by Owner in performing such correction. If the nonconforming Work creates an emergency requiring an immediate response, the seven (7) day period identified herein shall be deemed inapplicable.

2.10.3 The one-year period referenced in Section 2.10.1 above applies only to Design-Builder's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies Owner may have regarding Design-Builder's other obligations under the Contract Documents.

Article 3

Owner's Services and Responsibilities

3.1 Duty to Cooperate.

3.1.1 Owner shall, throughout the performance of the Work, cooperate with Design-Builder and perform its responsibilities, obligations and services in a timely manner to facilitate Design-Builder's timely and efficient performance of the Work and so as not to delay or interfere with Design-

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Builder's performance of its obligations under the Contract Documents.

3.1.2 Owner shall provide timely reviews and approvals of interim Design Submissions and Construction Documents consistent with the turnaround times set forth in Design-Builder's schedule.

3.1.3 Owner shall give Design-Builder timely notice of any Work that Owner notices to be defective or not in compliance with the Contract Documents.

3.2 Furnishing of Services and Information.

3.2.1 Unless expressly stated to the contrary in the Contract Documents, Owner shall provide, at its own cost and expense, for Design-Builder's information and use the following, all of which Design-Builder is entitled to rely upon in performing the Work:

3.2.1.1 Surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;

3.2.1.2 Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;

3.2.1.3 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper design and construction of the Project and enable Design-Builder to perform the Work;

3.2.1.4 A legal description of the Site;

3.2.1.5 To the extent available, record drawings of any existing structures at the Site; and

3.2.1.6 To the extent available, environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, in existence at the Site.

3.2.2 Owner is responsible for securing and executing all necessary agreements with adjacent land or property owners that are necessary to enable Design-Builder to perform the Work. Owner is further responsible for all costs, including attorneys' fees, incurred in securing these necessary agreements.

3.3 Financial Information.

3.3.1 At Design-Builder's written request, Owner shall promptly furnish reasonable evidence satisfactory to Design-Builder that Owner has adequate funds available and committed to fulfill all of Owner's contractual obligations under the Contract Documents. If Owner fails to furnish such financial information in a timely manner, Design-Builder may stop Work under Section 11.3 hereof or exercise any other right permitted under the Contract Documents.

3.3.2 Design-Builder shall cooperate with the reasonable requirements of Owner's lenders or other financial sources. Notwithstanding the preceding sentence, after execution of the Agreement Design-Builder shall have no obligation to execute for Owner or Owner's lenders or other financial sources any documents or agreements that require Design-Builder to assume obligations or responsibilities greater than those existing obligations Design-Builder has under the Contract Documents.

3.4 Owner's Representative.

3.4.1 Owner's Representative shall be responsible for providing Owner-supplied information and approvals in a timely manner to permit Design-Builder to fulfill its obligations under the Contract

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Documents. Owner's Representative shall also provide Design-Builder with prompt notice if it observes any failure on the part of Design-Builder to fulfill its contractual obligations, including any errors, omissions or defects in the performance of the Work. Owner's Representative shall communicate regularly with Design-Builder and shall be vested with the authority to act on behalf of Owner.

3.5 Government Approvals and Permits.

3.5.1 Owner shall obtain and pay for all necessary permits, approvals, licenses, government charges and inspection fees set forth in Owner's Permit List attached as an exhibit to the Agreement.

3.5.2 Owner shall provide reasonable assistance to Design-Builder in obtaining those permits, approvals and licenses that are Design-Builder's responsibility.

3.6 Owner's Separate Contractors.

3.6.1 Owner is responsible for all work performed on the Project or at the Site by separate contractors under Owner's control. Owner shall contractually require its separate contractors to cooperate with and coordinate their activities so as not to interfere with Design-Builder in order to enable Design-Builder to timely complete the Work consistent with the Contract Documents.

Article 4

Hazardous Conditions and Differing Site Conditions

4.1 Hazardous Conditions.

4.1.1 Unless otherwise expressly provided in the Contract Documents to be part of the Work, Design-Builder is not responsible for any Hazardous Conditions encountered at the Site. Upon encountering any Hazardous Conditions, Design-Builder will stop Work immediately in the affected area and duly notify Owner and, if required by Legal Requirements, all government or quasi-government entities with jurisdiction over the Project or Site.

4.1.2 Upon receiving notice of the presence of suspected Hazardous Conditions, Owner shall take the necessary measures required to ensure that the Hazardous Conditions are remediated or rendered harmless. Such necessary measures shall include Owner retaining qualified independent experts to (i) ascertain whether Hazardous Conditions have actually been encountered, and, if they have been encountered, (ii) prescribe the remedial measures that Owner must take either to remove the Hazardous Conditions or render the Hazardous Conditions harmless.

4.1.3 Design-Builder shall be obligated to resume Work at the affected area of the Project only after Owner's expert provides it with written certification that (i) the Hazardous Conditions have been removed or rendered harmless; and (ii) all necessary approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project or Site.

4.1.4 Design-Builder will be entitled, in accordance with these General Conditions of Contract, to an adjustment in its Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance have been adversely impacted by the presence of Hazardous Conditions.

4.1.5 To the fullest extent permitted by law, Owner shall indemnify, defend and hold harmless Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them, and their officers, directors, employees and agents, from and against any and all claims,

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losses, damages, liabilities and expenses, including reasonable attorneys' fees and expenses, arising out of or resulting from the presence, removal or remediation of Hazardous Conditions at the Site.

4.1.6 Notwithstanding the preceding provisions of this Section 4.1, Owner is not responsible for Hazardous Conditions introduced to the Site by Design-Builder, Subcontractors or anyone for whose acts they may be liable. To the fullest extent permitted by law, Design-Builder shall indemnify, defend and hold harmless Owner and Owner's officers, directors, employees and agents from and against all claims, losses, damages, liabilities and expenses, including attorneys' fees and expenses, arising out of or resulting from those Hazardous Conditions introduced to the Site by Design-Builder, Subcontractors or anyone for whose acts they may be liable.

4.2 Differing Site Conditions.

4.2.1 Concealed or latent physical conditions or subsurface conditions at the Site that (i) materially differ from the conditions indicated in the Contract Documents or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the Work, are collectively referred to herein as "Differing Site Conditions." If Design-Builder encounters a Differing Site Condition, Design-Builder will be entitled to an adjustment in the Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance are adversely impacted by the Differing Site Condition.

4.2.2 Upon encountering a Differing Site Condition, Design-Builder shall provide prompt written notice to Owner of such condition, which notice shall not be later than fourteen (14) days after such condition has been encountered. Design-Builder shall, to the extent reasonably possible, provide such notice before the Differing Site Condition has been substantially disturbed or altered.

Article 5

Insurance and Bonds

5.1 Design-Builder's Insurance Requirements.

5.1.1 Design-Builder is responsible for procuring and maintaining the insurance for the coverage amounts all as set forth in the Insurance Exhibit to the Agreement. Coverage shall be secured from insurance companies authorized to do business in the state in which the Project is located, and with a minimum rating set forth in the Agreement.

5.1.2 Design-Builder's insurance shall specifically delete any design-build or similar exclusions that could compromise coverages because of the design-build delivery of the Project.

5.1.3 Prior to commencing any construction services hereunder, Design-Builder shall provide Owner with certificates evidencing that (i) all insurance obligations required by the Contract Documents are in full force and in effect and will remain in effect for the duration required by the Contract Documents; and (ii) no insurance coverage will be canceled, renewal refused, or materially changed unless at least thirty (30) days' prior written notice is given to Owner. If any of the foregoing insurance coverages are required to remain in force after final payment is reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the Final Application for Payment. If any information concerning reduction of coverage is not furnished by the insurer, it shall be furnished by Design-Builder with reasonable promptness according to Design-Builder's information and belief.

5.2 Owner's Liability Insurance.

5.2.1 Owner shall procure and maintain from insurance companies authorized to do business in

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the state in which the Project is located such liability insurance as set forth in the Insurance Exhibit to the Agreement to protect Owner from claims which may arise from the performance of Owner's obligations under the Contract Documents or Owner's conduct during the course of the Project.

5.3 Owner's Property Insurance.

5.3.1 Unless otherwise provided in the Contract Documents, Owner shall procure and maintain from insurance companies authorized to do business in the state in which the Project is located property insurance upon the entire Project to the full insurable value of the Project, including professional fees, overtime premiums and all other expenses incurred to replace or repair the insured property. The property insurance obtained by Owner shall be the broadest coverage commercially available, and shall include as additional insureds the interests of Owner, Design-Builder, Design Consultants and Subcontractors of any tier. Such insurance shall include but not be limited to the perils of fire and extended coverage, theft, vandalism, malicious mischief, collapse, flood, earthquake, debris removal and other perils or causes of loss as called for in the Contract Documents. The property insurance shall include physical loss or damage to the Work, including materials and equipment in transit, at the Site or at another location as may be indicated in Design-Builder's Application for Payment and approved by Owner. Owner is responsible for the payment of any deductibles under the insurance required by this Section 5.3.1.

5.3.2 Unless the Contract Documents provide otherwise, Owner shall procure and maintain boiler and machinery insurance that will include the interests of Owner, Design-Builder, Design Consultants, and Subcontractors of any tier. Owner is responsible for the payment of any deductibles under the insurance required by this Section 5.3.2.

5.3.3 Prior to Design-Builder commencing any Work, Owner shall provide Design-Builder with certificates evidencing that (i) all Owner's insurance obligations required by the Contract Documents are in full force and in effect and will remain in effect until Design-Builder has completed all of the Work and has received final payment from Owner; and (ii) no insurance coverage will be canceled, renewal refused, or materially changed unless at least thirty (30) days' prior written notice is given to Design-Builder. Owner's property insurance shall not lapse or be canceled if Owner occupies a portion of the Work pursuant to Section 6.6.3 hereof. Owner shall provide Design-Builder with the necessary endorsements from the insurance company prior to occupying a portion of the Work.

5.3.4 Any loss covered under Owner's property insurance shall be adjusted with Owner and Design-Builder and made payable to both of them as trustees for the insureds as their interests may appear, subject to any applicable mortgage clause. All insurance proceeds received as a result of any loss will be placed in a separate account and distributed in accordance with such agreement as the interested parties may reach. Any disagreement concerning the distribution of any proceeds will be resolved in accordance with Article 10 hereof.

5.3.5 Owner and Design-Builder waive against each other and Owner's separate contractors, Design Consultants, Subcontractors, agents and employees of each and all of them, all damages covered by property insurance provided herein, except such rights as they may have to the proceeds of such insurance. Design-Builder and Owner shall, where appropriate, require similar waivers of subrogation from Owner's separate contractors, Design Consultants and Subcontractors and shall require each of them to include similar waivers in their contracts. These waivers of subrogation shall not contain any restriction or limitation that will impair the full and complete extent of its applicability to any person or entity unless agreed to in writing prior to the execution of this Agreement.

5.4 Bonds and Other Performance Security.

5.4.1 If Owner requires Design-Builder to obtain performance and labor and material payment bonds, or other forms of performance security, the amount, form and other conditions of such security shall be as set forth in the Agreement.

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5.4.2 All bonds furnished by Design-Builder shall be in a form satisfactory to Owner. The surety shall be a company qualified and registered to conduct business in the state in which the Project is located.

Article 6

Payment

6.1 Schedule of Values.

6.1.1 Unless required by Owner upon execution of this Agreement, within ten (10) days of execution of the Agreement, Design-Builder shall submit for Owner's review and approval a schedule of values for all of the Work. The Schedule of Values will (i) subdivide the Work into its respective parts; (ii) include values for all items comprising the Work; and (iii) serve as the basis for monthly progress payments made to Design-Builder throughout the Work.

6.1.2 Owner will timely review and approve the schedule of values so as not to delay the submission of Design-Builder's first application for payment. Owner and Design-Builder shall timely resolve any differences so as not to delay Design-Builder's submission of its first application for payment.

6.2 Monthly Progress Payments.

6.2.1 On or before the date established in the Agreement, Design-Builder shall submit for Owner's review and approval its Application for Payment requesting payment for all Work performed as of the date of the Application for Payment. The Application for Payment shall be accompanied by all supporting documentation required by the Contract Documents and/or established at the meeting required by Section 2.1.4 hereof.

6.2.2 The Application for Payment may request payment for equipment and materials not yet incorporated into the Project, provided that (i) Owner is satisfied that the equipment and materials are suitably stored at either the Site or another acceptable location; (ii) the equipment and materials are protected by suitable insurance; and (iii) upon payment, Owner will receive the equipment and materials free and clear of all liens and encumbrances.

6.2.3 All discounts offered by Subcontractors, Sub-Subcontractors, and suppliers to Design-Builder for early payment shall accrue one hundred percent to Design-Builder to the extent Design-Builder advances payment. Unless Owner advances payment to Design-Builder specifically to receive the discount, Design-Builder may include in its Application for Payment the full undiscounted cost of the item for which payment is sought.

6.2.4 The Application for Payment shall constitute Design-Builder's representation that the Work described therein has been performed consistent with the Contract Documents, has progressed to the point indicated in the Application for Payment, and that title to all Work will pass to Owner free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the Work into the Project, or upon Design-Builder's receipt of payment, whichever occurs earlier.

6.3 Withholding of Payments.

6.3.1 On or before the date established in the Agreement, Owner shall pay Design-Builder all amounts properly due. If Owner determines that Design-Builder is not entitled to all or part of an Application for Payment as a result of Design-Builder's failure to meet its obligations hereunder, it will notify Design-Builder in writing at least five (5) days prior to the date payment is due. The notice shall indicate the specific amounts Owner intends to withhold, the reasons and contractual basis

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for the withholding, and the specific measures Design-Builder must take to rectify Owner's concerns. Design-Builder and Owner will attempt to resolve Owner's concerns prior to the date payment is due. If the parties cannot resolve such concerns, Design-Builder may pursue its rights under the Contract Documents, including those under Article 10 hereof.

6.3.2 Notwithstanding anything to the contrary in the Contract Documents, Owner shall pay Design-Builder all undisputed amounts in an Application for Payment within the times required by the Agreement.

6.4 Right to Stop Work and Interest.

6.4.1 If Owner fails to pay timely Design-Builder any undisputed amount that becomes due, Design-Builder, in addition to all other remedies provided in the Contract Documents, may stop Work pursuant to Section 11.3 hereof. All payments due and unpaid shall bear interest at the rate set forth in the Agreement.

6.5 Design-Builder's Payment Obligations.

6.5.1 Design-Builder will pay Design Consultants and Subcontractors, in accordance with its contractual obligations to such parties, all the amounts Design-Builder has received from Owner on account of their work. Design-Builder will impose similar requirements on Design Consultants and Subcontractors to pay those parties with whom they have contracted. Design-Builder will indemnify and defend Owner against any claims for payment and mechanic's liens as set forth in Section 7.3 hereof.

6.6 Substantial Completion.

6.6.1 Design-Builder shall notify Owner when it believes the Work, or to the extent permitted in the Contract Documents, a portion of the Work, is Substantially Complete. Within five (5) days of Owner's receipt of Design-Builder's notice, Owner and Design-Builder will jointly inspect such Work to verify that it is Substantially Complete in accordance with the requirements of the Contract Documents. If such Work is Substantially Complete, Owner shall prepare and issue a Certificate of Substantial Completion that will set forth (i) the date of Substantial Completion of the Work or portion thereof; (ii) the remaining items of Work that have to be completed before final payment; (iii) provisions (to the extent not already provided in the Contract Documents) establishing Owner's and Design-Builder's responsibility for the Project's security, maintenance, utilities and insurance pending final payment; and (iv) an acknowledgment that warranties commence to run on the date of Substantial Completion, except as may otherwise be noted in the Certificate of Substantial Completion.

6.6.2 Upon Substantial Completion of the entire Work or, if applicable, any portion of the Work, Owner shall release to Design-Builder all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less an amount equal to the reasonable value of all remaining or incomplete items of Work as noted in the Certificate of Substantial Completion.

6.6.3 Owner, at its option, may use a portion of the Work which has been determined to be Substantially Complete, provided, however, that (i) a Certificate of Substantial Completion has been issued for the portion of Work addressing the items set forth in Section 6.6.1 above; (ii) Design-Builder and Owner have obtained the consent of their sureties and insurers, and to the extent applicable, the appropriate government authorities having jurisdiction over the Project; and (iii) Owner and Design-Builder agree that Owner's use or occupancy will not interfere with Design-Builder's completion of the remaining Work.

6.7 Final Payment.

6.7.1 After receipt of a Final Application for Payment from Design-Builder, Owner shall make final payment by the time required in the Agreement, provided that Design-Builder has achieved

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Final Completion.

6.7.2 At the time of submission of its Final Application for Payment, Design-Builder shall provide the following information:

6.7.2.1 An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect Owner's interests;

6.7.2.2 A general release executed by Design-Builder waiving, upon receipt of final payment by Design-Builder, all claims, except those claims previously made in writing to Owner and remaining unsettled at the time of final payment;

6.7.2.3 Consent of Design-Builder's surety, if any, to final payment;

6.7.2.4 All operating manuals, warranties and other deliverables required by the Contract Documents; and

6.7.2.5 Certificates of insurance confirming that required coverages will remain in effect consistent with the requirements of the Contract Documents.

6.7.3 Upon making final payment, Owner waives all claims against Design-Builder except claims relating to (i) Design-Builder's failure to satisfy its payment obligations, if such failure affects Owner's interests; (ii) Design-Builder's failure to complete the Work consistent with the Contract Documents, including defects appearing after Substantial Completion; and (iii) the terms of any special warranties required by the Contract Documents.

6.7.4 Deficiencies in the Work discovered after Substantial Completion, whether or not such deficiencies would have been included on the punch list if discovered earlier, shall be deemed warranty Work. Such deficiencies shall be corrected by Design-Builder under Sections 2.9 and 2.10 herein and shall not be a reason to withhold final payment from Design-Builder, provided, however, that Owner shall be entitled to withhold from the Final Payment the reasonable value of completion of such deficient work until such work is completed.

Article 7

Indemnification

7.1 Patent and Copyright Infringement.

7.1.1 Design-Builder shall defend any action or proceeding brought against Owner based on any claim that the Work, or any part thereof, or the operation or use of the Work or any part thereof, constitutes infringement of any United States patent or copyright, now or hereafter issued. Owner shall give prompt written notice to Design-Builder of any such action or proceeding and will reasonably provide authority, information and assistance in the defense of same. Design-Builder shall indemnify and hold harmless Owner from and against all damages and costs, including but not limited to attorneys' fees and expenses awarded against Owner or Design-Builder in any such action or proceeding. Design-Builder agrees to keep Owner informed of all developments in the defense of such actions.

7.1.2 If Owner is enjoined from the operation or use of the Work, or any part thereof, as the result of any patent or copyright suit, claim, or proceeding, Design-Builder shall at its sole expense take reasonable steps to procure the right to operate or use the Work. If Design-Builder cannot so procure such right within a reasonable time, Design-Builder shall promptly, at Design-Builder's

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option and at Design-Builder's expense, (i) modify the Work so as to avoid infringement of any such patent or copyright; or (ii) replace said Work with Work that does not infringe or violate any such patent or copyright.

7.1.3 Sections 7.1.1 and 7.1.2 above shall not be applicable to any suit, claim or proceeding based on infringement or violation of a patent or copyright (i) relating solely to a particular process or product of a particular manufacturer specified by Owner and not offered or recommended by Design-Builder to Owner; or (ii) arising from modifications to the Work by Owner or its agents after acceptance of the Work. If the suit, claim or proceeding is based upon events set forth in the preceding sentence, Owner shall defend, indemnify and hold harmless Design-Builder to the same extent Design-Builder is obligated to defend, indemnify and hold harmless Owner in Section 7.1.1 above.

7.1.4 The obligations set forth in this Section 7.1 shall constitute the sole agreement between the parties relating to liability for infringement of violation of any patent or copyright.

7.2 Tax Claim Indemnification.

7.2.1 If, in accordance with Owner's direction, an exemption for all or part of the Work is claimed for taxes, Owner shall indemnify, defend and hold harmless Design-Builder from and against any liability, penalty, interest, fine, tax assessment, attorneys' fees or other expenses or costs incurred by Design-Builder as a result of any action taken by Design-Builder in accordance with Owner's directive. Owner shall furnish Design-Builder with any applicable tax exemption certificates necessary to obtain such exemption, upon which Design-Builder may rely.

7.3 Payment Claim Indemnification.

7.3.1 Provided that Owner is not in breach of its contractual obligation to make payments to Design-Builder for the Work, Design-Builder shall indemnify, defend and hold harmless Owner from any claims or mechanic's liens brought against Owner or against the Project as a result of the failure of Design-Builder, or those for whose acts it is responsible, to pay for any services, materials, labor, equipment, taxes or other items or obligations furnished or incurred for or in connection with the Work. Within three (3) days of receiving written notice from Owner that such a claim or mechanic's lien has been filed, Design-Builder shall commence to take the steps necessary to discharge said claim or lien, including, if necessary, the furnishing of a mechanic's lien bond. If Design-Builder fails to do so, Owner will have the right to discharge the claim or lien and hold Design-Builder liable for costs and expenses incurred, including attorneys' fees.

7.4 Design-Builder's General Indemnification.

7.4.1 Except as set forth in Section 7.4.2 below, Design-Builder, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Owner, its officers, directors, and employees from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for non-party bodily injury, sickness or death and non-party property damage or destruction (other than to the Work itself) but only to the extent resulting from the negligent acts or omissions of Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

7.4.2 For indemnity obligations that arise from professional errors and omissions, Design-Builder, to the fullest extent permitted by law, shall indemnify Owner, its officers, directors, and employees from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for non-party bodily injury, sickness, or death and non-party property damage or destruction (other than to the Work itself) but only to the extent resulting from the negligent acts or omissions of Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

7.4.3 If an employee of Design-Builder, Design Consultants, Subcontractors, anyone employed

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directly or indirectly by any of them or anyone for whose acts any of them may be liable has a claim against Owner, its officers, directors, employees, or agents, Design-Builder's indemnity obligations set forth in Sections 7.4.1 and 7.4.2 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Design-Builder, Design Consultants, Subcontractors, or other entity under any employee benefit acts, including workers' compensation or disability acts.

7.5 Owner's General Indemnification.

7.5.1 Owner, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Design-Builder and any of Design-Builder's officers, directors, and employees, from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) but only to the extent resulting from the negligent acts or omissions of Owner, Owner's separate contractors or anyone for whose acts any of them may be liable.

7.6 Limited Recourse.

7.6.1 None of the obligations set forth in this Agreement (on behalf of any party) constitute personal obligations of any natural persons who are the officers, shareholders, members, partners, employees, or agents of any party unless the natural person is expressly identified as a contracting party. All Parties to this Agreement shall not seek recourse against any natural person described herein. This provision, however, shall not protect such natural persons from liability for willful misconduct, illegal acts or intentional violation of any duty of corporate loyalty.

Article 8

Time

8.1 Obligation to Achieve the Contract Times.

8.1.1 Design-Builder agrees that it will commence performance of the Work and achieve the Contract Time(s) in accordance with Article 5 of the Agreement.

8.2 Delays to the Work.

8.2.1 If Design-Builder is delayed on the critical path in the performance of the Work due to acts, omissions, conditions, events, or circumstances beyond its control and due to no fault of its own or those for whom Design-Builder is responsible, the Contract Time(s) for performance shall be reasonably extended by Change Order. By way of example, events that will entitle Design-Builder to an extension of the Contract Time(s) include acts or omissions of Owner or anyone under Owner's control (including separate contractors), changes in the Work, Differing Site Conditions, Hazardous Conditions, and Force Majeure Events.

8.2.2 In addition to Design-Builder's right to a time extension for those events set forth in Section 8.2.1 above, Design-Builder shall also be entitled to an appropriate adjustment of the Contract Price provided, however, that the Contract Price shall not be adjusted for Force Majeure Events unless otherwise provided in the Agreement.

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Article 9

Changes to the Contract Price and Time

9.1 Change Orders.

9.1.1 A Change Order is a written instrument issued after execution of the Agreement signed by Owner and Design-Builder, stating their agreement upon all of the following:

9.1.1.1 The scope of the change in the Work;

9.1.1.2 The amount of the adjustment to the Contract Price; and

9.1.1.3 The extent of the adjustment to the Contract Time(s).

9.1.2 All changes in the Work authorized by applicable Change Order shall be performed under the applicable conditions of the Contract Documents. Owner and Design-Builder shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for such changes.

9.1.3 If Owner requests a proposal for a change in the Work from Design-Builder and subsequently elects not to proceed with the change, a Change Order shall be issued to reimburse Design-Builder for reasonable costs incurred for estimating services, design services and services involved in the preparation of proposed revisions to the Contract Documents.

9.2 Work Change Directives.

9.2.1 A Work Change Directive is a written order prepared and signed by Owner directing a change in the Work prior to agreement on an adjustment in the Contract Price and/or the Contract Time(s).

9.2.2 Owner and Design-Builder shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for the Work Change Directive. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the agreement.

9.3 Minor Changes in the Work.

9.3.1 Minor changes in the Work do not involve an adjustment in the Contract Price and/or Contract Time(s) and do not materially and adversely affect the Work, including the design, quality, performance and workmanship required by the Contract Documents. Design-Builder may make minor changes in the Work consistent with the intent of the Contract Documents, provided, however, that Design-Builder shall promptly inform Owner, in writing, of any such changes and record such changes on the documents maintained by Design-Builder.

9.4 Contract Price Adjustments.

9.4.1 The increase or decrease in Contract Price resulting from a change in the Work shall be determined by one or more of the following methods:

9.4.1.1 Unit prices set forth in the Agreement or as subsequently agreed to between the parties;

9.4.1.2 A mutually accepted lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by Owner;

9.4.1.3 Costs, fees and any other markups set forth in the Agreement; or

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9.4.1.4 If an increase or decrease cannot be agreed to as set forth in items 9.4.1.1 through 9.4.1.3 above and Owner issues a Work Change Directive, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in the Agreement.

9.4.2 If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices will cause substantial inequity to Owner or Design-Builder because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.

9.4.3 If Owner and Design-Builder disagree upon whether Design-Builder is entitled to be paid for any services required by Owner, or if there are any other disagreements over the scope of Work or proposed changes to the Work, Owner and Design-Builder shall resolve the disagreement pursuant to Article 10 hereof. As part of the negotiation process, Design-Builder shall furnish Owner with a good faith estimate of the costs to perform the disputed services in accordance with Owner's interpretations. If the parties are unable to agree and Owner expects Design-Builder to perform the services in accordance with Owner's interpretations, Design-Builder shall proceed to perform the disputed services, conditioned upon Owner issuing a written order to Design-Builder (i) directing Design-Builder to proceed; and (ii) specifying Owner's interpretation of the services that are to be performed. If this occurs, Design-Builder shall be entitled to submit in its Applications for Payment an amount equal to fifty percent (50%) of its reasonable estimated direct cost to perform the services, and Owner agrees to pay such amounts, with the express understanding that (i) such payment by Owner does not prejudice Owner's right to argue that it has no responsibility to pay for such services; and (ii) receipt of such payment by Design-Builder does not prejudice Design-Builder's right to seek full payment of the disputed services if Owner's order is deemed to be a change to the Work.

9.5 Emergencies.

9.5.1 In any emergency affecting the safety of persons and/or property, Design-Builder shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price and/or Contract Time(s) on account of emergency work shall be determined as provided in this Article 9.

Article 10

Contract Adjustments and Disputes

10.1 Requests for Contract Adjustments and Relief.

10.1.1 If either Design-Builder or Owner believes that it is entitled to relief against the other for any event arising out of or related to the Work or Project, such party shall provide written notice to the other party of the basis for its claim for relief. Such notice shall, if possible, be made prior to incurring any cost or expense and in accordance with any specific notice requirements contained in applicable sections of these General Conditions of Contract. In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed twenty-one (21) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later. The claimant shall provide more complete information with respect to the claim within fourteen (14) days of the initial notice. The more complete information shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request.

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10.2 Dispute Avoidance and Resolution.

10.2.1 The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, Design-Builder and Owner each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work.

10.2.2 Design-Builder and Owner will first attempt to resolve disputes or disagreements at the field level through discussions between Design-Builder's Representative and Owner's Representative which shall conclude within fourteen (14) days of the written notice provided for in Section 10.1.1 unless Owner and Design-Builder mutually agree otherwise.

10.2.3 If a dispute or disagreement cannot be resolved through Design-Builder's Representative and Owner's Representative, Design-Builder's Senior Representative and Owner's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than thirty (30) days after such a request is made, to attempt to resolve such dispute or disagreement. Five (5) days prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute or disagreement.

10.2.4 If after meeting the Senior Representatives determine that the dispute or disagreement cannot be resolved on terms satisfactory to both parties, the parties shall submit within thirty (30) days of the conclusion of the meeting of Senior Representatives the dispute or disagreement to non-binding mediation. The mediation shall be conducted by a mutually agreeable impartial mediator, or if the parties cannot so agree, a mediator designated by the American Arbitration Association ("AAA") pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator. Unless otherwise mutually agreed by Owner and Design-Builder and consistent with the mediator's schedule, the mediation shall commence within ninety (90) days of the submission of the dispute to mediation. Representatives of the parties with authority to resolve the dispute shall be present at any mediation.

10.3 Arbitration.

10.3.1 Any claims, disputes or controversies between the parties arising out of or relating to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures set forth in Section 10.2 above, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the AAA then in effect, unless the parties mutually agree otherwise.

10.3.2 The award of the arbitrator(s) shall be final and binding upon the parties without the right of appeal to the courts. Judgment may be entered upon it in accordance with applicable law by any court having jurisdiction thereof.

10.3.3 Design-Builder and Owner expressly agree that any arbitration pursuant to this Section 10.3 may be joined or consolidated with any arbitration involving any other person or entity (i) necessary to resolve the claim, dispute or controversy; or (ii) substantially involved in or affected by such claim, dispute or controversy. Both Design-Builder and Owner will include appropriate provisions in all contracts they execute with other parties in connection with the Project to require such joinder or consolidation.

10.3.4 The prevailing party in any arbitration, or any other final, binding dispute proceeding upon which the parties may agree, shall be entitled to recover from the other party reasonable attorneys' fees and expenses incurred by the prevailing party. The prevailing party, if any, shall be determined by the applicable binding dispute tribunal.

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10.4 Duty to Continue Performance.

10.4.1 Unless provided to the contrary in the Contract Documents, Design-Builder shall continue to perform the Work and Owner shall continue to satisfy its payment obligations for undisputed amounts to Design-Builder as well as any further amounts pursuant to Section 9.4.3, pending the final resolution of any dispute or disagreement between Design-Builder and Owner.

10.5 CONSEQUENTIAL DAMAGES.

10.5.1 NOTWITHSTANDING ANYTHING HEREIN TO THE CONTRARY (EXCEPT AS SET FORTH IN SECTION 10.5.2 BELOW), NEITHER DESIGN-BUILDER NOR OWNER SHALL BE LIABLE TO THE OTHER FOR ANY CONSEQUENTIAL LOSSES OR DAMAGES, WHETHER ARISING IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, INCLUDING BUT NOT LIMITED TO LOSSES OF USE, PROFITS, BUSINESS, REPUTATION OR FINANCING.

10.5.2 The consequential damages limitation set forth in Section 10.5.1 above is not intended to affect the payment of liquidated damages or lost early completion bonus, if any, set forth in Article 5 of the Agreement, which both parties recognize has been established, in part, to reimburse Owner or reward Design-Builder for some damages that might otherwise be deemed to be consequential.

Article 11

Stop Work and Termination

11.1 Owner's Right to Stop Work.

11.1.1 Owner may, without cause and for its convenience, order Design-Builder in writing to stop and suspend the Work. Such suspension shall not exceed sixty (60) consecutive days or aggregate more than ninety (90) days during the duration of the Project.

11.1.2 Design-Builder is entitled to seek an adjustment of the Contract Price and/or Contract Time(s) if its cost or time to perform the Work has been adversely impacted by any suspension of stoppage of the Work by Owner.

11.2 Owner's Right to Perform and Terminate for Cause.

11.2.1 If Design-Builder persistently fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, Design Consultants or Subcontractors, (v) prosecute the Work with promptness and diligence to ensure that the Work is completed by the Contract Time(s), as such times may be adjusted, or (vi) perform material obligations under the Contract Documents, then Owner, in addition to any other rights and remedies provided in the Contract Documents or by law, shall have the rights set forth in Sections 11.2.2 and 11.2.3 below.

11.2.2 Upon the occurrence of an event set forth in Section 11.2.1 above, Owner may provide written notice to Design-Builder that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Design-Builder's receipt of such notice. If Design-Builder fails to cure, or reasonably commence to cure, such problem, then Owner may give a second written notice to Design-Builder of its intent to terminate within an additional seven (7) day period. If Design-Builder, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Owner may declare the Agreement terminated for default by providing written notice to Design-Builder of such declaration.

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11.2.3 Upon declaring the Agreement terminated pursuant to Section 11.2.2 above, Owner may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which Design-Builder hereby transfers, assigns and sets over to Owner for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items. In the event of such termination, Design-Builder shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, if the unpaid balance of the Contract Price exceeds the cost and expense incurred by Owner in completing the Work, such excess shall be paid by Owner to Design-Builder. Notwithstanding the preceding sentence, if the Agreement establishes a Guaranteed Maximum Price, Design-Builder will only be entitled to be paid for Work performed prior to its default. If Owner's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Design-Builder shall be obligated to pay the difference to Owner. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by Owner in connection with the reprocurement and defense of claims arising from Design-Builder's default, subject to the waiver of consequential damages set forth in Section 10.5 hereof.

11.2.4 If Owner improperly terminates the Agreement for cause, the termination for cause will be converted to a termination for convenience in accordance with the provisions of Section 11.6 hereof.

11.3 Design-Builder's Right to Stop Work.

11.3.1 Design-Builder may, in addition to any other rights afforded under the Contract Documents or at law, stop the Work for the following reasons:

11.3.1.1 Owner's failure to provide financial assurances as required under Section 3.3 hereof; or

11.3.1.2 Owner's failure to pay amounts properly due under Design-Builder's Application for Payment.

11.3.2 Should any of the events set forth in Section 11.3.1 above occur, Design-Builder has the right to provide Owner with written notice that Design-Builder will stop the Work unless said event is cured within seven (7) days from Owner's receipt of Design-Builder's notice. Design-Builder shall not stop work unless it provides such written notice and Owner has failed to cure the reason for default within the seven (7) day cure period. If Owner does not cure the problem within such seven (7) day period, Design-Builder may stop the Work. In such case, Design-Builder shall be entitled to make a claim for adjustment to the Contract Price and Contract Time(s) to the extent it has been adversely impacted by such stoppage.

11.4 Design-Builder's Right to Terminate for Cause.

11.4.1 Design-Builder, in addition to any other rights and remedies provided in the Contract Documents or by law, may terminate the Agreement for cause for the following reasons:

11.4.1.1 The Work has been stopped for sixty (60) consecutive days, or more than ninety (90) days during the duration of the Project, because of court order, any government authority having jurisdiction over the Work, or orders by Owner under Section 11.1.1 hereof, provided that such stoppages are not due to the acts or omissions of Design-Builder or anyone for whose acts Design-Builder may be responsible.

11.4.1.2 Owner's failure to provide Design-Builder with any information, permits or approvals that are Owner's responsibility under the Contract Documents which result in the Work being stopped for sixty (60) consecutive days, or more than ninety (90) days during

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the duration of the Project, even though Owner has not ordered Design-Builder in writing to stop and suspend the Work pursuant to Section 11.1.1 hereof.

11.4.1.3 Owner's failure to cure the problems set forth in Section 11.3.1 above after Design-Builder has stopped the Work.

11.4.2 Upon the occurrence of an event set forth in Section 11.4.1 above, Design-Builder may provide written notice to Owner that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Owner's receipt of such notice. If Owner fails to cure, or reasonably commence to cure, such problem, then Design-Builder may give a second written notice to Owner of its intent to terminate within an additional seven (7) day period. If Owner, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Design-Builder may declare the Agreement terminated for default by providing written notice to Owner of such declaration. In such case, Design-Builder shall be entitled to recover in the same manner as if Owner had terminated the Agreement for its convenience under Article 8 of the Agreement.

11.5 Bankruptcy of Owner or Design-Builder.

11.5.1 If either Owner or Design-Builder institutes or has instituted against it a case under the United States Bankruptcy Code (such party being referred to as the "Bankrupt Party"), such event may impair or frustrate the Bankrupt Party's ability to perform its obligations under the Contract Documents. Accordingly, should such event occur:

11.5.1.1 The Bankrupt Party, its trustee or other successor, shall furnish, upon request of the non-Bankrupt Party, adequate assurance of the ability of the Bankrupt Party to perform all future material obligations under the Contract Documents, which assurances shall be provided within ten (10) days after receiving notice of the request; and

11.5.1.2 The Bankrupt Party shall file an appropriate action within the bankruptcy court to seek assumption or rejection of the Agreement within sixty (60) days of the institution of the bankruptcy filing and shall diligently prosecute such action.

If the Bankrupt Party fails to comply with its foregoing obligations, the non-Bankrupt Party shall be entitled to request the bankruptcy court to reject the Agreement, declare the Agreement terminated and pursue any other recourse available to the non-Bankrupt Party under this Article 11.

11.5.2 The rights and remedies under Section 11.5.1 above shall not be deemed to limit the ability of the non-Bankrupt Party to seek any other rights and remedies provided by the Contract Documents or by law, including its ability to seek relief from any automatic stays under the United States Bankruptcy Code or the right of Design-Builder to stop Work under any applicable provision of these General Conditions of Contract.

11.6 Termination for Convenience.

11.6.1 Upon ten (10) days' written notice to Design-Builder, Owner may, for its convenience and without cause, elect to terminate this Agreement. In such event, Owner shall pay Design-Builder for the following:

11.6.1.1 All Work executed and for proven loss, cost or expense in connection with the Work;

11.6.1.2 The reasonable costs and expenses attributable to such termination, including demobilization costs and amounts due in settlement of terminated contracts with Subcontractors and Design Consultants; and

11.6.1.3 The amount set forth in Article 8 of the Agreement.

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11.6.2 If Owner terminates this Agreement pursuant to Section 11.6.1 above and proceeds to design and construct the Project through its employees, agents or third parties, Owner's rights to use the Work Product shall be as set forth in Section 4.3 of the Agreement. Such rights may not be transferred or assigned to others without Design-Builder's express written consent and such third parties' agreement to the terms of Article 4 of the Agreement.

Article 12

Electronic Data

12.1 Electronic Data.

12.1.1 The parties recognize that Contract Documents, including drawings, specifications and three-dimensional modeling (such as Building Information Models) and other Work Product may be transmitted among Owner, Design-Builder and others in electronic media as an alternative to paper hard copies (collectively "Electronic Data").

12.2 Transmission of Electronic Data.

12.2.1 Owner and Design-Builder shall agree upon the software and the format for the transmission of Electronic Data. Each party shall be responsible for securing the legal rights to access the agreed-upon format, including, if necessary, obtaining appropriately licensed copies of the applicable software or electronic program to display, interpret and/or generate the Electronic Data.

12.2.2 Neither party makes any representations or warranties to the other with respect to the functionality of the software or computer program associated with the electronic transmission of Work Product. Unless specifically set forth in the Agreement, ownership of the Electronic Data does not include ownership of the software or computer program with which it is associated, transmitted, generated or interpreted.

12.2.3 By transmitting Work Product in electronic form, the transmitting party does not transfer or assign its rights in the Work Product. The rights in the Electronic Data shall be as set forth in Article 4 of the Agreement. Under no circumstances shall the transfer of ownership of Electronic Data be deemed to be a sale by the transmitting party of tangible goods.

12.3 Electronic Data Protocol.

12.3.1 The parties acknowledge that Electronic Data may be altered or corrupted, intentionally or otherwise, due to occurrences beyond their reasonable control or knowledge, including but not limited to compatibility issues with user software, manipulation by the recipient, errors in transcription or transmission, machine error, environmental factors, and operator error. Consequently, the parties understand that there is some level of increased risk in the use of Electronic Data for the communication of design and construction information and, in consideration of this, agree, and shall require their independent contractors, Subcontractors and Design Consultants to agree, to the following protocols, terms and conditions set forth in this Section 12.3.

12.3.2 Electronic Data will be transmitted in the format agreed upon in Section 12.2.1 above, including file conventions and document properties, unless prior arrangements are made in advance in writing.

12.3.3 The Electronic Data represents the information at a particular point in time and is subject to change. Therefore, the parties shall agree upon protocols for notification by the author to the recipient of any changes which may thereafter be made to the Electronic Data, which protocol shall

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also address the duty, if any, to update such information, data or other information contained in the electronic media if such information changes prior to Final Completion of the Project.

12.3.4 The transmitting party specifically disclaims all warranties, expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with respect to the media transmitting the Electronic Data. However, transmission of the Electronic Data via electronic means shall not invalidate or negate any duties pursuant to the applicable standard of care with respect to the creation of the Electronic Data, unless such data is materially changed or altered after it is transmitted to the receiving party, and the transmitting party did not participate in such change or alteration.

Article 13

Miscellaneous

13.1 Confidential Information.

13.1.1 Confidential Information is defined as information which is determined by the transmitting party to be of a confidential or proprietary nature and: (i) the transmitting party identifies as either confidential or proprietary; (ii) the transmitting party takes steps to maintain the confidential or proprietary nature of the information; and (iii) the document is not otherwise available in or considered to be in the public domain. The receiving party agrees to maintain the confidentiality of the Confidential Information and agrees to use the Confidential Information solely in connection with the Project.

13.2 Assignment.

13.2.1 Neither Design-Builder nor Owner shall, without the written consent of the other assign, transfer or sublet any portion or part of the Work or the obligations required by the Contract Documents.

13.3 Successorship.

13.3.1 Design-Builder and Owner intend that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.

13.4 Governing Law.

13.4.1 The Agreement and all Contract Documents shall be governed by the laws of the location of the Project, without giving effect to its conflict of law principles.

13.5 Severability.

13.5.1 If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal, or otherwise unenforceable pursuant to any applicable Legal Requirements, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

13.6 No Waiver.

13.6.1 The failure of either Design-Builder or Owner to insist, in any one or more instances, on the performance of any of the obligations required by the other under the Contract Documents shall not be construed as a waiver or relinquishment of such obligation or right with respect to future

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performance.

13.7 Headings.

13.7.1 The headings used in these General Conditions of Contract, or any other Contract Document, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

13.8 Notice.

13.8.1 Whenever the Contract Documents require that notice be provided to the other party, notice will be deemed to have been validly given (i) if delivered in person to the individual intended to receive such notice; (ii) four (4) days after being sent by registered or certified mail, postage prepaid to the address indicated in the Agreement; (iii) if transmitted by facsimile, by the time stated in a machine-generated confirmation that notice was received at the facsimile number of the intended recipient; or (iv) by electronic mail, by the time frame stated in the email-generated confirmation that notice was received by the email of the intended recipient.

13.9 Amendments.

13.9.1 The Contract Documents may not be changed, altered, or amended in any way except in writing signed by a duly authorized representative of each party.

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Standard Form of Agreement Between Design-Builder and General Contractor – Lump Sum

Document No. 555
Third Edition, 2022

© Design-Build Institute of America
Washington, D.C.



Design-Build Institute of America - Contract Documents

LICENSE AGREEMENT

By using the DBIA Contract Documents, you agree to and are bound by the terms of this License Agreement.

1. **License.** The Design-Build Institute of America ("DBIA") provides DBIA Contract Documents and licenses their use worldwide. You acknowledge that DBIA Contract Documents are protected by the copyright laws of the United States. You have a limited nonexclusive license to: (a) Use DBIA Contract Documents on any number of machines owned, leased or rented by your company or organization; (b) Use DBIA Contract Documents in printed form for bona fide contract purposes; and (c) Copy DBIA Contract Documents into any machine-readable or printed form for backup or modification purposes in support of your permitted use.
2. **User Responsibility.** You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results, and for the installation, use and results obtained from the DBIA Contract Documents. You acknowledge that you understand that the text of the DBIA Contract Documents has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You will not represent that any of the contract documents you generate from DBIA Contract Documents are DBIA documents unless (a) the document text is used without alteration or (b) all additions and changes to, and deletions from, the text are clearly shown.
3. **Copies.** You may not use, copy, modify or transfer DBIA Contract Documents, or any copy, modification or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification or portion merged into another document or program.
4. **Transfers.** You may not transfer possession of any copy, modification or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.
5. **Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.
6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.
7. **Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.
8. **Acknowledgement.** You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

INSTRUCTIONS

For DBIA Document No. 555 Standard Form of Agreement Between Design-Builder and General Contractor – Lump Sum (2022 Edition)

Checklist

Use this Checklist to ensure that the Agreement is fully completed and all exhibits are attached.

_____Page 1	Enter date of the Agreement
_____Page 1	Design-Builder's name, address and form of business
_____Page 1	General Contractor's name, address and form of business
_____Page 1	Project name and address
_____Page 1	Owner's name, address and form of business
_____Section 2.14.1	Attach permit list
_____Section 5.2.1	Complete blanks for calendar days
_____Section 5.2.2	Attach interim milestones (optional)
_____Section 5.4.1	Complete blanks for liquidated damages
_____Section 5.5.1	Complete blanks for early completion bonus
_____Section 6.1.1	Complete blanks for Contract Price
_____Section 6.2.1	Insert markups for changes
_____Section 7.2.1	Complete blanks for day of month
_____Section 7.2.4	Complete blank for number of days
_____Section 7.3.1	Complete blanks for retainage percentage
_____Section 7.8.1	Complete blanks for interest rate
_____Section 8.2.1.3	Choose overhead/profit method for termination for convenience
_____Section 9.1.1	Insert Design-Builder's Senior Representative's name, etc.
_____Section 9.1.2	Insert Design-Builder's Representative's name, etc.
_____Section 9.2.1	Insert General Contractor's Senior Representative's name, etc.
_____Section 9.2.2	Insert General Contractor's Representative's name, etc.
_____Section 10.1.1	Attach Insurance Exhibit
_____Section 10.4.1	Insert amount and conditions of bonds or other security
_____Article 18	Insert any other provisions (optional)
_____ Last Page	Design-Builder's and General Contractor's execution of the Agreement

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General Instructions

No.	Subject	Instruction
1.	Standard Forms	Standard form contracts have long served an important function in the United States and international construction markets. The common purpose of these forms is to provide an economical and convenient way for parties to contract for design and construction services. As standard forms gain acceptance and are used with increased frequency, parties are able to enter into contracts with greater certainty as to their rights and responsibilities.
2.	DBIA Standard Form Contract Documents	Since its formation in 1993, the Design-Build Institute of America ("DBIA") has regularly evaluated the needs of owners, design-builders and other parties to the design-build process in preparation for developing its own contract forms. Consistent with DBIA's mission of promulgating best design-build practices, DBIA believes that the design-build contract should reflect a balanced approach to risk that considers the legitimate interests of all parties to the design-build process. DBIA's Standard Form Contract Documents reflect a modern risk allocation approach, allocating each risk to the party best equipped to manage and minimize that risk, with the goal of promoting best design-build practices.
3.	Use of Non-DBIA Documents	To avoid inconsistencies among documents used for the same project, DBIA's Standard Form Contract Documents should not be used in conjunction with non-DBIA documents unless the non-DBIA documents are appropriately modified on the advice of legal counsel. Moreover, care should also be taken when using different editions of the DBIA Standard Form Documents on the same project to ensure consistency.
4.	Legal Consequences	DBIA Standard Form Contract Documents are legally binding contracts with important legal consequences. Contracting parties are advised and encouraged to seek legal counsel in completing or modifying these Documents.
5.	Reproduction	DBIA hereby grants to purchasers a limited license to reproduce its Documents consistent with the License Agreement accompanying these Documents. At least two original versions of the Agreement should be signed by the parties. Any other reproduction of DBIA Documents is strictly prohibited.
6.	Modifications	Effective contracting is accomplished when the parties give specific thought to their contracting goals and then tailor the contract to meet the unique needs of the project and the design-build team. For that reason, these Documents may require modification for various purposes including, for example, to comply with local codes and laws, or to add special terms. DBIA's latest revisions to its Documents provide the parties an opportunity to customize their contractual relationship by selecting various optional contract clauses that may better reflect the unique needs and risks associated with the project. Any modifications to these Documents should be initialed by the parties. At no time should a document be re-typed in its entirety. Re-creating the document violates copyright laws and destroys one of the advantages of standard forms – familiarity with the terms.
7.	Execution	It is good practice to execute two original copies of the Agreement. Only persons authorized to sign for the contracting parties may execute the Agreement.

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Specific Instructions

Section	Title	Instruction
General	Purpose of This Agreement	DBIA Document No. 555, *Standard Form of Agreement Between Design-Builder and General Contractor – Lump Sum* (2022 Edition) ("Agreement"), sets forth the terms and conditions under which the construction of the Project will be performed and should be used when the parties intend that Design-Builder pay General Contractor on a lump sum basis. This Agreement can be used with DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum* (2022 Edition) or DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2022 Edition), and including DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2022 Edition). It is also envisioned that Design-Builder and General Contractor will have worked together in the procurement of the prime contract. If the parties execute this Agreement after the Construction Documents are final, the Agreement should be modified accordingly.
General	Purpose of These Instructions	These Instructions are not part of this Agreement, but are provided to aid the parties in their understanding of the Agreement and in completing the Agreement.
General	Date	On Page 1, enter the date when both parties reach a final understanding. It is possible, due to logistical reasons, that the dates when the parties execute the Agreement may be different. Once both parties execute the Agreement, the effective date of the Agreement will be the date recorded on Page 1. This date does not, however, determine Contract Time, which is measured according to the terms of Article 5.
General	Parties: Design-Builder and General Contractor	On Page 1 enter the legal name and full address of Design-Builder, General Contractor and Owner, as well as the legal form of each entity, e.g., corporation, partnership, limited partnership, limited liability company, or other.
1.1	Pass Through	The section recognizes that General Contractor has the same rights, responsibilities and obligations as to Design-Builder as Design-Builder by the Design-Build Agreement has against and to Owner. However, because the Design-Build Agreement also affords Design-Builder and Owner many opportunities to customize their contractual relationship by the selection of optional provisions, DBIA does not believe that these optional provisions should automatically pass through to General Contractor. Accordingly, if Design-Builder and General Contractor believe it is appropriate to afford General Contractor the same rights, responsibilities and obligations as it relates to these optional provisions, the parties should make that clear by adding the necessary and appropriate provisions at Article 18 of this Agreement.
1.2	Definitions	Terms, words and phrases used in the Agreement shall have the same meanings used in the Design-Build Agreement between Owner and Design-Builder except to the extent set forth in Section 1.2.
1.3	Contract Documents	The Contract Documents are listed in Section 1.3 in the order of their precedence.
1.5	Mutual Obligations and Acknowledgements	This Agreement contemplates that Design-Builder and General Contractor have cooperated in the procurement of the Design-Build Agreement and that General Contractor has familiarized itself with the Design-Build Agreement.
2.12	Patents and Copyrights	General Contractor shall pay all license fees and royalties for items or processes it selects which are subject to copyrights or patent rights.
2.14.1	Government Approvals and Permits	General Contractor is responsible for obtaining the specific permits, approvals and licenses set forth in an exhibit to the Agreement.

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Section	Title	Instruction
3.3.1	Furnishing of Information	Design-Builder shall furnish General Contractor with the listed Owner-provided information. General Contractor is entitled to rely on the Owner-provided information to the same extent Design-Builder is entitled to pursuant to the Design-Build Agreement.
5.1.1	Date of Commencement	General Contractor's obligation to commence work is triggered by its receipt of a Notice to Proceed unless the parties mutually agree otherwise.
5.2.1	Substantial Completion of the Entire Work	Enter the calendar days duration by which Substantial Completion has to be achieved. The parties should recognize that Owner and Design-Builder have the option of modifying the definition of Substantial Completion set forth in the General Conditions of Contract if they want to use a Temporary Certificate of Occupancy as the benchmark. If this option is selected, Design-Builder and General Contractor will need to do the same here.
5.2.2	Interim Milestones	It may be that some portions of the Work must be completed in phases or within a prescribed period of time to accommodate Design-Builder's or Owner's needs. The parties may, at their option, identify these portions of the Work to be completed prior to Substantial Completion of the entire Work. As presently drafted, no remedy is provided to General Contractor if an interim milestone is not met. If General Contractor has special requirements as it relates to interim milestones, Design-Builder may want to consider a remedy for General Contractor's failure to meet an interim milestone, as well as providing a bonus to General Contractor for an early satisfaction of such interim milestone.
5.4	Liquidated Damages	Design-Builder should make a good faith evaluation of the amount that is reasonably necessary to compensate it for delay. Design-Builder should not establish liquidated damages to penalize General Contractor. Section 5.4 establishes a grace period between the Scheduled Substantial Completion Date and the assessment of liquidated damages in order to prevent disputes as to which party bears responsibility for only a few days of delay. The parties should enter the calendar days that may pass following the Scheduled Substantial Completion Date before liquidated damages will be assessed. The parties are also provided the option of establishing liquidated damages if General Contractor fails to achieve Final Completion within a specified number of days after Substantial Completion. If this option is selected, the parties must negotiate both the number of days and the liquidated damages amount. In negotiating liquidated damages, the parties should keep in mind that the amount of liquidated damages for failing to achieve Final Completion should be a considerably scaled down amount and should reflect the financial harm to Design-Builder, which may include delay or liquidated damages Design-Builder may be liable for to Owner. In no case should the total amount of liquidated damages for the Project exceed an amount that is reasonably necessary to compensate Design-Builder for Project delay. The parties also have the option here of eliminating liquidated damages altogether, in which case Design-Builder can recover actual damages for Project delay at an amount that is capped by the parties. Design-Builder is cautioned that it may not be able to recover consequential damages, if they are waived by Design-Builder against General Contractor.
5.5.1	Early Completion Bonus	If the Project economics justify liquidated damages, then it is appropriate to couple these liquidated damages with an early completion bonus. The parties should enter the number of calendar days prior to the Scheduled Substantial Completion Date that will set the Bonus Date. Also, enter the amount of the bonus to be paid per day that will allow Design-Builder to share with General Contractor the economic benefits of early completion.

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Section	Title	Instruction
6.1.1	Contract Price	Insert lump sum price Design-Builder will pay General Contractor for the Work.
6.2.1	Markups for Changes	Enter the markups agreed upon by Design-Builder and General Contractor to be used for pricing Changes to the Work.
7.2.1	Progress Payments	Enter the day of the month when General Contractor shall submit its Application for Payment.
7.2.4	Progress Payments	Enter the number of days Design-Builder shall make payment on General Contractor's properly submitted and accurate Application for Payment
7.3.1	Retainage on Progress Payments	Enter the percent Design-Builder will retain from Progress Payments to General Contractor. Note that the contract between Owner and Design-Builder may contain a number of ways to release retainage. The parties in this Agreement should be mindful of these options when developing this provision.
7.8.1	Interest	The parties should enter the rate at which interest will accrue on General Contractor's payments if unpaid five (5) days after due. Late payment creates a hardship for General Contractor and its Subcontractors.
7.12.1	Record Keeping	Design-Builder is provided access to, and the right to audit General Contractor's records with respect to changes in the Work. However, if the parties have agreed to multipliers or markups, the time to challenge and negotiate those percentages is at the time the parties execute the Agreement and not during the Project or after it has been completed. Accordingly, Design-Builder can at any time audit these percentages only to confirm that such percentage has been properly charged and not to challenge the composition of such percentage.
8.2.1.3	Termination for Convenience: Overhead and Profit	The parties should choose prior to execution of the Agreement the method that will be used to determine overhead and profit paid to General Contractor in the event Design-Builder terminates General Contractor for its convenience. The parties may choose to set percentage rates for overhead and profit prior to execution of the Agreement, or may choose to determine reasonable sums to be paid for overhead and profit at the time of the termination. If the parties choose to set overhead and profit rates prior to execution of the Agreement, the percentages should be entered in Section 8.2.1.3.
8.2.2	Termination for Convenience	If Design-Builder terminates General Contractor for convenience because Owner has terminated Design-Builder for its convenience, General Contractor is only entitled to receive such amount as Design-Builder receives from Owner on behalf of General Contractor.
8.5	General Contractor's Right to Terminate for Cause	If General Contractor properly terminates the Agreement for cause, it shall recover from Design-Builder in the same way as if Design-Builder had terminated the Agreement for convenience under Section 8.2 of the Agreement.
Article 9	Representatives of the Parties	Enter the name, title, address and telephone number of Design-Builder's Senior Representative and Design-Builder's Representative at Sections 9.1.1 and 9.1.2, respectively. Enter the name, title, address and telephone number of General Contractor's Senior Representative and General Contractor's Representative at Sections 9.2.1 and 9.2.2, respectively. The parties can elect to establish these Representatives during the performance of the Project rather than at the time of execution of this Agreement. If Representatives are identified after execution of the Agreement, an appropriate amendment should be made to the Agreement at the time these individuals are designated.

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Section	Title	Instruction
10.1.1	General Contractor's Insurance Requirements	Attach an Insurance Exhibit setting forth in detail the insurance coverages General Contractor is required to provide for the Project. Parties are advised to familiarize themselves with the terms of Article 5 of the General Conditions of Contract, Insurance and Bonds, and to consult their insurance advisors.
10.1.2	Subcontractor's and Sub-Subcontractor's Insurance Requirements	General Contractor is obligated to require its Subcontractors and Sub-Subcontractors to provide the insurance coverage set forth in the Insurance Exhibit. Parties are advised to consult their insurance advisors.
10.1.3	Exclusions to Design-Build	Parties are advised that standard insurance policies may contain exclusions for the design-build delivery method. This Section 10.1.3 requires that any such exclusions be deleted from the policy.
10.4	Bonds and Other Performance Security	Enter the type and amount of bonds or other performance security required for the Project. Where bonding is not required by statute, Design-Builder may want to evaluate the project risk versus the bonding costs in deciding what type of performance security to require.
13.3	Disputes Involving Owner	Disputes for which Owner is responsible will be resolved in accordance with the dispute resolution clause in the Design-Build Agreement.
13.4	Disputes Not Involving Owner	DBIA endorses the use of partnering, negotiation, mediation and arbitration for the prevention and resolution of disputes. The Agreement provides for the parties' Representatives and Senior Representatives to attempt to negotiate the dispute. If this attempt fails, the dispute shall be submitted to mandatory, non-binding mediation. Any dispute that cannot be resolved by mediation shall then be submitted to binding arbitration pursuant to Section 13.5.
13.5	Arbitration	The prevailing party in any arbitration shall receive reasonable attorneys' fees from the other party. DBIA supports this "loser pays" provision to encourage parties to negotiate or mediate their differences and to minimize the number of frivolous disputes.
13.6	Duty to Continue Performance	Pending the resolution of any dispute, both Design-Builder and General Contractor shall continue to perform their respective duties under the Contract Documents, unless the parties provide otherwise in the Contract Documents.
13.7	Consequential Damages	DBIA believes that it is inappropriate for either Design-Builder or General Contractor to be responsible to the other for consequential damages arising from the Project. This limitation on consequential damages in no way restricts, however, the payment of liquidated damages, if any, under Article 5 of the Agreement.
Article 15	Electronic Data	Design-Builder will determine, after consultation with General Contractor, the software and format for the transmission of Electronic Data. The transmitting party disclaims all warranties with respect to the media transmitting the Electronic Data, but nothing in this Article is intended to negate duties with respect to the standard of care in creating the Electronic Data. In the event the Design-Build Agreement contains a conflicting provision governing Electronic Data, the provision in the Design-Build Agreement takes precedence.
Article 18	Other Provisions	Insert any other provisions. For example, the parties may elect to have disputes resolved through litigation rather than arbitration in which case the optional language in this Section should be included.

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Standard Form of Agreement Between Design-Builder and General Contractor – Lump Sum

This document has important legal consequences. Consultation with an attorney is recommended with respect to its completion or modification.

This **AGREEMENT** is made as of the _____ day of _____ in the year of 20_____, by and between the following parties, for services in connection with the Project identified below:

DESIGN-BUILDER:
(Name and address)

GENERAL CONTRACTOR:
(Name and address)

PROJECT:
(Include Project name and location as it will appear in the Contract Documents)

OWNER:
(Name and address)

In consideration of the mutual covenants and obligations contained herein, Design-Builder and General Contractor agree as set forth herein.

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Article 1

General

1.1 Basic Purpose.

1.1.1 Design-Builder has contracted with Owner to provide the services necessary for the design and construction of the Project as set forth in the Design-Build Agreement. General Contractor, through itself and its Subcontractors, agrees to provide all Work to complete the construction of the Project consistent with the Contract Documents. Design-Builder and General Contractor agree that to the extent applicable to the performance of the Work hereunder, General Contractor shall have the same rights, responsibilities and obligations as to Design-Builder as Design-Builder by the Design-Build Agreement has against and to Owner, except as may be modified herein. Notwithstanding the foregoing, if Design-Builder and Owner have checked boxes indicating the selection of optional provisions from the Design-Build Agreement, those optional provisions are only passed through to General Contractor to the extent those provisions have been expressly set forth in Article 18.

1.2 Basic Definitions.

1.2.1 Terms used in this Agreement shall have the meanings set forth in the Design-Build Agreement between Owner and Design-Builder unless otherwise provided herein, with the following specific terms defined as follows:

1.2.1.1 *Agreement* refers to this executed contract between Design-Builder and General Contractor under DBIA Document 555, *Standard Form of Agreement Between Design-Builder and General Contractor – Lump Sum* (2022 Edition).

1.2.1.2 *Construction Documents* are the documents consisting of Drawings and Specifications, to be prepared or assembled by Design-Builder in accordance with the Design-Build Agreement.

1.2.1.3 *Construction Schedule* refers to the schedule setting forth the dates by which General Contractor must perform the various stages of the Work, consistent with the Project Schedule.

1.2.1.4 *Contract Time(s)* refers to the dates set forth in Section 5.2 hereof.

1.2.1.5 *Day* or *Days* shall mean calendar days unless otherwise specifically noted in the Contract Documents.

1.2.1.6 *Design-Build Agreement* refers to the contract between Design-Builder and Owner for the design and construction of the Project under DBIA Document No. 525, *Standard Form of Agreement Between Owner Design-Builder – Lump Sum* (2022 Edition), DBIA Document No. 544, *Standard Form of Progressive Design-Build Agreement* (2022 Edition), or DBIA Document No. 545, *Progressive Design Agreement for Water and Wastewater* (2022 Edition), including the DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2022 Edition), and all exhibits, attachments, and other Contract Documents enumerated and incorporated therein.

1.2.1.7 *Design Consultant* is a qualified, licensed design professional who is not an employee of Design-Builder, but is retained by Design-Builder, or employed or retained by anyone under contract with Design-Builder, to furnish design services required under the Design-Build Agreement.

1.2.1.8 *Final Completion* is the date on which all Work is complete in accordance with the Contract Documents, including but not limited to any items identified in the punch list prepared under Section 7.5.1 and the submission of all documents set forth in Section

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7.6.2.

1.2.1.9 *Force Majeure Events* are those events that are beyond the control of General Contractor, Design-Builder and Owner, including the events of war, floods, labor disputes, earthquakes, epidemics, adverse weather conditions not reasonably anticipated and other acts of God.

1.2.1.10 *Hazardous Conditions* are any materials, wastes, substances and chemicals deemed to be hazardous under applicable Legal Requirements, or the handling, storage, remediation or disposal of which are regulated by applicable Legal Requirements.

1.2.1.11 *Legal Requirements* are all applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the parties, the Project or Site, the practices involved in the Project or Site, or any Work.

1.2.1.12 *Owner's Project Criteria* are developed by or for Owner to describe Owner's program requirements and objectives for the Project, including use, space, price, time, site and expandability requirements, as well as submittal requirements and other requirements governing Design-Builder's performance of the Work. Owner's Project Criteria may include conceptual documents, design criteria, design performance specifications, design specifications, and LEED® or other sustainable design criteria and other Project-specific technical materials and requirements.

1.2.1.13 *Project Schedule* refers to the schedule setting forth the dates by which the various stages of both the design and construction of the Project must be performed so as to satisfy Design-Builder's obligations to Owner.

1.2.1.14 *Site* is the land or premises on which the Project is located.

1.2.1.15 *Subcontractor* is any person or entity retained by General Contractor as an independent contractor to perform a portion of General Contractor's Work hereunder and shall include materialmen and suppliers.

1.2.1.16 *Sub-Subcontractor* is any person or entity retained by a Subcontractor as an independent contractor to perform any portion of the Subcontractor's work and shall include materialmen and suppliers.

1.2.1.17 *Substantial Completion or Substantially Complete* is the date on which the Project, or an agreed upon portion of the Project, is sufficiently complete in accordance with the Contract Documents so that Owner can occupy and use the Project or a portion thereof for its intended purposes.

1.2.1.18 *Work* is comprised of all General Contractor's construction and other services required by the Contract Documents, including procuring and furnishing all supervision, labor, inspection, testing, start-up, materials, tools, equipment, machinery, transportation, temporary utilities, temporary facilities and all other items and services reasonably inferable from this Agreement and the other Contract Documents.

1.3 Contract Documents.

1.3.1 The Contract Documents are comprised of the following:

1.3.1.1 All written modifications, amendments, minor changes and Change Orders to this Agreement;

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1.3.1.2 This Agreement, including all exhibits (*list for example, performance standard requirements, performance incentive arrangements, markup exhibits, allowances, unit prices or exhibit detailing offsite reimbursable personnel*);

1.3.1.3 The Construction Documents; and

1.3.1.4 The Design-Build Agreement, but only to the extent the Design-Build Agreement relates to the Work and the terms and conditions under which the Work shall be performed.

1.4 Interpretation and Intent.

1.4.1 Design-Builder and General Contractor, prior to execution of the Agreement, shall carefully review all the Contract Documents for any conflicts or ambiguities. Design-Builder and General Contractor will discuss and resolve any identified conflicts or ambiguities prior to execution of the Agreement.

1.4.2 The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted consistent with construction and design industry standards. In the event of any inconsistency, conflict or ambiguity between or among the Contract Documents, the Contract Documents shall take precedence in the order in which they are listed in Section 1.3 hereof.

1.5 Mutual Obligations and Acknowledgments.

1.5.1 Design-Builder and General Contractor commit at all times to cooperate fully with each other, and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents. Design-Builder and General Contractor shall perform their respective responsibilities, obligations and services in a timely manner to facilitate the other's timely and efficient performance and so as not to delay or interfere with the other's performance of its obligations under the Contract Documents.

1.5.2 Design-Builder and General Contractor acknowledge that they have cooperated with each other in the procurement of the Design-Build Agreement and that Design-Builder and General Contractor have met to review, discuss and familiarize themselves with the Design-Build Agreement.

1.6 Entire Agreement.

1.6.1 Subject to the limitation in Section 1.3.1, the Contract Documents, all of which are incorporated by reference into this Agreement, form the entire agreement between Design-Builder and General Contractor and are as fully binding on the parties as if repeated herein. No oral representations or other agreements have been made by the parties except as specifically stated in the Contract Documents.

Article 2

General Contractor's Services and Responsibilities

2.1 General.

2.1.1 Within seven (7) days after execution of this Agreement, Design-Builder and General Contractor will meet to discuss issues affecting the administration and schedule of the Work, and implement the necessary procedures, including but not limited to those relating to schedule updates, submittals and payment, to facilitate the ability of the parties to perform their obligations under this Agreement.

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2.1.2 General Contractor's Representative shall be reasonably available to Design-Builder and shall have the necessary expertise and experience required to supervise the Work. General Contractor's Representative shall communicate regularly with Design-Builder and shall be vested with the authority to act on behalf of General Contractor. General Contractor shall replace its Representative upon the reasonable request of Design-Builder.

2.1.3 General Contractor shall only communicate with Owner, Design-Builder's Design Consultants, or separate contractors of Design-Builder or Owner through Design-Builder.

2.2 Review of Site and Contract Documents.

2.2.1 General Contractor represents that it has examined the Site and the Contract Documents prior to executing this Agreement so as to reasonably ascertain the nature of the Work and the various conditions affecting the Work.

2.2.2 General Contractor shall promptly report to Design-Builder any errors, inconsistencies, omissions, including without limitation variances, or violations of Legal Requirements contained within or omitted from the Contract Documents that General Contractor discovers. In such case, General Contractor will be entitled to any adjustment in the Contract Price and/or Contract Time to the extent General Contractor's cost and/or time of performance are adversely impacted by such errors, inconsistencies or omission. General Contractor shall be liable to Design-Builder for any damages resulting from any such errors, inconsistencies or omissions, or violations of Legal Requirements which General Contractor discovers and fails to report to Design-Builder. Nothing in this Agreement shall be deemed to transfer any design liability from Design-Builder to General Contractor.

2.3 Pre-Construction Services.

2.3.1 General Contractor shall assist Design-Builder regarding the selection of building systems, materials and equipment, as well as Project cost, schedule and construction feasibility studies. Such studies shall address, among other things, labor availability, construction costs and procurement strategies related to the requirements set forth in the Contract Documents.

2.3.2 General Contractor shall, if requested, make recommendations to Design-Builder regarding the preparation and issuance of Construction Documents for a portion of the Project to permit construction to proceed on that portion of the Project prior to completion of the Construction Documents for the entire Project.

2.3.3 General Contractor shall advise Design-Builder regarding a schedule for the procurement of items included in the Work which have long-lead times.

2.3.4 Design-Builder and General Contractor agree that prior to the scheduled date for submitting all design submissions to Owner, Design-Builder and General Contractor will hold meetings for the purpose of monitoring the design for consistency with the requirements of the Contract Documents, including General Contractor's List of Assumptions and Qualifications (if any).

2.4 Control Over Means and Methods.

2.4.1 General Contractor shall perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents and the Construction Schedule. General Contractor shall at all times exercise complete and exclusive control over the means, methods, sequences and techniques of construction.

2.5 Construction Schedule.

2.5.1 Unless a schedule for the execution of the Work has been attached to the Agreement as an exhibit at the time the Agreement is executed, General Contractor shall prepare and submit for

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Design-Builder's review and response at least three (3) days prior to the meeting required by Section 2.1.1 hereof, a schedule for the execution of the Work in accordance with the Contract Documents, including any milestone dates which may be set forth in a separate exhibit to this Agreement. The schedule shall indicate the dates, consistent with those set forth in the Contract Documents for the start and completion of the various stages of the Work, including the dates when Design-Builder information and approvals are required to enable General Contractor to achieve the Contract Time(s).

The accepted schedule (the "Construction Schedule") shall be revised as required by conditions and progress of the Work, but such revisions shall not relieve General Contractor of its obligations to complete the Work within the Contract Time(s), as such dates may be adjusted in accordance with the Contract Documents. Design-Builder's review and acceptance of the Construction Schedule shall not be construed as relieving General Contractor of its complete and exclusive control over the means, methods, sequences and techniques for executing the Work. Design-Builder shall incorporate the Construction Schedule into the Project Schedule.

2.6 Status Report.

2.6.1 Unless the parties agree on a different time period for submission of a status report, General Contractor shall provide Design-Builder on a monthly basis a status report detailing the progress of the Work, including whether (i) the Work is proceeding according to the Construction Schedule; (ii) discrepancies, conflicts or ambiguities exist in the Contract Documents that require resolution; (iii) health and safety issues exist in connection with the Work; and (iv) other items exist which require resolution so as not to jeopardize General Contractor's ability to complete the Work for the Contract Price and within the Contract Time(s). Status reports shall be submitted with General Contractor's application for payment as a condition for payment.

2.7 Submittals and Substitutions.

2.7.1 In accordance with the Contract Documents and the Construction Schedule, General Contractor shall submit for Design-Builder's review and approval submittals, including shop drawings, product data and samples. Design-Builder shall advise General Contractor on or before the meeting required by Section 2.1.1 hereof of the submittal requirements for the Project. Any variances with the Construction Documents shall be specifically identified in General Contractor's submittals. Design-Builder's review and approval shall not relieve General Contractor of its responsibilities to perform the Work in accordance with the Construction Documents unless Design-Builder expressly approves in writing any such variance in its response to General Contractor's submittals. General Contractor shall make any necessary revisions to the submittals requested by Design-Builder.

2.7.2 General Contractor shall not make any substitutions in the Work or procedures or methods specified by Owner or Design-Builder for performing the Work unless it first receives written approval for such substitution from Design-Builder.

2.8 Subcontractors.

2.8.1 General Contractor shall employ only Subcontractors who are duly licensed and qualified to perform the Work consistent with the Contract Documents. Prior to the date that Subcontractors perform Work on the Project, General Contractor shall identify in writing to Design-Builder all Subcontractors. To the extent that General Contractor has not selected a Subcontractor prior to performing the Work, General Contractor shall provide Design-Builder in writing a list of any subsequently added Subcontractors prior to their performing Work on the Project. General Contractor shall not engage the services of any Subcontractor without first obtaining the approval of Design-Builder, which approval shall not be unreasonably withheld. Design-Builder may reasonably object to General Contractor's selection of any Subcontractor, provided that the Contract Price and/or Contract Time(s) shall be adjusted to the extent that Design-Builder's decisions impact Design-Builder's cost and/or time of performance. General Contractor agrees that

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each Subcontractor shall be fully bound to General Contractor in the same manner as General Contractor is bound to Design-Builder for all the requirements of the Contract Documents to the extent applicable to the Subcontractor's scope of work. Design-Builder shall have the right, but not the obligation, to review and approve the form for each Subcontractor agreement. General Contractor may not substitute a listed Subcontractor without Design-Builder's prior written consent, such consent shall not be unreasonably withheld.

2.8.2 General Contractor assumes responsibility to Design-Builder for the proper performance of the work of Subcontractors and any acts and omissions in connection with such performance. General Contractor shall coordinate the activities of all Subcontractors. Nothing in this Agreement is intended or deemed to relieve General Contractor from responsibility for the work performed by its Subcontractors, or create any legal or contractual relationship between Owner or Design-Builder and any Subcontractor, including but not limited to any third-party beneficiary rights.

2.9 Work of Others.

2.9.1 If Design-Builder or Owner performs other work on the Project or at the Site with separate contractors under Design-Builder's or Owner's control, General Contractor agrees to reasonably cooperate with those separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

2.9.2 If any part of the Work depends upon other work performed by Design-Builder, or Design-Builder's or Owner's separate contractors, General Contractor shall, prior to proceeding with that part of the Work, inspect such other work and promptly notify Design-Builder of any discovered discrepancies or defects that would render it unacceptable for the proper performance of the Work. General Contractor shall not proceed with such part of the Work without further direction from Design-Builder. Design-Builder shall promptly correct or cause to be corrected any such discrepancy or defect in the other work. Except to the extent such discrepancies or defects in such other work are latent, General Contractor shall be liable for appropriate losses or damages incurred due to any discrepancies or defects in such other work not reported to Design-Builder by General Contractor.

2.10 Site Cleanup.

2.10.1 General Contractor shall keep the Site reasonably free from debris, trash and construction wastes to permit General Contractor to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas. Upon Substantial Completion of the Work, or a portion of the Work, General Contractor shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit Owner to occupy the Project or a portion of the Project for its intended use.

2.11 Inspection.

2.11.1 At all reasonable times, General Contractor shall provide sufficient facilities for inspection of the Work by Design-Builder at the Site and at all locations where portions of the Work are in progress or various stages of completion. When appropriate portions of the Work are ready for inspection, General Contractor shall notify Design-Builder.

2.12 Patents and Copyrights.

2.12.1 General Contractor shall pay all license fees and royalties due for items or processes applicable to the Work which are subject to copyrights or patent rights and which are selected by General Contractor.

2.13 Legal Requirements.

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2.13.1 General Contractor shall perform the Work in accordance with all applicable Legal Requirements.

2.13.2 The Contract Price and/or Contract Time(s) shall be adjusted to compensate General Contractor for the effects, if any, of any changes in the Legal Requirements enacted after the date of the Agreement affecting the performance of the Work.

2.14 Government Approvals and Permits.

2.14.1 General Contractor shall obtain and pay for the necessary permits, approvals, licenses, government charges and inspection fees required for the prosecution of the Work as set forth in Exhibit _____.

2.14.2 General Contractor shall provide reasonable assistance to Design-Builder in obtaining those permits, approvals and licenses, if any, that are the responsibility of Owner or Design-Builder.

2.15 Project Safety.

2.15.1 General Contractor recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting; (ii) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site; (iii) the work of others on the Project; and (iv) all other property at the Site or adjacent thereto. General Contractor assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work. General Contractor shall, prior to commencing construction, designate a Safety Representative with the necessary qualifications and experience to supervise the implementation and monitoring of all safety precautions and programs related to the Work. Unless otherwise required by the Contract Documents, General Contractor's Safety Representative shall be an individual stationed at the Site who may have other responsibilities on the Project in addition to safety. The Safety Representative shall make routine daily inspections of the Work and shall hold weekly safety meetings with General Contractor's personnel, Subcontractors and others as applicable.

2.15.2 General Contractor and Subcontractors shall comply with all Legal Requirements relating to safety, as well as any Owner-specific and/or Design-Builder-specific safety requirements set forth in the Contract Documents or established for the Project, provided that such Owner-specific and/or Design-Builder-specific requirements do not violate any applicable Legal Requirement. General Contractor will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to Design-Builder's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.

2.15.3 General Contractor's responsibility for safety under this Section 2.15 is not intended in any way to relieve Subcontractors or Sub-Subcontractors of their own contractual and legal obligations and responsibility for (i) complying with all Legal Requirements, including those related to health and safety matters, and (ii) taking all necessary measures to implement and monitor all safety precautions and programs to guard against injury, losses, damages or accidents resulting from their performance of the Work.

2.16 Warranty.

2.16.1 General Contractor warrants to Design-Builder that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship. If the parties have opted in the Agreement to establish a limited time frame for the warranty set forth in this Section, the warranty in this section shall be limited to the time frame set forth in the Agreement. General Contractor's warranty obligation excludes defects caused by abuse, alterations or failure to maintain the Work in a commercially

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reasonable manner. Nothing in this warranty is intended to limit any manufacturer's warranty which provides Owner and/or Design-Builder with greater warranty rights than set forth in this Section 2.16.1 or the Contract Documents. General Contractor will provide and, if requested, assign to Design-Builder all manufacturers' warranties upon Substantial Completion.

2.17 Correction of Defective Work.

2.17.1 General Contractor agrees to correct any of the Work that is found not to be in conformance with the Contract Documents, including that part of the Work subject to Section 2.16 hereof, within a period of one year from the date of Substantial Completion of the Work or any portion of the Work, or within such longer period to the extent required by any specific warranty included in the Contract Documents.

2.17.2 General Contractor shall, within seven (7) days of receipt of written notice from Design-Builder that the Work is not in conformance with the Contract Documents, take meaningful steps to commence correction of such nonconforming Work, including the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work or the Project affected by the nonconforming Work. If General Contractor fails to commence the necessary steps within such seven (7) day period, Design-Builder, in addition to any other remedies provided under the Contract Documents, may provide General Contractor with written notice that Design-Builder will commence correction of such nonconforming Work with its own forces. If Design-Builder does perform such corrective Work, General Contractor shall be responsible for all reasonable costs incurred by Design-Builder in performing such correction. If the nonconforming Work creates an emergency requiring an immediate response, the seven (7) day period identified herein shall be deemed inapplicable.

2.17.3 The one-year period referenced in Section 2.17.1 above applies only to General Contractor's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies Design-Builder may have regarding General Contractor's obligations under the Contract Documents.

Article 3

Design-Builder's Services and Responsibilities

3.1 Timely Reviews and Approvals.

3.1.1 Design-Builder shall provide timely reviews and approvals of submittals consistent with the turnaround times set forth in the Construction Schedule.

3.1.2 Design-Builder shall timely inspect the Work in accordance with the Contract Documents and so as not to jeopardize General Contractor's ability to complete its Work by the Contract Time(s).

3.2 Design-Builder's Representative.

3.2.1 Design-Builder's Representative shall be responsible for providing Design-Builder-supplied information and approvals in a timely manner to permit General Contractor to fulfill its obligations under the Contract Documents.

3.3 Furnishing of Services and Information.

3.3.1 Unless expressly stated to the contrary in the Contract Documents, and to the extent Design-Builder has received such items from Owner, Design-Builder shall provide for General Contractor's information the items listed below. Design-Builder does not warrant the accuracy or completeness of such items provided, however, that General Contractor is entitled to rely on these

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items to the same extent Design-Builder is entitled to rely upon such items in the Design-Build Agreement:

3.3.1.1 Surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;

3.3.1.2 Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;

3.3.1.3 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper construction of the Project and enable General Contractor to perform the Work;

3.3.1.4 A legal description of the Site;

3.3.1.5 Record drawings of any existing structures at the Site;

3.3.1.6 Environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, in existence at the Site;

3.3.1.7 Owner's Project Criteria;

3.3.1.8 All permits, approvals and licenses set forth in the Owner's Permit List attached as an exhibit to the Design-Build Agreement; and

3.3.1.9 Test and inspection reports.

3.3.2 Design-Builder shall provide General Contractor with a copy of the Design-Build Agreement, including all exhibits, attachments and other Contract Documents enumerated and incorporated therein.

3.3.3 Upon General Contractor's reasonable request in writing, Design-Builder shall provide General Contractor with information in Design-Builder's possession regarding Owner's financial ability to pay for the Work set forth in this Agreement.

3.3.4 Design-Builder shall provide General Contractor with the Project Schedule and appropriate updates thereto.

3.3.5 Design-Builder shall provide General Contractor with the Construction Documents for the Project.

3.3.6 Design-Builder shall obtain those permits, approvals and licenses that are not required to be provided by Owner pursuant to the Design-Build Agreement or by General Contractor pursuant to Section 2.14 hereof. Design-Builder shall provide reasonable assistance to General Contractor in obtaining those permits, approvals and licenses that are General Contractor's responsibility.

3.4 Notification of Errors.

3.4.1 Design-Builder shall notify General Contractor of any errors, inconsistencies or omissions Design-Builder discovers in the Work. Notwithstanding anything to the contrary in this Agreement, nothing in this Agreement shall relieve General Contractor of responsibility for errors, inconsistencies or omissions in the Work.

3.5 Attendance at Design Meetings.

3.5.1 Design-Builder shall afford General Contractor and its Subcontractors the opportunity to attend all necessary design meetings with Owner, Designer and/or Design Consultants.

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3.6 Review and Approval of Submittals.

3.6.1 Design-Builder shall review and approve submittals, including shop drawings, product data and samples, submitted by General Contractor. Design-Builder's review and approval of submittals shall be only for the purpose of confirming general conformance with the Construction Documents. Design-Builder's review and approval shall not relieve General Contractor of its responsibilities to perform the Work in accordance with the Construction Documents unless Design-Builder expressly approves in writing any such variance in its response to General Contractor's submittals. If revisions are necessary to a submittal prior to Design-Builder's approval, Design-Builder shall inform General Contractor of any such necessary revisions.

3.7 Design-Builder's Separate Contractors.

3.7.1 Design-Builder is responsible for all work performed on the Project or at the Site by separate contractors under Design-Builder's control. Design-Builder shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, General Contractor's ability to timely complete its Work consistent with the Contract Documents.

Article 4

Hazardous Conditions and Differing Site Conditions

4.1 Hazardous Conditions.

4.1.1 Unless otherwise expressly provided in the Contract Documents to be part of the Work, General Contractor is not responsible for any Hazardous Conditions encountered at the Site. Upon encountering any Hazardous Conditions, General Contractor will stop work immediately in the affected area and duly notify Design-Builder and, if required by Legal Requirements, all government or quasi-government entities with jurisdiction over the Project.

4.1.2 General Contractor shall be obligated to resume work at the affected area of the Project only after Design-Builder provides General Contractor with a written certification from Design-Builder's or Owner's expert that (i) the Hazardous Conditions have been removed or rendered harmless and (ii) all necessary approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project or Site. To the extent the Hazardous Condition is the responsibility of Owner, Design-Builder agrees to include General Contractor in discussions with Owner to resolve the matter. If Design-Builder and General Contractor are unable to resolve the matter with Owner, the matter will be resolved in accordance with Section 13.3 hereof.

4.1.3 General Contractor will be entitled, in accordance with the Contract Documents, to an adjustment in its Contract Price and/or Contract Time(s) to the extent General Contractor's cost and/or time of performance have been adversely impacted by the presence of Hazardous Conditions.

4.1.4 As provided in the Design-Build Agreement, Design-Builder has caused Owner, to the fullest extent permitted by law, to indemnify, defend and hold harmless General Contractor, anyone employed directly or indirectly by General Contractor, and their officers, directors, employees and agents, from and against any and all claims, losses, damages, liabilities and expenses, including reasonable attorneys' fees and expenses, arising out of or resulting from the presence, removal or remediation of Hazardous Conditions at the Site.

4.1.5 Notwithstanding the preceding provisions of this Section 4.1, General Contractor is responsible for Hazardous Conditions introduced to the Site by itself, Subcontractors, Sub-Subcontractors or anyone for whose acts they may be liable. To the fullest extent permitted by law,

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General Contractor shall indemnify, defend and hold harmless Owner, Design-Builder and their officers, directors, employees and agents from and against all claims, losses, damages, liabilities and expenses, including attorneys' fees and expenses, arising out of or resulting from those Hazardous Conditions introduced to the Site by General Contractor, Subcontractors, Sub-Subcontractors or anyone for whose acts they may be liable.

4.2 Differing Site Conditions.

4.2.1 Concealed or latent physical conditions or subsurface conditions at the Site that (i) materially differ from the conditions indicated in the Contract Documents or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the Work are collectively referred to herein as "Differing Site Conditions." If General Contractor encounters a Differing Site Condition, General Contractor will be entitled to an adjustment in the Contract Price and/or Contract Time(s) to the extent General Contractor's cost and/or time of performance are adversely impacted by the Differing Site Condition. However, to the extent the Differing Site Condition is the contractual responsibility of Owner, Design-Builder agrees to include General Contractor in its discussions with Owner to resolve the matter. If Design-Builder and General Contractor are unable to resolve the matter with Owner, the matter will be resolved in accordance with Section 13.3 hereof.

4.2.2 Upon encountering a Differing Site Condition, General Contractor shall provide prompt written notice to Design-Builder of such condition, which notice shall be provided in accordance with Contract Documents and within sufficient time to permit Design-Builder to meet its notice requirements to Owner contained in the Design-Build Agreement. General Contractor shall, to the extent reasonably possible, provide such notice before the Differing Site Condition has been substantially disturbed or altered.

Article 5

Contract Time

5.1 Date of Commencement.

5.1.1 The Work shall commence five (5) days after General Contractor's receipt of Design-Builder's Notice to Proceed ("Date of Commencement") unless the parties mutually agree otherwise in writing.

5.2 Substantial Completion and Final Completion.

5.2.1 Substantial Completion of the entire Work shall be achieved no later than _____ _____(_____) calendar days after the Date of Commencement ("Scheduled Substantial Completion Date").

5.2.2 Interim milestones and/or Substantial Completion of identified portions of the Work shall be achieved as set forth in Exhibit _____, and shall be reflected in the Construction Schedule along with the dates for completing other activities.

5.2.3 Final Completion of the Work or identified portions of the Work shall be achieved as expeditiously as reasonably practicable.

5.2.4 All of the dates set forth in this Article 5 (collectively "Contract Time(s)") shall be subject to adjustment in accordance with this Agreement.

5.3 Time is of the Essence.

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5.3.1 Design-Builder and General Contractor mutually agree that time is of the essence with respect to the dates and times set forth in the Contract Documents and the Project Schedule.

5.4 Liquidated Damages.

5.4.1 General Contractor understands that if Substantial Completion is not attained by the Scheduled Substantial Completion Date, Design-Builder will suffer damages which are difficult to specify accurately and ascertain. General Contractor agrees that if Substantial Completion is not attained by _____(_____) days after the Scheduled Substantial Completion Date (the "LD Date"), General Contractor shall pay Design-Builder _____ _____ dollars ($_____) as liquidated damages for each day that Substantial Completion extends beyond the LD Date. The liquidated damages provided herein shall be in lieu of all liability for any and all extra costs, losses, expenses, claims, penalties and any other damages, whether special or consequential, and of whatsoever nature incurred by Design-Builder which are occasioned by any delay in achieving Substantial Completion.

☐ General Contractor understands that if Final Completion is not achieved within _____ _____ days of the Substantial Completion Date, Design-Builder will suffer damages which are difficult to determine and accurately specify. General Contractor agrees that if Final Completion is not achieved within _____(_____) days of Substantial Completion, General Contractor shall pay to Design-Builder _____Dollars ($_____), as liquidated damages for each calendar day that Final Completion is delayed beyond the above-referenced number of days.

☐ General Contractor and Design-Builder agree that the maximum aggregate liability General Contractor has for any liquidated damages that may be assessed under this Agreement for failure to achieve the Contract Time(s) shall be _____Dollars ($_____).

[In lieu of the language in Section 5.4.1 above, General Contractor and Design-Builder may want to include the following language:]

☐ General Contractor and Design-Builder have agreed not to provide for liquidated damages in this Agreement for failure of General Contractor to achieve the Contract Time(s) set forth in this Article 5. General Contractor understands, however, that Design-Builder may suffer actual damages in the event the Contract Time(s) set forth herein are not timely achieved. Design-Builder shall be able to recover such actual damages from General Contractor

(i) to the extent it can demonstrate that actual damages have been incurred,
(ii) are directly related and caused by General Contractor's failure to meet the Contract Time(s) set forth herein, and
(iii) are not waived by Section 13.7 of this Agreement. Notwithstanding the foregoing, in no event shall General Contractor's liability for actual damages for delays exceed _____ Dollars ($_____).

(If liquidated damages are applicable to any dates set forth in Section 5.2.2 hereof, this Section 5.4 will need to be modified accordingly.)

5.5 Early Completion Bonus.

5.5.1 If Substantial Completion is attained on or before _____ (_____) days before the Scheduled Substantial Completion Date (the "Bonus Date"), Design-Builder shall pay General Contractor at the time of final payment under Section 7.6 hereof an early completion bonus of _____dollars ($_____) for each day that Substantial Completion is attained earlier than the Bonus Date.

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(If an early completion bonus is applicable to any dates set forth in Section 5.2.2 hereof, this Section 5.5 will need to be modified accordingly.)

☐ General Contractor and Design-Builder agree that the maximum aggregate amount that General Contractor shall receive as the early Completion Bonus is _____ Dollars ($_____).

5.6 Delays to the Work.

5.6.1 If General Contractor is delayed on the critical path in the performance of its Work due to acts, omissions, conditions, events or circumstances beyond its control and due to no fault of its own or those for whom General Contractor is responsible, the Contract Time(s) for performance shall be reasonably extended by Change Order. By way of example, events that may entitle General Contractor to an extension of the Contract Time(s) include acts or omissions of Design-Builder, Owner or anyone under Design-Builder's or Owner's control (including separate contractors), changes in the Work, Differing Site Conditions, Hazardous Conditions and Force Majeure Events.

5.6.2 In addition to General Contractor's right to a time extension for those events set forth in Section 5.6.1 above, General Contractor shall also be entitled to an appropriate adjustment of the Contract Price provided, however, that the Contract Price shall not be adjusted for Force Majeure Events unless otherwise provided in Article 18.

5.6.3 Notwithstanding any other provision to the contrary, any delay and resulting damages that arise out of, or relate to, problems caused by Owner or for which Owner is responsible shall be resolved pursuant to Section 13.3 hereof.

5.6.4 If the Project is delayed due to General Contractor or anyone for whom General Contractor is responsible, and not due to Design-Builder or Owner, in addition to its obligations to pay Design-Builder liquidated damages pursuant to Section 5.4 above, General Contractor shall, at the direction of Design-Builder and at General Contractor's own cost and expense, work such overtime and take such other measures as may be necessary to make up for all time lost in the completion of the Project due to such delay.

Article 6

Contract Price

6.1 Contract Price.

6.1.1 Design-Builder shall pay General Contractor in accordance with Article 7 hereof the sum of _____ dollars ($_____) ("Contract Price"), subject to adjustments made in accordance with the Contract Documents. Unless otherwise provided in the Contract Documents, the Contract Price is deemed to include all sales, use, consumer and other taxes mandated by applicable Legal Requirements. The parties acknowledge that the Contract Price herein is based upon General Contractor's List of Assumptions and Qualifications attached as Exhibit _____ hereto. To the extent General Contractor is required to perform work which is not consistent with its List of Assumptions and Qualifications, General Contractor shall be entitled to an adjustment in the Contract Price pursuant to Article 12 of this Agreement. Notwithstanding the above, Design-Builder is not responsible for General Contractor's bidding or estimating mistakes or miscalculation of market conditions.

6.2 Markups for Changes.

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6.2.1 If the Contract Price requires an adjustment due to changes in the Work, and the cost of such changes is determined under Sections 12.6.1.3 or 12.6.1.4 hereof, the following markups shall be allowed on such changes:

6.2.1.1 For additive Change Orders, including additive Change Orders arising from both additive and deductive items, it is agreed that General Contractor shall receive a Fee of _____ percent (_____ %) of the additional Costs of the Work incurred for that Change Order, plus any other markups set forth at Exhibit hereto.

6.2.1.2 For deductive Change Orders, including deductive Change Orders arising from both additive and deductive items, the deductive amounts shall include:

[Check one box only.]

☐ No additional reduction to account for General Contractor's Fee or any other markup.

or

☐ An amount equal to the sum of: (a)_____percent (_____ %) applied to the direct costs of the net reduction (which amount will account for a reduction associated with General Contractor's Fee); plus (b) any other markups set forth at Exhibit _____ hereto applied to the direct costs of the net reduction.

Article 7

Procedure for Payment

7.1 Schedule of Values.

7.1.1 Unless required by Design-Builder upon execution of this Agreement, within ten (10) days of execution of the Agreement, General Contractor shall submit for Design-Builder's review and approval a schedule of values for all of the Work. The Schedule of Values will (i) subdivide the Work into its respective parts; (ii) include values for all items comprising the Work; and (iii) serve as the basis for monthly progress payments made to General Contractor throughout the work.

7.2 Progress Payments.

7.2.1 Beginning with the first month after the Date of Commencement, General Contractor shall submit on the _____ (_____) day of each month for Design-Builder's review and approval, General Contractor's Application for Payment requesting payment for all Work performed as of the date of the Application for Payment. The Application for Payment shall be accompanied by all supporting documentation required by the Contract Documents and/or established at the meeting required by Section 2.1.1 hereof. Design-Builder will submit General Contractor's proper Application for Payment to Owner with Design-Builder's application.

7.2.2 The Application for Payment may request payment for equipment and materials not yet incorporated into the Project, provided that (i) Design-Builder is satisfied that the equipment and materials are suitably stored at either the Site or another acceptable location; (ii) the equipment and materials are protected by suitable insurance; and (iii) upon payment, Design-Builder will receive the equipment and materials free and clear of all liens and encumbrances.

7.2.3 The Application for Payment shall constitute General Contractor's representation that the Work has been performed consistent with the Contract Documents, has progressed to the point indicated in the Application for Payment, and that title to all Work will pass to Owner free and clear of all claims, liens, encumbrances and security interests upon the incorporation of the Work into the Project, or upon General Contractor's receipt of payment, whichever occurs earlier.

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7.2.4 Design-Builder shall make payment on General Contractor's properly submitted and accurate Application for Payment within _____days after Design-Builder's receipt of payment from Owner on account of General Contractor's monthly Application for Payment, but in each case less the total of payments previously made, and less amounts properly withheld under this Agreement.

7.2.5 All discounts offered by Subcontractors, Sub-Subcontractors and suppliers to General Contractor for early payment shall accrue one hundred percent to General Contractor to the extent General Contractor advances payment. Unless Design-Builder advances payment to General Contractor specifically to receive the discount, General Contractor may include in its Application for Payment the full undiscounted cost of the item for which payment is sought.

7.3 Retainage on Progress Payments.

7.3.1 Design-Builder will retain from each of General Contractor's Application for Payment ____ _____ percent (_____%). Unless mutually agreed otherwise between the parties, retainage will be included in Design-Builder's final payment to General Contractor, provided Design-Builder has received such retained amounts from Owner.

7.4 Withholding of Payments.

7.4.1 If Design-Builder determines that General Contractor is not entitled to all or part of an Application for Payment, it will notify General Contractor in writing at least five (5) days prior to the date payment is due. The notice shall indicate the specific amounts Design-Builder intends to withhold, the reasons and contractual basis for the withholding, and the specific measures General Contractor must take to rectify Design-Builder's concerns. Design-Builder and General Contractor will attempt to resolve Design-Builder's concerns prior to the date payment is due. If the parties cannot resolve such concerns, Design-Builder shall pay General Contractor the uncontested amount of the Application for Payment, and General Contractor may pursue its rights under the Contract Documents, including those under Article 13 hereof.

7.5 Substantial Completion.

7.5.1 General Contractor shall notify Design-Builder when it believes the Work, or to the extent permitted in the Contract Documents, a portion of the Work, is substantially complete. Within five (5) days of Design-Builder's receipt of General Contractor's notice, Owner, Design-Builder and General Contractor will jointly inspect such Work to verify that it is substantially complete in accordance with the requirements of the Contract Documents. If such Work is substantially complete, Design-Builder shall prepare and issue a Certificate of Substantial Completion that will set forth (i) the date of Substantial Completion of the Work or portion thereof; (ii) the remaining items of Work that have to be completed before final payment; (iii) provisions (to the extent not already provided in the Contract Documents) establishing Design-Builder's and General Contractor's responsibility for the Project's security, maintenance, utilities and insurance pending final payment; and (iv) an acknowledgment that warranties commence to run on the date of Substantial Completion, except as may otherwise be noted in the Certificate of Substantial Completion.

7.5.2 Within fifteen (15) days after Substantial Completion of the entire Work or, if applicable, any portion of the Work, and payment to Design-Builder from Owner, Design-Builder shall release to General Contractor all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less an amount equal to: (i) the reasonable value of all remaining or incomplete items of Work as noted in the Certificate of Substantial Completion; and (ii) all other amounts Design-Builder is entitled to withhold pursuant to Section 7.4.

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7.5.3 Design-Builder, at its option, may use a portion of the Work which has been determined to be substantially complete provided that (i) a Certificate of Substantial Completion has been issued for the portion of Work addressing the items set forth in Section 7.5.1 above; (ii) General Contractor and Design-Builder have obtained the consent of their sureties and insurers, and to the extent applicable, the appropriate government authorities having jurisdiction over the Project; and (iii) Design-Builder and General Contractor agree that Design-Builder's and/or Owner's use or occupancy will not interfere with General Contractor's completion of the remaining Work.

7.6 Final Payment.

7.6.1 General Contractor shall submit its Final Application for Payment to Design-Builder in accordance with Section 7.6.2 below. Design-Builder shall make payment on General Contractor's properly submitted and accurate Final Application for Payment within ten (10) days after Design-Builder's receipt of final payment from Owner on account of General Contractor's Final Application for Payment, provided also that General Contractor has satisfied the requirements for final payment set forth in Section 7.6.2 below.

7.6.2 At the time of submission of its Final Application for Payment, General Contractor shall provide the following information:

7.6.2.1 an affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect Design-Builder's or Owner's interests;

7.6.2.2 a general release executed by General Contractor waiving, upon receipt of final payment by General Contractor, all claims, except those claims previously made in writing to Design-Builder and remaining unsettled at the time of final payment;

7.6.2.3 consent of General Contractor's surety, if any, to final payment;

7.6.2.4 all operating manuals, warranties and other deliverables required by the Contract Documents; and

7.6.2.5 certificates of insurance confirming that required coverages will remain in effect consistent with the requirements of the Contract Documents.

7.6.3 Upon making final payment, Design-Builder waives all claims against General Contractor except claims relating to (i) General Contractor's failure to satisfy its payment obligations, if such failure affects Design-Builder's or Owner's interests; (ii) General Contractor's failure to complete the Work consistent with the Contract Documents, including defects appearing after Substantial Completion; and (iii) the terms of any special warranties required by the Contract Documents.

7.7 Pay When Paid.

7.7.1 General Contractor agrees that all payments to General Contractor hereunder, whether progress or final payment, or for changes or delays to the Work, shall not be due until after Design-Builder actually receives payment on account of same from Owner. Notwithstanding the preceding sentence, Design-Builder shall pay General Contractor within a reasonable time if it has not been paid by Owner unless Owner's failure to pay Design-Builder is caused by General Contractor's failure to perform in accordance with this Agreement.

7.8 Interest.

7.8.1 Payments due and unpaid under this Agreement shall bear interest commencing five (5) days after payment is due at the rate of _____percent (_____%) per month until paid.

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7.9 Advance Payments.

7.9.1 Design-Builder has the right, at its sole option, to advance any payment due General Contractor under this Agreement.

7.10 Payment Not Acceptance.

7.10.1 No payment to General Contractor under this Agreement shall be evidence of, or construed to be, acceptance of defective, faulty, improper or non-conforming work.

7.11 General Contractor's Payment Obligations.

7.11.1 General Contractor will pay Subcontractors, in accordance with its contractual obligations to such parties, all the amounts General Contractor has received from Design-Builder on account of their work. General Contractor will impose similar requirements on Subcontractors to pay those parties with whom they have contracted. General Contractor will indemnify and defend Owner and Design-Builder against any claims for payment and mechanic's liens as set forth in Section 11.3 hereof, providing Design-Builder is not in breach of its contractual obligations to make undisputed payment to General Contractor for its Work.

7.12 Record Keeping and Finance Controls.

7.12.1 With respect to changes in the Work performed on a cost basis by General Contractor pursuant to the Contract Documents, General Contractor shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management, using accounting and control systems in accordance with generally accepted accounting principles and as may be provided in the Contract Documents. During the performance of the Work and for a period of three (3) years after final payment of the Work, Design-Builder and Design-Builder's accountants shall be afforded access to and the right to audit from time to time, upon reasonable notice, General Contractor's records, books, correspondence, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to changes in the Work, all of which General Contractor shall preserve for a period of three (3) years after final payment. Such inspection shall take place at General Contractor's offices during normal business hours unless another location and time is agreed to by the parties. Any multipliers or markups agreed to by General Contractor and Design-Builder as part of this Agreement are only subject to audit to confirm that such multiplier or markup has been charged in accordance with this Agreement, with the composition of such multiplier or markup not being subject to audit.

Article 8

Stop Work and Termination

8.1 Design-Builder's Right to Stop Work.

8.1.1 Design-Builder may, without cause and for its convenience, order General Contractor in writing to stop and suspend the Work. Such suspension shall not exceed sixty (60) consecutive days or aggregate more than ninety (90) days during the duration of the Project.

8.1.2 General Contractor is entitled to seek an adjustment of the Contract Price and/or Contract Time(s) if its cost or time to perform the Work has been adversely impacted by any suspension or stoppage of work by Design-Builder. Notwithstanding anything to the contrary herein, if Design-Builder's suspension of the Work is the result of Owner's suspension of Design-Builder's work under the Design-Build Agreement, then Design-Builder shall pay General Contractor only those amounts Design-Builder actually receives from Owner on account of the Work.

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8.2 Design-Builder's Right to Terminate for Convenience.

8.2.1 Upon ten (10) days' written notice to General Contractor, Design-Builder may, for its convenience and without cause, elect to terminate this Agreement. In such event, Design-Builder shall pay General Contractor for the following:

8.2.1.1 All Work executed and for proven loss, cost or expense in connection with the Work;

8.2.1.2 The reasonable costs and expenses attributable to such termination, including amounts due in settlement of terminated contracts with Subcontractors; and

8.2.1.3 ***[Choose one of the following.]***

☐ The fair and reasonable sums for overhead and profit on the sum of items 8.2.1.1 and 8.2.1.2 above.

or

☐ Overhead and profit in the amount of _____percent (_____ %) on the sum of items 8.2.1.1 and 8.2.1.2 above.

8.2.2 If Design-Builder's termination of General Contractor for convenience is the result of Owner's termination of Design-Builder for convenience under the Design-Build Agreement, then Design-Builder shall pay General Contractor only those amounts Design-Builder actually receives from Owner on behalf of General Contractor.

8.3 Design-Builder's Right to Terminate for Cause.

8.3.1 If General Contractor persistently fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, its Subcontractors, (v) prosecute the Work with promptness and diligence to ensure that the Work is completed by the Contract Time(s), as such times may be adjusted, or (vi) perform material obligations under the Contract Documents, then Design-Builder shall have the rights, in addition to any other rights and remedies provided in the Contract Documents or by law, set forth in Sections 8.3.2 and 8.3.3 below.

8.3.2 Upon the occurrence of an event set forth in Section 8.3.1 above, Design-Builder may provide written notice to General Contractor that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of General Contractor's receipt of such notice. If General Contractor fails to cure, or reasonably commence to cure, such problem, then Design-Builder may give a second written notice to General Contractor of its intent to terminate within an additional seven (7) day period. If General Contractor, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Design-Builder may declare the Agreement terminated for default by providing written notice to General Contractor of such declaration.

8.3.3 Upon declaring the Agreement terminated pursuant to Section 8.3.2 above, Design-Builder may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which General Contractor hereby transfers, assigns and sets over to Design-Builder for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items. In the event of such termination, General Contractor shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, if the unpaid balance of the Contract Price exceeds the cost and expense incurred by Design-Builder in completing the Work, such excess shall be paid by Design-Builder to General Contractor. If Design-Builder's cost and expense of

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completing the Work exceeds the unpaid balance of the Contract Price, then General Contractor shall be obligated to pay the difference to Design-Builder. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expenses, including attorneys' fees and expenses, incurred by Design-Builder in connection with the reprocurement and defense of claims arising from General Contractor's default, subject to the waiver of consequential damages set forth in Section 13.7 hereof.

8.3.4 If Design-Builder improperly terminates the Agreement for cause, the termination for cause will be converted to a termination for convenience in accordance with the provisions of Section 8.2 of the Agreement.

8.4 General Contractor's Right to Stop Work.

8.4.1 If (i) Owner fails to pay undisputed amounts due to Design-Builder under the Design-Build Agreement for work performed by General Contractor, such failure is not due to the fault of General Contractor, and General Contractor has not been paid such amounts due, or (ii) Design-Builder fails to pay any amounts due to General Contractor under this Agreement, General Contractor may, in addition to any other rights afforded under the Contract Documents or at law, stop work in accordance with Section 8.4.2.

8.4.2 General Contractor shall provide Design-Builder with written notice that General Contractor will stop work unless said failure to pay the amount is not cured within seven (7) days from Design-Builder's receipt of General Contractor's notice. General Contractor shall not stop work unless it provides such written notice and the Design-Builder has failed to cure the reason for default within the seven (7) day cure period. If Design-Builder does not cure the problem within such seven (7) day period, General Contractor may stop work. In such case, General Contractor shall be entitled to make a claim for adjustment to the Contract Price and Contract Time(s) to the extent it has been adversely impacted by such stoppage. To the extent Design-Builder's failure to pay is related to a dispute between the parties, the dispute will be resolved in accordance with Article 13 and the parties will continue performance in accordance with Section 13.6.

8.5 General Contractor's Right to Terminate For Cause.

8.5.1 General Contractor, in addition to any other rights and remedies afforded under the Contract Documents or at law, may terminate the Agreement for cause for the following reasons:

8.5.1.1 The Work has been stopped for sixty-five (65) consecutive days, or more than ninety-five (95) days during the duration of the Project, because of court order, any government authority having jurisdiction over the Work, or orders by Design-Builder under Section 8.1 hereof, provided that such stoppages are not due to the acts or omissions of General Contractor or anyone for whose acts General Contractor may be responsible.

8.5.1.2 Design-Builder's failure to provide General Contractor with any information, permits or approvals that are Design-Builder's responsibility under the Contract Documents which result in the Work being stopped for sixty-five (65) consecutive days, or more than ninety-five (95) days during the duration of the Project, even though Design-Builder has not ordered General Contractor in writing to stop and suspend the Work pursuant to Section 8.1 hereof.

8.5.1.3 Design-Builder's failure to cure the problems set forth in Section 8.4.1 above within thirty (30) days after General Contractor has stopped the Work.

8.5.2 Upon the occurrence of an event set forth in Section 8.5.1 above, General Contractor may provide written notice to Design-Builder that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Design-Builder's receipt

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of such notice. If Design-Builder fails to cure, or reasonably commence to cure, such problem, then General Contractor may give a second written notice to Design-Builder of its intent to terminate within an additional seven (7) day period. If Design-Builder, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then General Contractor may declare the Agreement terminated for default by providing written notice to Design-Builder of such declaration. In such case, General Contractor shall be entitled to recover in the same manner as if Design-Builder had terminated this Agreement for its convenience under Section 8.2 of the Agreement.

8.6 Bankruptcy of Design-Builder or General Contractor.

8.6.1 If either Design-Builder or General Contractor institutes or has instituted against it a case under the United States Bankruptcy Code (such party being referred to as the "Bankrupt Party"), such event may impair or frustrate the Bankrupt Party's ability to perform its obligations under the Contract Documents. Accordingly, should such event occur.

8.6.1.1 The Bankrupt Party, its trustee or other successor, shall furnish, upon request of the non-Bankrupt Party, adequate assurance of the ability of the Bankrupt Party to perform all future material obligations under the Contract Documents, which assurances shall be provided within ten (10) days after receiving notice of the request; and

8.6.1.2 The Bankrupt Party shall file an appropriate action within the bankruptcy court to seek assumption or rejection of the Agreement within sixty (60) days of the institution of the bankruptcy filing and shall diligently prosecute such action.

If the Bankrupt Party fails to comply with its foregoing obligations, the non-Bankrupt Party shall be entitled to request the bankruptcy court to reject the Agreement, declare the Agreement terminated and pursue any other recourse available to the non-Bankrupt Party under this Article 8.

8.6.2 The rights and remedies under Section 8.6.1 above shall not be deemed to limit the ability of the non-Bankrupt Party to seek any other rights and remedies provided by the Contract Documents or by law, including its ability to seek relief from any automatic stays under the United States Bankruptcy Code.

8.7 Termination for Convenience.

8.7.1 Upon ten (10) days' written notice to General Contractor, Design-Builder may, for its convenience and without cause, elect to terminate this Agreement. In such event, Design-Builder shall pay General Contractor for the following:

8.7.1.1 All Work executed and for proven loss, cost or expense in connection with the Work.

8.7.1.2 The reasonable costs and expenses attributable to such termination, including demobilization costs and amounts due in settlement of terminated contracts with Subcontractors; and

8.7.1.3 The amount set forth in Article 6 of this Agreement.

Article 9

Representatives of the Parties

9.1 Design-Builder's Representatives.

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9.1.1 Design-Builder designates the individual listed below as its Senior Representative ("Design-Builder's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 13.4 of the Agreement: *(Identify individual's name, title, address and telephone numbers.)*

9.1.2 Design-Builder designates the individual listed below as its Design-Builder's Representative, which individual has the authority and responsibility set forth in Section 3.2 of the Agreement: *(Identify individual's name, title, address and telephone numbers.)*

9.2 General Contractor's Representatives.

9.2.1 General Contractor designates the individual listed below as its Senior Representative ("General Contractor's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 13.4 of the Agreement: *(Identify individual's name, title, address and telephone numbers.)*

9.2.2 General Contractor designates the individual listed below as its General Contractor's Representative, which individual has the authority and responsibility set forth in Section 2.1.2 of the Agreement: *(Identify individual's name, title, address and telephone numbers.)*

Article 10

Insurance and Bonds

10.1 General Contractor's Insurance Requirements.

10.1.1 General Contractor is responsible for procuring and maintaining, from insurance companies authorized to do business in the state in which the Project is located, the insurance coverages set forth in the Insurance Exhibit to this Agreement, with the minimum ratings set forth in said Exhibit for certain claims which may arise from or out of the performance of this Agreement and obligations under the Contract Documents.

10.1.2 General Contractor shall require its Subcontractors and Sub-Subcontractors to procure and maintain, from insurance companies authorized to do business in the state in which the Project is located, the insurance coverages set forth in the Insurance Exhibit.

10.1.3 General Contractor's and its Subcontractors' and Sub-Subcontractors' insurance coverage set forth in the Insurance Exhibit shall specifically delete any design-build or similar exclusions that could compromise coverages because of the design-build delivery of the Project.

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10.1.4 Prior to commencing any services hereunder, General Contractor shall provide Design-Builder with certificates evidencing that (i) all insurance obligations required by the Contract Documents are in full force and in effect and will remain in effect for the duration required by the Contract Documents and (ii) no insurance coverage will be canceled, renewal refused or materially changed unless at least thirty (30) days' prior written notice is given to Design-Builder.

10.1.5 Except as otherwise stated in the Insurance Exhibit, the insurance policies required herein shall list Design-Builder, and any other entities required by the Contract Documents, if any, as an additional insured.

10.1.6 If any of the foregoing coverages are required to remain in force after final payment, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment.

10.2 Property Insurance.

10.2.1 In accordance with the Contract Documents, Owner or Design-Builder shall procure and maintain property insurance upon the entire Project.

10.3 Waiver of Subrogation.

10.3.1 Design-Builder and General Contractor waive against each other and Owner, Subcontractors, Design Consultants, Owner's or Design-Builder's separate contractors, agents and employees of each and all of them, all damages covered by property insurance provided herein, except such rights as they may have to the proceeds of such insurance. Design-Builder and General Contractor shall, where appropriate, require similar waivers of subrogation from Design Consultants and Subcontractors and shall require each of them to include similar waivers in their contracts. These waivers of subrogation shall not contain any restriction or limitation that will impair the full and complete extent of its applicability to any person or entity unless agreed to in writing prior to the execution of this Agreement.

10.4 Bonds and Other Performance Security.

10.4.1 General Contractor shall provide the following performance bond and labor and material payment bond or other performance security: *(Indicate the amount of bonds and any other conditions of the bonds or other security.)*

Article 11

Indemnification

11.1 Patent and Copyright Infringement.

11.1.1 General Contractor shall defend any action or proceeding brought against Owner or Design-Builder based on any claim that the Work, or any part thereof, or the operation or use of the Work or any part thereof, constitutes infringement of any United States patent or copyright, now or hereafter issued. Design-Builder shall give prompt written notice to General Contractor of any such action or proceeding and will reasonably provide authority, information and assistance in the defense of same. General Contractor shall indemnify and hold harmless Owner and Design-Builder from and against all damages and costs, including but not limited to attorneys' fees and expenses awarded against Owner or Design-Builder in any such action or proceeding. General Contractor agrees to keep Design-Builder informed of all developments in the defense of such actions.

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11.1.2 If Owner is enjoined from the operation or use of the Work, or any part thereof, as the result of any patent or copyright suit, claim or proceeding, General Contractor shall at its sole expense take reasonable steps to procure the right to operate or use the Work. If General Contractor cannot so procure such right within a reasonable time, General Contractor shall promptly, at General Contractor's option and at General Contractor's expense, (i) modify the Work so as to avoid infringement of any patents or copyrights, or (ii) replace said Work with Work that does not infringe or violate any such patent or copyright.

11.1.3 Sections 11.1.1 and 11.1.2 above shall not be applicable to any suit, claim or proceeding based on infringement or violation of a patent or copyright (i) relating to a particular process or product of a particular manufacturer specified by Owner or Design-Builder or (ii) arising from modifications to the Work by Owner or Design-Builder after acceptance of the Work. If the suit, claim or proceeding is based upon events set forth in the preceding sentence, Design-Builder shall defend, indemnify and hold harmless General Contractor to the same extent General Contractor is obligated to defend, indemnify and hold harmless Design-Builder in Section 11.1.1 above.

11.1.4 The obligations set forth in this Section 11.1 shall constitute the sole agreement between the parties relating to liability for infringement or violation of any patent or copyright.

11.2 Tax Claim Indemnification.

11.2.1 If, in accordance with Design-Builder's direction, an exemption for all or part of the Work is claimed for taxes, Design-Builder shall indemnify, defend and hold harmless General Contractor from and against any liability, penalty, interest, fine, tax assessment, attorneys' fees or other expenses or costs incurred by General Contractor as a result of any action taken by General Contractor in accordance with Design-Builder's directive.

11.3 Payment Claim Indemnification.

11.3.1 Providing that Design-Builder is not in breach of its contractual obligation to make payments to General Contractor for the Work, General Contractor shall indemnify, defend and hold harmless Owner and Design-Builder from any claims or mechanic's liens brought against Owner, Design-Builder or against the Project as a result of the failure of General Contractor, or those for whose acts it is responsible, to pay for any services, materials, labor, equipment, taxes or other items or obligations furnished or incurred for, or in connection with the Work. Within three (3) days of receiving written notice from Design-Builder that such a claim or mechanic's lien has been filed, General Contractor shall commence to take the steps necessary to discharge said claim or lien, including, if necessary, the furnishing of a mechanic's lien bond. If General Contractor fails to do so, Design-Builder will have the right to discharge the claim or lien and hold General Contractor liable for costs and expenses incurred, including attorneys' fees.

11.4 General Contractor's General Indemnification.

11.4.1 General Contractor, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Owner, Design-Builder, their officers, directors, employees and agents from and against claims, losses, damages, liabilities, including attorneys, fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) to the extent resulting from the negligent acts or omissions of General Contractor, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

11.4.2 If an employee of General Contractor, anyone employed directly or indirectly by General Contractor, or anyone for whose acts any of them may be liable has a claim against any party indemnified pursuant to Section 11.4.1 above, General Contractor's indemnity obligation set forth in Section 11.4.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for General Contractor, Subcontractors, or other entity under any employee benefit acts, including workers' compensation or disability acts.

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11.5 Design-Builder's General Indemnification.

11.5.1 Design-Builder, to the fullest extent permitted by law, shall indemnify, hold harmless and defend General Contractor and its officers, directors, employees and agents from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) but only to the extent resulting from the negligent acts or omissions of Design-Builder, Design Consultant, Design-Builder's other contractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

11.5.2 If an employee of Design-Builder, anyone employed directly or indirectly by Design-Builder, or anyone for whose acts any of them may be liable has a claim against any party indemnified pursuant to Section 11.5.1 above, Design-Builder's indemnity obligation set forth in Section 11.5.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Design-Builder, Design Consultant, Design-Builders other contractors or other entity under any employee benefit acts, including workers' compensation or disability acts.

11.6 Limited Recourse.

11.6.1 None of the obligations set forth in this Agreement (on behalf of any party) constitute personal obligations of any natural persons who are the officers, shareholders, members, partners, employees or agents of any party unless the natural person is expressly identified as a contracting party. All Parties to this Agreement shall not seek recourse against any natural person described herein. This provision, however, shall not protect such natural persons from liability for willful misconduct, illegal acts or intentional violation of any duty of corporate loyalty.

Article 12

Changes to the Contract Price and Time

12.1 Owner-Generated Changes.

12.1.1 If Owner issues changes affecting the Work, General Contractor agrees, if directed by Design-Builder, to meet with Design-Builder and Owner to review and discuss the changes. General Contractor shall only be entitled to adjustments in its Contract Price and Contract Time(s) attributable to such Owner-generated changes to the extent Design-Builder actually receives such adjustments from Owner. If General Contractor disputes the adjustment, such dispute shall be resolved pursuant to Section 13.3 of this Agreement.

12.2 Design-Builder Generated Changes.

12.2.1 Changes to the Work issued by Design-Builder shall be governed by the provisions set forth in the following sections of this Article 12.

12.3 Change Orders.

12.3.1 A Change Order is a written instrument issued after execution of the Agreement signed by Design-Builder and General Contractor, stating their agreement upon all of the following:

12.3.1.1 The scope of the change in the Work;

12.3.1.2 The amount of the adjustment to the Contract Price; and

12.3.1.3 The extent of the adjustment to the Contract Time(s).

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12.3.2 All changes in the Work authorized by applicable Change Order shall be performed under the applicable conditions of the Contract Documents. Design-Builder and General Contractor shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for such changes.

12.3.3 If Design-Builder requests a proposal for a change in the Work from General Contractor and subsequently elects not to proceed with the change, a Change Order shall be issued to reimburse General Contractor for reasonable costs incurred for preparing the proposal.

12.4 Work Change Directives.

12.4.1 A Work Change Directive is a written order prepared and signed by Design-Builder directing a change in the Work prior to agreement on an adjustment in the Contract Price and/or the Contract Time(s).

12.4.2 Design-Builder and General Contractor shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for the Work Change Directive. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the agreement.

12.5 Minor Changes in the Work.

12.5.1 Minor changes in the Work do not involve an adjustment in the Contract Price and/or Contract Time(s) and do not materially and adversely affect the Work, including the design, quality, performance and workmanship required by the Contract Documents. Design-Builder may make minor changes in the Work consistent with the intent of the Contract Documents, provided, however, that Design-Builder shall promptly inform General Contractor, in writing, of any such changes.

12.6 Contract Price Adjustment.

12.6.1 The increase or decrease in Contract Price resulting from a change in the Work shall be determined by one or more of the following methods:

12.6.1.1 Unit prices set forth in the Agreement or as subsequently agreed between the parties;

12.6.1.2 A mutually accepted, lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by Design-Builder;

12.6.1.3 Costs, fees and any other markups set forth in the Agreement; and

12.6.1.4 If an increase or decrease cannot be agreed to as set forth in items 12.6.1.1 through 12.6.1.3 above and Design-Builder issues a Work Change Directive, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in this Agreement. If the net result of both additions and deletions to the Work is an increase in the Contract Price, reasonable overhead and profit shall be calculated on the basis of the net increase to the Contract Price. General Contractor shall maintain a documented, itemized accounting evidencing the expenses and savings associated with such changes.

12.6.2 If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices will cause substantial inequity to Design-Builder or General Contractor because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.

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12.6.3 If Design-Builder and General Contractor disagree upon whether General Contractor is entitled to be paid for any services required by Design-Builder, or if there are any other disagreements over the scope of Work or proposed changes to the Work, Design-Builder and General Contractor shall resolve the disagreement pursuant to Article 13 hereof. As part of the negotiation process, General Contractor shall furnish Design-Builder with a good faith estimate of the costs to perform the disputed services in accordance with Design-Builder's interpretations. If the parties are unable to agree and Design-Builder expects General Contractor to perform the services in accordance with Design-Builder's interpretations, General Contractor shall proceed to perform the disputed services, conditioned upon Design-Builder issuing a written order to General Contractor (i) directing General Contractor to proceed and (ii) specifying Design-Builder's interpretation of the services that are to be performed.

12.7 Emergencies.

12.7.1 In any emergency affecting the safety of persons and/or property, General Contractor shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price and/or Contract Time(s) on account of emergency work shall be determined as provided in this Article 12.

Article 13

Contract Adjustments and Disputes

13.1 Requests for Contract Adjustments and Relief.

13.1.1 If either General Contractor or Design-Builder believes that it is entitled to relief against the other for any event arising out of or related to the Work or the Project, such party shall provide written notice to the other party of the basis for its claim for relief. Such notice shall be in accordance with specific notice requirements contained in applicable sections of the Contract Documents and, if possible, be made prior to incurring any cost or expense. General Contractor shall provide Design-Builder written notice of claims for which Owner may be responsible in sufficient time for Design-Builder to meet its notice requirements to Owner set forth in the Contract Documents. In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed ten (10) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later. The claimant shall provide more complete information with respect to the claim within ten (10) days of the initial notice. The more complete information shall be in accordance with the Contract Documents and shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request. General Contractor shall comply with all documentation requirements set forth in the Design-Build Agreement when submitting its claim to Design-Builder.

13.2 Dispute Avoidance and Resolution.

13.2.1 The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, General Contractor and Design-Builder each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work.

13.3 Disputes Involving Owner.

13.3.1 To the extent a claim, dispute or controversy arises out of, or relates to, problems caused by Owner or for which Owner is responsible ("Owner Disputes"), such Owner Disputes shall be resolved pursuant to the dispute resolution clause set forth in the Design-Build Agreement. Both Design-Builder and General Contractor agree to cooperate in the presentation and prosecution or

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defense of Owner Disputes. If, after a request for an extension of time or additional compensation from General Contractor, Design-Builder believes that the event causing the delay or additional compensation is the responsibility of Owner, then Design-Builder will cooperate with and assist General Contractor in presenting a request for an extension of time or additional compensation to Owner. Notwithstanding the above, Design-Builder reserves the right not to submit a claim to Owner. In such cases, the claim shall be resolved pursuant to Section 13.4.

13.3.2 Notwithstanding any other provisions herein to the contrary, Design-Builder and General Contractor each agree to accept the relief as to a time extension or additional compensation obtained from Owner, if any, as well as all other aspects of the final decision following appeal or the expiration of the time for appeal, as full and final resolution of any Owner Dispute.

13.3.3 If Design-Builder asserts a claim against Owner involving General Contractor, each party shall bear its own costs for outside counsel and third-party consultants retained to prosecute claims against Owner and for any other litigation costs. Each party shall present its portion of the claim to Owner.

13.3.4 If Owner contends that the Contract Documents have been breached, or otherwise asserts a claim or set-off against Design-Builder, the party determined to be responsible for the breach either by settlement or by the trier of fact shall be responsible for all costs occasioned by the breach, including counsel and litigation costs. If the trier of fact fails to determine the relative degrees of fault of Design-Builder and General Contractor in connection with any claim by Owner, then Design-Builder and General Contractor agree that the allocation of fault shall be determined pursuant to Section 13.4.

13.4 Disputes Not Involving Owner.

13.4.1 For any claim, dispute or controversy not arising out of, or relating to, problems caused by Owner or for which Owner is responsible, General Contractor and Design-Builder will first attempt to resolve such claim, dispute or controversy at the field level through discussions between Design-Builder's Representative and General Contractor's Representative.

13.4.2 If a claim, dispute or controversy cannot be resolved through Section 13.4.1, Design-Builder's Senior Representative and General Contractor's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than thirty (30) days after such a request is made, to attempt to resolve such claim, dispute or controversy. Five (5) days prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving the claim, dispute or controversy.

13.4.3 If after meeting the Senior Representatives determine that the claim, dispute or controversy cannot be resolved on terms satisfactory to both parties, the parties shall submit within thirty (30) days of the conclusion of the meeting by the Senior Representatives the claim, dispute or controversy to non-binding mediation. The mediation shall be conducted by a mutually agreeable impartial mediator, or if the parties cannot so agree, a mediator designated by the American Arbitration Association ("AAA") pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator. Unless otherwise mutually agreed by Design-Builder and General Contractor and consistent with the mediator's schedule, the mediation shall commence within ninety (90) days of the submission of the dispute for mediation. Representatives with authority to resolve the dispute shall be present at the mediation.

13.5 Arbitration.

13.5.1 Any claims, disputes or controversies between the parties arising out of or relating to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures

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set forth in Section 13.4 above, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the AAA then in effect, unless the parties mutually agree otherwise.

13.5.2 The award of the arbitrator(s) shall be final and binding upon the parties without the right of appeal to the courts. Judgment may be entered upon it in accordance with applicable law by any court having jurisdiction thereof.

13.5.3 General Contractor and Design-Builder expressly agree that any arbitration pursuant to this Section 13.5 may be joined or consolidated with any arbitration involving any other person or entity (i) necessary to resolve the claim, dispute or controversy, or (ii) substantially involved in or affected by such claim, dispute or controversy. Both Design-Builder and General Contractor will include appropriate provisions in all contracts they execute with other parties in connection with the Project to require such joinder or consolidation.

13.5.4 The prevailing party in any arbitration, or any other final, binding dispute proceeding upon which the parties may agree, shall be entitled to recover from the other party reasonable attorneys' fees and expenses incurred by the prevailing party.

13.6 Duty to Continue Performance.

13.6.1 Unless provided to the contrary in the Contract Documents, General Contractor shall continue to perform the Work and Design-Builder shall continue to satisfy its payment obligations to General Contractor, pending the final resolution of any dispute or disagreement between Design-Builder and General Contractor.

13.7 CONSEQUENTIAL DAMAGES.

13.7.1 NOTWITHSTANDING ANYTHING HEREIN TO THE CONTRARY (EXCEPT AS SET FORTH IN SECTION 13.7.2 BELOW), NEITHER DESIGN-BUILDER NOR GENERAL CONTRACTOR SHALL BE LIABLE TO THE OTHER FOR ANY CONSEQUENTIAL LOSSES OR DAMAGES, WHETHER ARISING IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, INCLUDING BUT NOT LIMITED TO LOSSES OF USE, PROFITS, BUSINESS, REPUTATION OR FINANCING.

13.7.2 The consequential damages limitation set forth in Section 13.7.1 is not intended to affect (i) the payment of liquidated damages, if any, set forth in Article 5 of this Agreement, which both parties recognize have been established, in part, to reimburse Design-Builder for some damages that might otherwise be deemed to be consequential or (ii) any liability of General Contractor for consequential damages that may be imposed upon Design-Builder by the Design-Build Agreement.

Article 14

Miscellaneous

14.1 Assignment.

14.1.1 Neither General Contractor nor Design-Builder shall, without the written consent of the other, assign, transfer or sublet any portion or part of the Work or the obligations required by the Contract Documents.

14.2 Successorship.

14.2.1 Design-Builder and General Contractor intend that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.

14.3 Governing Law.

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14.3.1 The Agreement and all Contract Documents shall be governed by the laws of the location of the Project, without giving effect to its conflict of law principles.

14.4 Severability.

14.4.1 If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal or otherwise unenforceable pursuant to any applicable Legal Requirements or court order, such determination shall not impair or otherwise affect the validity, legality or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

14.5 No Waiver.

14.5.1 The failure of either Design-Builder or General Contractor to insist, in any one or more instances, on the performance of any of the obligations required by the other under the Contract Documents shall not be construed as a waiver or relinquishment of such obligation or right with respect to future performance.

14.6 Headings.

14.6.1 The headings used in this Agreement, or any other Contract Document, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

14.7 Notice.

14.7.1 Whenever the Contract Documents require that notice be provided to the other party, notice will be deemed to have been validly given (i) if delivered in person to the individual intended to receive such notice, (ii) four (4) days after being sent by registered or certified mail, postage prepaid to the address indicated in the Agreement, (iii) if transmitted by facsimile, by the time stated in a machine generated confirmation that notice was received at the number of the intended recipient or (iv) by electronic mail, by the time frame stated in the email-generated confirmation that notice was received by the email of the intended recipient.

14.8 Amendments.

14.8.1 The Contract Documents may not be changed, altered or amended in any way except in writing signed by a duly authorized representative of each party.

14.9 Survival.

14.9.1 General Contractor's obligations under this Agreement shall not be released and shall specifically survive the completion of all services hereunder by General Contractor, final payment to General Contractor and the termination of this Agreement for any reason.

Article 15

Electronic Data

15.1 Electronic Data.

15.1.1 The parties recognize that Contract Documents, including drawings, specifications and three-dimensional modeling (such as Building Information Models) and other Work Product may be

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transmitted among Design-Builder, General Contractor and others in electronic media as an alternative to paper hard copies (collectively "Electronic Data").

15.2 Transmission of Electronic Data.

15.2.1 Design-Builder shall determine, after consultation with General Contractor, the software and the format for the transmission of Electronic Data. Each party shall be responsible for securing the legal rights to access the agreed-upon format, including, if necessary, obtaining appropriately licensed copies of the applicable software or electronic program to display, interpret and/or generate the Electronic Data.

15.2.2 Neither party makes any representations or warranties to the other with respect to the functionality of the software or computer program associated with the electronic transmission of Work Product. Unless specifically set forth in the Agreement, ownership of the Electronic Data does not include ownership of the software or computer program with which it is associated, transmitted, generated or interpreted.

15.2.3 By transmitting Work Product in electronic form, the transmitting party does not transfer or assign its rights in the Work Product. The rights in the Electronic Data shall be as set forth in Article 17 of the Agreement. Under no circumstances shall the transfer of ownership of Electronic Data be deemed to be a sale by the transmitting party of tangible goods.

15.3 Electronic Data Protocol.

15.3.1 The parties acknowledge that Electronic Data may be altered or corrupted, intentionally or otherwise, due to occurrences beyond their reasonable control or knowledge, including but not limited to compatibility issues with user software, manipulation by the recipient, errors in transcription or transmission, machine error, environmental factors and operator error. Consequently, the parties understand that there is some level of increased risk in the use of Electronic Data for the communication of design and construction information and, in consideration of this, agree, and shall require their independent contractors, Subcontractors and Design Consultants to agree, to the following protocols, terms and conditions set forth in this Section 15.3.

15.3.2 Electronic Data will be transmitted in the format determined in Section 15.2.1 above, including file conventions and document properties, unless prior arrangements are made in advance in writing.

15.3.3 The Electronic Data represents the information at a particular point in time and is subject to change. Therefore, the parties shall agree upon protocols for notification by the author to the recipient of any changes which may thereafter be made to the Electronic Data, which protocol shall also address the duty, if any, to update such information if such information changes prior to Final Completion of the Project.

15.3.4 The transmitting party specifically disclaims all warranties, expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with respect to the media transmitting the Electronic Data. However, transmission of the Electronic Data via electronic means shall not invalidate or negate any duties pursuant to the applicable standard of care with respect to the creation of the Electronic Data, unless such data is materially changed or altered after it is transmitted to the receiving party, and the transmitting party did not participate in such change or alteration.

15.4 In the event the Design-Build Agreement contains a provision governing Electronic Data, and there is a conflict between the provision in the Design-Build Agreement and this Article 15, the provision in the Design-Build Agreement takes precedence, notwithstanding the order of precedence set forth in Section 1.4.2.

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Article 16

Confidential Information

16.1 Confidential and/or Proprietary Information.

16.1.1 Confidential Information is defined as information which is determined by the transmitting party to be of a confidential or proprietary nature and: (i) the transmitting party identifies as either confidential or proprietary; (ii) the transmitting party takes steps to maintain the confidential or proprietary nature of the information; and (iii) the document is not otherwise available in or considered to be in the public domain. The receiving party agrees to maintain the confidentiality of the Confidential Information and agrees to use the Confidential Information solely in connection with the Project and to execute any such additional agreements as may be required by Owner or Design-Builder with respect to such information.

16.1.2 In the event the Design-Build Agreement contains a provision governing Confidential Information, and there is a conflict between the provision in the Design-Build Agreement and this Article 16, the provision in the Design-Build Agreement takes precedence, notwithstanding the order of precedence set forth in Section 1.4.2.

Article 17

Work Product

17.1 Ownership of Work Product.

17.1.1 The General Contractor shall have no ownership and property rights in any drawings, specifications and other documents and electronic data ("Work Product") furnished by Design-Builder to General Contractor under this Agreement. Design-Builder shall be granted ownership of all Work Product, if any, furnished by General Contractor to Design-Builder under this Agreement.

17.2 Indemnification for Use of Work Product.

17.2.1 If consent to re-use is given by written agreement and either Design-Builder or General Contractor uses the Work Product furnished to them by the other on any other project, it agrees that it shall do so at its sole risk and without liability or legal exposure to the other party, Owner or anyone working through them. Such Party further agrees that it shall defend, indemnify and hold harmless the other Party from and against any and all claims, damages, liabilities, losses and expenses, including attorneys' fees, arising out of or resulting from such use of the Work Product on another project.

Article 18

Other Provisions

18.1 Other provisions, if any, are as follows:
(Insert any additional provisions, including those that relate to options that might have been selected by Design-Builder and Owner in the Design-Build Agreement related to Warranty Reserves, alternatives to Liquidated Damages, etc., as the parties may deem commercially appropriate.)

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[In lieu of Sections 13.5.1 through 13.5.3 of the Agreement, the parties may want to delete such sections and include the following alternative dispute resolution clause.]

☐ Any claims, disputes or controversies between the parties arising out of or related to the Agreement, or the breach thereof which have not been resolved in accordance with the procedures set forth in Section 13.4 herein shall be resolved in a court of competent jurisdiction in the state in which the Project is located.

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In executing this Agreement, Design-Builder and General Contractor each individually represents that it has the necessary financial resources to fulfill its obligations under this Agreement, and each has the necessary corporate approvals to execute this Agreement, and perform the Work described herein.

DESIGN-BUILDER:	**GENERAL CONTRACTOR:**
_____	_____
(Name of Design-Builder)	*(Name of General Contractor)*
_____	_____
(Signature)	*(Signature)*
Printed Name: _____	Printed Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

Caution: An original DBIA document has this caution printed in blue. This is a printable copy and an original assures that changes will not be obscured as may occur when documents are reproduced.

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Standard Form of Agreement Between Design-Builder and Design-Build Subcontractor – Lump Sum

Document No. 565
Third Edition, 2022

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Washington, D.C.

Design-Build Institute of America - Contract Documents

LICENSE AGREEMENT

By using the DBIA Contract Documents, you agree to and are bound by the terms of this License Agreement.

1. **License.** The Design-Build Institute of America ("DBIA") provides DBIA Contract Documents and licenses their use worldwide. You acknowledge that DBIA Contract Documents are protected by the copyright laws of the United States. You have a limited nonexclusive license to: (a) Use DBIA Contract Documents on any number of machines owned, leased or rented by your company or organization; (b) Use DBIA Contract Documents in printed form for bona fide contract purposes; and (c) Copy DBIA Contract Documents into any machine-readable or printed form for backup or modification purposes in support of your permitted use.

2. **User Responsibility.** You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results, and for the installation, use and results obtained from the DBIA Contract Documents. You acknowledge that you understand that the text of the DBIA Contract Documents has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You will not represent that any of the contract documents you generate from DBIA Contract Documents are DBIA documents unless (a) the document text is used without alteration or (b) all additions and changes to, and deletions from, the text are clearly shown.

3. **Copies.** You may not use, copy, modify or transfer DBIA Contract Documents, or any copy, modification or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification or portion merged into another document or program.

4. **Transfers.** You may not transfer possession of any copy, modification or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.

5. **Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.

6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.

7. **Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.

8. **Acknowledgment.** You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

INSTRUCTIONS

For DBIA Document No. 565, Standard Form of Agreement Between Design-Builder and Design-Build Subcontractor – Lump Sum (2022 Edition)

Checklist

Use this Checklist to ensure that the Agreement is fully completed and all exhibits are attached.

_____Page 1	Enter date of Agreement
_____Page 1	Design-Builder's name, address and form of business
_____Page 1	Design-Build Subcontractor's name, address and form of business
_____Page 1	Project name, location and general description
_____Page 1	Owner's name, address and form of business
_____Section 1.2.1.15	Identify portion of the Project which comprises the Work in an Exhibit to this Agreement
_____Section 2.12.1	Attach permit list
_____Section 4.4.1.2	Insert additional compensation the Design-Build Subcontractor is due for the use of its Work Product under the circumstances described in this section.
_____Section 6.1.1	Insert Contract Price
_____Section 6.2.1	Insert markups and note optional provisions
_____Section 7.2.1	Complete blanks for day of month
_____Section 7.3.1	Complete blanks for retainage
_____Section 7.7.1	Complete blanks for interest rate
_____Section 8.2.1.3	Choose overhead/profit method for termination for convenience and note optional provision
_____Section 9.1.1	Insert Design-Builder's Senior Representative's name, etc.
_____Section 9.1.2	Insert Design-Builder's Representative's name, etc.
_____Section 9.2.1	Insert Design-Build Subcontractor's Senior Representative's name, etc.
_____Section 9.2.2	Insert Design-Build Subcontractor's Representative's name, etc.
_____Section 10.1.1	Attach Insurance Exhibit
_____Section 10.4.1	Insert amount and conditions of bonds or other security
_____Article 17	Insert any other provisions (optional)
_____Last Page	Design-Builder's and Design-Build Subcontractor's execution of the Agreement

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General Instructions

No.	Subject	Instruction
1.	Standard Forms	Standard form contracts have long served an important function in the United States and international construction markets. The common purpose of these forms is to provide an economical and convenient way for parties to contract for design and construction services. As standard forms gain acceptance and are used with increased frequency, parties are able to enter into contracts with greater certainty as to their rights and responsibilities.
2.	DBIA Standard Form Contract Documents	Since its formation in 1993, the Design-Build Institute of America ("DBIA") has regularly evaluated the needs of owners, design-builders and other parties to the design-build process in preparation for developing its own contract forms. Consistent with DBIA's mission of promulgating best design-build practices, DBIA believes that the design-build contract should reflect a balanced approach to risk that considers the legitimate interests of all parties to the design-build process. DBIA's Standard Form Contract Documents reflect a modern risk allocation approach, allocating each risk to the party best equipped to manage and minimize that risk, with the goal of promoting best design-build practices.
3.	Use of Non-DBIA Documents	To avoid inconsistencies among documents used for the same project, DBIA's Standard Form Contract Documents should not be used in conjunction with non-DBIA documents unless the non-DBIA documents are appropriately modified on the advice of legal counsel. Moreover, care should also be taken when using different editions of the DBIA Standard Form Documents on the same project to ensure consistency.
4.	Legal Consequences	DBIA Standard Form Contract Documents are legally binding contracts with important legal consequences. Contracting parties are advised and encouraged to seek legal counsel in completing or modifying these Documents.
5.	Reproduction	DBIA hereby grants to purchasers a limited license to reproduce its Documents consistent with the License Agreement accompanying these Documents. At least two original versions of the Agreement should be signed by the parties. Any other reproduction of DBIA Documents is strictly prohibited.
6.	Modifications	Effective contracting is accomplished when the parties give specific thought to their contracting goals and then tailor the contract to meet the unique needs of the project and the design-build team. For that reason, these Documents may require modification for various purposes including, for example, to comply with local codes and laws, or to add special terms. DBIA's latest revisions to its Documents provide the parties an opportunity to customize their contractual relationship by selecting various optional contract clauses that may better reflect the unique needs and risks associated with the project. At no time should a document be re-typed in its entirety. Re-creating the document violates copyright laws and destroys one of the advantages of standard forms – familiarity with the terms.
7.	Execution	It is good practice to execute two original copies of the Agreement. Only persons authorized to sign for the contracting parties may execute the Agreement.

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Specific Instructions

Section	Title	Instruction
General	Purpose of This Agreement	DBIA Document No. 565, *Standard Form of Agreement Between Design-Builder and Design-Build Subcontractor – Lump Sum*, 2022 Edition ("Agreement") sets forth the terms and conditions under which the design and construction of a specified portion of the Project will be performed, and should be used only when the parties intend that Design-Builder pay Design-Build Subcontractor a lump sum fixed price for the completion of the Work. Document 565 is appropriate where there is certainty as to Owner's Project Criteria, or if the Construction Documents are final. If there is uncertainty about Owner's Project Criteria, or it remains to be developed jointly, a cost plus fee/guaranteed maximum price ("GMP") contracting approach may be more suitable. In such case, the parties should use DBIA Document No. 560, *Standard Form of Agreement Between Design-Builder and Design-Build Subcontractor – Cost Plus Fee with an Option for a Guaranteed Maximum Price*, 2022 Edition.
General	Purpose of These Instructions	These Instructions are not part of this Agreement, but are provided to aid the parties in their understanding of the Agreement and in completing the Agreement.
General	Date	On Page 1, enter the date when both parties reach a final understanding. It is possible, due to logistical reasons, that the dates when the parties execute the Agreement may be different. Once both parties execute the Agreement, the effective date of the Agreement will be the date recorded on Page 1. This date does not, however, determine the Date of Commencement, which is measured according to the terms of Article 5.
General	Parties: Design-Builder and Design-Build Subcontractor	On Page 1, enter the legal name and full address of Design-Builder, Design-Build Subcontractor and Owner, as well as the legal form of each entity, e.g., corporation, partnership, limited partnership, limited liability company or other.
1.1.1	Pass Through	The section recognizes that Design-Build Subcontractor has the same rights, responsibilities and obligations as to Design-Builder as Design-Builder by the Design-Build Agreement has against and to Owner. However, because the Design-Build Agreement also affords Design-Builder and Owner many opportunities to customize their contractual relationship by the selection of optional provisions, DBIA does not believe that these optional provisions should automatically pass through to Design-Build Subcontractor. Accordingly, if Design-Builder and Design-Build Subcontractor believe it is appropriate to afford Design-Build Subcontractor the same rights, responsibilities and obligations as it relates to these optional provisions, the parties should make that clear by adding the necessary and appropriate provisions at Article 17 of this Agreement.
1.2	Definitions	Except to the extent set forth in Section 1.2 of this Agreement, terms, words and phrases used in the Agreement shall have the same meanings used in the Design-Build Agreement between Owner and Design-Builder (either DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum* (2022 Edition), or DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2022 Edition), and including DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2022 Edition).
1.2.1.15	Definition of the Work	The parties must identify the specific portion of the Project which Design-Build Subcontractor is responsible for designing and constructing.

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Section	Title	Instruction
1.3.1	Contract Documents	This section identifies the Contract Documents.
1.4.2	Order of Precedence	The Contract Documents are listed in Section 1.3.1 in the order of their precedence.
1.4.3	Design Specifications	If the Owner has provided design specifications to Design-Builder, Design-Build Subcontractor is entitled to rely on the information provided to the same extent as Design-Builder. If said information is not accurate, Design-Build Subcontractor may be entitled to an adjustment of costs and/or time to the extent Design-Builder recovers from Owner.
1.5.2	Mutual Obligations and Acknowledgments	This Agreement contemplates that Design-Builder and Design-Build Subcontractor have cooperated in the procurement of the Design-Build Agreement and that Design-Build Subcontractor has familiarized itself with the Design-Build Agreement, including the Basis of Design Documents.
2.3.1	Design Professional Services	The parties should be aware that in addition to requiring compliance with state licensing laws for design professionals, some states also require that the design professional have a corporate professional license.
2.3.3	Standard of Care for Design Professional Services	Design-Build Subcontractor's obligation is to deliver a design that meets prevailing industry standards. However, DBIA has provided the parties at Article 17 an optional provision whereby Owner can identify specific performance standards that can be objectively measured. If this optional provision is selected, Design-Build Subcontractor is obligated to design the Work to satisfy these standards. To avoid any confusion and to ensure that the parties fully understand what their obligations are, the specific performance standards should be clearly identified and should be able to be objectively measured. Design-Build Subcontractor should recognize that this is a heightened standard of care that has insurance ramifications that should be discussed with Design-Build Subcontractor's insurance advisor.
2.3.5	Design Development Services	In accordance with the Project Schedule, the parties will hold design monitoring meetings during the development of the Construction Documents for the work so that the final design shall be consistent with the requirements of the Contract Documents.
2.3.7	Deviations from the Basis of Design Documents	If Design-Build Subcontractor fails to identify changes to the Contract Documents, including the Basis of Design Documents, or fails to produce Construction Documents consistent with approved changes, Design-Build Subcontractor is responsible for any additional costs incurred by Design-Builder.
2.10	Patents and Copyrights	Design-Build Subcontractor shall pay all license fees and royalties for items or processes it selects which are subject to copyrights or patent rights.
2.12.1	Government Approvals and Permits	Design-Build Subcontractor is responsible for obtaining the specific permits, approvals and licenses set forth in an exhibit to the Agreement.
3.3.1	Furnishing of Information	Design-Builder shall furnish Design-Build Subcontractor with the listed Owner-provided information. Design-Build Subcontractor is entitled to rely on the Owner-provided information to the same extent Design-Builder is entitled to pursuant to the Design-Build Agreement.
4.1.1	Work Product	This Agreement provides that Design-Build Subcontractor shall retain ownership of the Work Product Design-Build Subcontractor produces, but obligates Design-Build Subcontractor to grant a limited license to Design-Builder to use the Work Product in connection with completing the Project. However, if the Design-Build Agreement conflicts with the above, then Design-Build Subcontractor grants Design-Builder the same rights that Design-Builder has provided Owner.

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Section	Title	Instruction
4.2.1	Agreement to Grant Rights to Owner	Design-Build Subcontractor has reviewed the Design-Build Agreement and understands that it is required to grant Owner the rights to the Work Product according to the terms and circumstances described in the Design-Build Agreement.
4.3.1	Indemnification for Use of Work Product	If either Design-Builder or Design-Build Subcontractor uses the Work Product on any other project that party shall defend, indemnify and hold harmless the other party and Owner.
4.4.1	Design-Builder's Use of Work Product Upon Termination for Convenience or Design-Builder's Default	If Design-Builder terminates this Agreement for convenience or if Design-Build Subcontractor terminates this Agreement due to Design-Builder's default, Design-Build Subcontractor grants Design-Builder and Owner the right to use the Work Product as set forth in Section 4.1.1. The granting of these rights is conditioned on (i) paying Design-Build Subcontractor all amounts due under the Agreement, including paying Design-Build Subcontractor an additional sum (to be negotiated) under Section 4.4.1.2 for the use of the Work Product; and (ii) Design-Builder using the Work Product at its sole risk.
4.4.2	Design-Builder's Use of Work Product Upon Design-Build Subcontractor's Default	If Design-Build Subcontractor is properly terminated for default, Design-Builder shall have the same rights to use the Work Product as set forth in Section 4.1.1.
5.1	Date of Commencement	Design-Build Subcontractor's obligation to commence work is triggered by its receipt of a Notice to Proceed unless the parties mutually agree otherwise.
5.4.2	Compensation for Delay Events	Design-Build Subcontractor is entitled to a time extension and compensation for those events set forth in Section 5.4.1 except Design-Build Subcontractor is not entitled to compensation for Force Majeure events unless compensation for Force Majeure is expressly provided in Article 17 of this Agreement.
6.1	Contract Price	Enter the amount of the Contract Price as a lump sum fee.
6.2.1	Markups for Changes	For additive Change Orders, the parties have to negotiate the Fee Design-Build Subcontractor will receive. For deductive Change Orders, the parties have the option by checking the appropriate box of whether there will be no additional reduction or whether there will be an additional reduction based on a negotiated percentage.
7.2.1	Progress Payments	Enter the day of the month when Design-Build Subcontractor shall submit its Application for Payment.
7.3.1	Retainage on Progress Payments	Insert percent Design-Builder will retain from Progress Payments to Design-Build Subcontractor.
7.7.1	Interest	The parties should enter the rate at which interest will accrue on Design-Build Subcontractor's payments if unpaid five (5) days after due. Late payment creates a hardship for Design-Build Subcontractor and its Design Consultants and Subcontractors.
7.11.1	Record Keeping	Design-Builder is provided access to, and has the right to audit Design-Build Subcontractor's records with respect to changes in the Work. However, if the parties have agreed to multipliers or markups, the time to challenge and negotiate those percentages is at the time the parties execute the Agreement and not during the Project or after it has been completed. Accordingly, Design-Builder can at any time audit these percentages only to confirm that such percentage has been properly charged and not to challenge the composition of such percentage.

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Section	Title	Instruction
8.2.1.3	Termination for Convenience: Overhead and Profit	The parties should choose prior to execution of the Agreement the method that will be used to determine overhead and profit paid to Design-Build Subcontractor in the event Design-Builder terminates Design-Build Subcontractor for its convenience. The parties may choose to set percentage rates for overhead and profit prior to execution of the Agreement, or may choose to determine reasonable sums to be paid for overhead and profit at the time of the termination. If the parties choose to set overhead and profit rates prior to execution of the Agreement, the percentages should be entered in Section 8.2.1.3.
8.2.2	Termination for Convenience	If Design-Builder terminates Design-Build Subcontractor for convenience because Owner has terminated Design-Builder for its convenience, Design-Build Subcontractor is only entitled to receive such amount as Design-Builder receives from Owner on behalf of Design-Build Subcontractor.
8.5	Design-Build Subcontractor's Right to Terminate for Cause	If Design-Build Subcontractor properly terminates the Agreement for cause, it shall recover from Design-Builder in the same way as if Design-Builder had terminated the Agreement for convenience under Section 8.2 of the Agreement.
Article 9	Representatives of the Parties	Enter the name, title, address and telephone number of Design-Builder's Senior Representative and Design-Builder's Representative at Sections 9.1.1 and 9.1.2, respectively. Enter the name, title, address and telephone number of Design-Build Subcontractor's Senior Representative and Design-Build Subcontractor's Representative at Sections 9.2.1 and 9.2.2, respectively.
10.1.1	Design-Build Subcontractor's Insurance Requirements	Attach an Insurance Exhibit setting forth in detail the insurance coverages Design-Build Subcontractor is required to provide for the Project. Parties are advised to consult their insurance advisors.
10.1.2	Design Consultant's and Subcontractor's Insurance Requirements	Design-Build Subcontractor is obligated to require its Design Consultants and Sub-Subcontractors to provide the insurance coverage set forth in the Insurance Exhibit to the Agreement. Parties are advised to consult their insurance advisors.
10.1.3	Exclusions to Design-Build	Parties are advised that standard liability insurance policies may contain exclusions for the design-build delivery method. This Section 10.1.3 requires that any such exclusions be deleted from the policy.
10.1.4	Errors and Omissions Insurance	Should Design-Builder, after its analysis of the risk factors involved, require this insurance, the coverage required shall be as set forth in the Insurance Exhibit attached at Section 10.1.1 of the Agreement.
10.4.1	Bonds and Other Performance Security	Enter the type and amount of bonds or other performance security required for the Project. Where bonding is not required by statute, Design-Builder may want to evaluate the project risk versus the bonding costs in deciding what type of performance security to require.
13.3	Disputes Involving Owner	Disputes for which Owner is responsible will be resolved in accordance with the dispute resolution clause in the Design-Build Agreement.
13.4	Disputes Not Involving Owner	DBIA endorses the use of partnering, negotiation, mediation and arbitration for the prevention and resolution of disputes. The Agreement provides for the parties' Representatives and Senior Representatives to attempt to negotiate the dispute or disagreement. If this attempt fails, the dispute shall be submitted to mandatory, non-binding mediation. Any dispute that cannot be resolved by mediation shall then be submitted to binding arbitration pursuant to Section 13.5 unless the parties elect the option in Article 17 of the Agreement to submit their dispute to a court of competent jurisdiction.

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Section	Title	Instruction
13.5	Arbitration	The prevailing party in any arbitration shall receive reasonable attorneys' fees from the other party. DBIA supports this "loser pays" provision to encourage parties to negotiate or mediate their differences and to minimize the number of frivolous disputes.
13.6	Duty to Continue Performance	Pending the resolution of any dispute or disagreement, both Design-Builder and Design-Build Subcontractor shall continue to perform their respective duties under the Contract Documents, unless the parties provide otherwise in the Contract Documents.
13.7	Consequential Damages	DBIA believes that it is inappropriate for either Design-Builder or Design-Build Subcontractor to be responsible to the other for consequential damages arising from the Project. This limitation on consequential damages in no way restricts, however, Design-Builder's entitlement to recover against Design-Build Subcontractor liquidated damages assessed by Owner against Design-Builder which are attributable to Design-Build Subcontractor and which may include damages that might otherwise be deemed consequential.
Article 15	Electronic Data	Design-Builder will determine, after consultation with Design-Build Subcontractor, the software and format for the transmission of Electronic Data. Ownership of Work Product in electronic form is governed by Article 4 of the Agreement. The transmitting party disclaims all warranties with respect to the media transmitting the Electronic Data, but nothing in this Article is intended to negate duties with respect to the standard of care in creating the Electronic Data. In the event the Design-Build Agreement contains a conflicting provision governing Electronic Data, the provision in the Design-Build Agreement takes precedence.
Article 17	Other Provisions	Insert any other provisions. For example, the parties may elect to have disputes resolved through litigation rather than arbitration in which case the optional language in this Section should be included.

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Standard Form of Agreement Between Design-Builder and Design-Build Subcontractor – Lump Sum

This document has important legal consequences. Consultation with an attorney is recommended with respect to its completion or modification.

This **AGREEMENT** is made as of the _____ day of _____ in the year of 20_____, by and between the following parties, for services in connection with the Project identified below:

DESIGN-BUILDER:
(Name and address)

DESIGN-BUILD SUBCONTRACTOR:
(Name and address)

PROJECT:
(Include Project name and location as it will appear in the Contract Documents)

OWNER:
(Name and address)

In consideration of the mutual covenants and obligations contained herein, Design-Builder and Design-Build Subcontractor agree as set forth herein.

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Article 1

General

1.1 Basic Purpose.

1.1.1 Design-Builder has contracted with Owner to provide the services necessary for the design and construction of the Project as set forth in the Design-Build Agreement. Design-Build Subcontractor, through itself, Design Consultants and Sub-Subcontractors, agrees to provide all design, construction and other aspects of the Work consistent with the Contract Documents. Design-Builder and Design-Build Subcontractor agree that to the extent applicable to the performance of the Work hereunder, Design-Build Subcontractor shall have the same rights, responsibilities and obligations as to Design-Builder as Design-Builder by the Design-Build Agreement has against and to Owner, except as may be modified herein. Notwithstanding the foregoing, if Design-Builder and Owner have checked boxes indicating the selection of optional provisions from the Design-Build Agreement, those optional provisions are only passed through to Design-Build Subcontractor to the extent these provisions have been expressly set forth in Article 17.

1.2 Basic Definitions.

1.2.1 Terms used in this Agreement shall have the meanings set forth in the Design-Build Agreement between Owner and Design-Builder unless otherwise provided herein, with the following specific terms defined as follows:

1.2.1.1 *Agreement* refers to this executed contract between Design-Builder and Design-Build Subcontractor under DBIA Document 565, *Standard Form of Agreement Between Design-Builder and Design-Build Subcontractor – Lump Sum* (2022 Edition).

1.2.1.2 *Basis of Design Documents* are as follows: For DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee With an Option for a Guaranteed Maximum Price*, the Basis of Design Documents are those documents specifically listed in, as applicable, the GMP Exhibit or GMP Proposal as being the "Basis of Design Documents." For DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum*, the Basis of Design Documents include the Owner's Project Criteria, and may include Design-Builder's Proposal and the Deviation List, if any.

1.2.1.3 *Construction Documents* are the documents consisting of Drawings and Specifications, prepared or assembled consistent with the Basis of Design Documents unless a deviation from the Basis of Design Documents is specifically set forth in a Change Order.

1.2.1.4 *Day or Days* shall mean calendar days unless otherwise specifically noted in the Contract Documents.

1.2.1.5 *Design-Build Agreement* refers to the contract between Design-Builder and Owner for the design and construction of the Project under either DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum* (2022 Edition), or DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2022 Edition), including the DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2022 Edition), and all exhibits, attachments, and other Contract Documents enumerated and incorporated therein.

1.2.1.6 *Design Consultant* is a qualified, licensed design professional who is not an employee of Design-Build Subcontractor, but is retained by Design-Build Subcontractor, to furnish design services required under the Contract Documents. A Design Sub-Consultant is a qualified, licensed design professional who is not an employee of the Design Consultant, but is retained by the Design Consultant or employed or retained by anyone

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under contract to Design Consultant, to furnish design services required under the Contract Documents.

1.2.1.7 *Force Majeure Events* are those events that are beyond the control of the Design-Build Subcontractor, Design-Builder and Owner, including the events of wars, floods, labor disputes, earthquakes, epidemics, adverse weather conditions not reasonably anticipated and other acts of God.

1.2.1.8 *Hazardous Conditions* are any materials, wastes, substances and chemicals deemed to be hazardous under applicable Legal Requirements, or the handling, storage, remediation or disposal of which are regulated by applicable Legal Requirements.

1.2.1.9 *Legal Requirements* are all applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the parties, the Project or Site, the practices involved in the Project or Site, or any Work.

1.2.1.10 *Owner's Project Criteria* are developed by or for Owner to describe Owner's program requirements and objectives for the Project, including use, space, price, time, site and expandability requirements, as well as submittal requirements and other requirements governing Design-Builder's performance of the Work. Owner's Project Criteria may include conceptual documents, design criteria, design performance specifications, design specifications, and LEED® or other sustainable design criteria and other Project-specific technical materials and requirements.

1.2.1.11 *Project Schedule* refers to the schedule setting forth the dates by which the various stages of both the design and construction of the Project must be performed so as to satisfy Design-Builder's obligations to Owner.

1.2.1.12 *Site* is the land or premises on which the Project is located.

1.2.1.13 *Sub-Subcontractor* is any person or entity retained by Design-Build Subcontractor as an independent contractor to perform a portion of the construction aspects of Design-Build Subcontractor's Work and shall include materialmen and suppliers.

1.2.1.14 *Substantial Completion* or *Substantially Complete* is the date on which the Project, or an agreed upon portion of the Project, is sufficiently complete so that Owner can occupy and use the Project or a portion thereof for its intended purposes.

1.2.1.15 *Work* is comprised of all Design-Build Subcontractor's design, construction and other services required by the Contract Documents, including procuring and furnishing all supervision, labor, inspection, testing, start-up, materials, tools, equipment, machinery, transportation, temporary utilities, temporary facilities and all other items and services reasonably inferable from this Agreement and the other Contract Documents necessary to complete the portion of the Project described in Exhibit _____. *(Identify with specificity that portion of the Project which Design-Build Subcontractor is responsible for designing and constructing.)*

1.3 Contract Documents.

1.3.1 The Contract Documents are comprised of the following:

1.3.1.1 All written modifications, amendments, minor changes and change orders to this Agreement;

1.3.1.2 The Basis of Design Documents;

1.3.1.3 This Agreement, including all exhibits and attachments, executed by Design-Builder and Design-Build Subcontractor;

1.3.1.4 The Construction Documents; and

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1.3.1.5 The Design-Build Agreement (excluding the Basis of Design Documents), but only to the extent the Design-Build Agreement relates to the Work and the terms and conditions under which the Work shall be performed.

1.4 Interpretation and Intent.

1.4.1 Design-Builder and Design-Build Subcontractor, prior to execution of the Agreement, shall carefully review all the Contract Documents, including the various documents comprising the Basis of Design Documents, for any conflicts or ambiguities. Design-Builder and Design-Build Subcontractor will discuss and resolve any identified conflicts or ambiguities prior to execution of the Agreement.

1.4.2 The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted consistent with construction and design industry standards. In the event inconsistencies, conflicts or ambiguities between or among the Contract Documents are discovered after execution of the Agreement, Design-Builder and Design-Build Subcontractor shall attempt to resolve such ambiguities, conflicts or inconsistencies informally, recognizing that the Contract Documents shall take precedence in the order in which they are listed in Section 1.3 hereof.

1.4.3 If Owner's Project Criteria contain design specifications, Design-Build Subcontractor shall be entitled to reasonably rely on the accuracy of the information represented in the design specifications and its compatibility with other information set forth in Owner's Project Criteria, including any performance specifications, to the same extent as Design-Builder is entitled to so rely in the Design-Build Agreement. If Design-Build Subcontractor contends that its costs and/or time of performance have been adversely impacted by such inaccurate design specifications, then it shall proceed in accordance with Article 13.3.

1.5 Mutual Obligations and Acknowledgments.

1.5.1 Design-Builder and Design-Build Subcontractor commit at all times to cooperate fully with each other, and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents. Design-Builder and Design-Build Subcontractor shall perform their respective responsibilities, obligations and services in a timely manner to facilitate the other's timely and efficient performance and so as not to delay or interfere with the other's performance of its obligations under the Contract Documents.

1.5.2 Design-Builder and Design-Build Subcontractor acknowledge that they have cooperated with each other in the procurement of the Design-Build Agreement and that Design-Builder and Design-Build Subcontractor have met to review, discuss, and familiarize themselves with the Design-Build Agreement, including the Basis of Design Documents.

1.5.3 Design-Builder and Design-Build Subcontractor acknowledge that the design services performed by Design-Build Subcontractor hereunder relate to a part of the overall design of the Project and the importance of having Design-Build Subcontractor's design integrated into the Project's overall design concept. The parties commit to working with each other, and with Design-Builder's Design Consultant, to facilitate the coordination and integration of Design-Build Subcontractor's design services and Work Product with the overall design concept and Construction Documents. Design-Builder is responsible for the services performed by the Design Consultant, or other Subcontractors or Design-Build Subcontractors of Design-Builder, but nothing herein is intended to relieve Design-Build Subcontractor of its obligations to coordinate its Work with the services performed by the Design Consultant, other Subcontractor, or Design-Build Subcontractors.

1.6 Entire Agreement.

1.6.1 Subject to the limitation in Section 1.3.1.5, the Contract Documents, all of which are incorporated by reference into this Agreement, form the entire agreement between Design-Builder and Design-Build Subcontractor and are as fully binding on the parties as if repeated herein. No oral representations or other agreements have been made by the parties except as specifically stated in the Contract Documents.

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Article 2

Design-Build Subcontractor's Services and Responsibilities

2.1 General.

2.1.1 Within seven (7) days after execution of this Agreement, Design-Builder and Design-Build Subcontractor will meet to discuss issues affecting the administration and schedule of the Work, and implement the necessary procedures, including but not limited to those relating to design submissions, schedule updates, submittals, and payment, to facilitate the ability of the parties to perform their obligations under this Agreement.

2.1.2 Design-Build Subcontractor's Representative shall be reasonably available to Design-Builder and shall have the necessary expertise and experience required to supervise the Work. Design-Build Subcontractor's Representative shall communicate regularly with Design-Builder and shall be vested with the authority to act on behalf of Design-Build Subcontractor. Design-Build Subcontractor shall replace its Representative upon the reasonable request of Design-Builder.

2.1.3 Design-Build Subcontractor shall only communicate with Owner, Design-Builder's Design Consultant or separate contractors of Design-Builder or Owner through Design-Builder.

2.2 Review of Site and Contract Documents.

2.2.1 Design-Build Subcontractor represents that it has examined the Site and the Contract Documents prior to executing this Agreement so as to reasonably ascertain the nature of the Work and the various conditions affecting the Work.

2.2.2 Design-Build Subcontractor shall promptly report to Design-Builder any errors, inconsistencies, omissions or violations of Legal Requirements that Design-Build Subcontractor discovers. Design-Build Subcontractor shall be liable to Design-Builder for any damages resulting from any such errors, inconsistencies, omissions or violations of Legal Requirements which Design-Build Subcontractor discovers and fails to report to Design-Builder.

2.3 Design and Pre-Construction Services.

2.3.1 Design-Build Subcontractor shall, consistent with applicable state licensing laws, provide the architectural, engineering and other design professional services required to perform the Work. Design-Build Subcontractor agrees that such services shall be provided through qualified, licensed design professionals who are either (i) employed by Design-Build Subcontractor or (ii) procured by Design-Build Subcontractor from qualified, licensed Design Consultants.

2.3.2 Design-Build Subcontractor shall not engage the services of any Design Consultant without first obtaining the approval of Design-Builder, which approval shall not be unreasonably withheld. Design-Build Subcontractor agrees that each Design Consultant shall be fully bound to Design-Build Subcontractor in the same manner as Design-Build Subcontractor is bound to Design-Builder for all the requirements of the Contract Documents which are applicable to the Design Consultant's scope of services. Design-Build Subcontractor shall at all times be responsible for the services performed by its Design Consultants, and shall coordinate the services of its Design Consultants to satisfy Design-Build Subcontractor's obligations under the Contract Documents. Nothing in this Agreement shall relieve Design-Build Subcontractor from responsibility for the services performed by its Design Consultants, or create any legal or contractual relationship between Design-Builder and any Design Consultant.

2.3.3 The standard of care for all design professional services performed by Design-Build Subcontractor and its Design Consultants pursuant to this Agreement shall be the care and skill ordinarily used by members of the applicable profession practicing under similar conditions at the same time and locality of the Project.

2.3.4 Design-Build Subcontractor shall assist Design-Builder regarding the selection of building systems, materials and equipment, as well as cost, schedule and construction feasibility assistance for the Work. Such assistance shall include providing advice relative to, among other things, labor availability, construction costs, procurement strategies (including scheduling the procurement of

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items with long-lead times) related to the requirements set forth in the Contract Documents for the Work.

2.3.5 In accordance with the times set forth in the Project Schedule, Design-Build Subcontractor shall submit to Design-Builder all interim design submissions and revisions for the Work as required by the Contract Documents. Interim design submissions shall be consistent with Owner's Project Criteria as well as the Basis of Design Documents as the Basis of Design Documents may have been modified or supplemented in accordance with the Contract Documents. Such interim design submissions shall be in the form and quantity called for in the Contract Documents and may include design criteria, drawings, diagrams and specifications setting forth the Project requirements. The submissions shall also show the relationship of the Work to the overall Project design. Design-Builder and Design-Build Subcontractor agree that prior to the scheduled date for submitting all design submissions to Owner, Design-Builder, Design-Build Subcontractor and Design-Build Subcontractor's Design Consultant will hold meetings for the purpose of discussing and monitoring the design for consistency with the requirements of the Contract Documents.

2.3.6 In accordance with the Contract Documents and with the times set forth in the Project Schedule, Design-Build Subcontractor shall submit to Design-Builder Construction Documents setting forth in detail drawings and specifications describing the requirements for construction of the Work and showing the relationship of the Work to the overall Project. The Construction Documents shall be consistent with the latest set of interim design submissions, as such submissions may have been modified in a design review meeting. Design-Build Subcontractor shall provide the Construction Documents in the form and quantity called for in the Contract Documents. Design-Build Subcontractor shall perform agreed upon revisions and submit revised Construction Documents to Design-Builder for Design-Builder's and Owner's approval.

2.3.7 Design-Build Subcontractor shall attend and participate in such meetings as are held between and among Owner, Design-Builder and Design-Builder's Design Consultant to discuss interim design submissions and the Construction Documents for the Work. Design-Build Subcontractor shall identify during each such meeting, among other things, the evolution of the design and any changes or deviations from the Contract Documents, including the Basis of Design Documents, or, if applicable, previously submitted design submissions. To the extent that Design-Build Subcontractor fails to identify such changes or fails to produce Construction Documents for the Work consistent with the Basis of Design Documents and identified and approved changes and Design-Builder incurs additional uncompensated costs as a result, Design-Build Subcontractor shall be responsible for such costs. Minutes of the meetings, including a full listing of all changes, will be maintained by Design-Builder and provided to all attendees for review. Design-Build Subcontractor shall review such minutes and provide notice of any objections thereto. The Construction Documents for the Work shall be consistent with the latest set of interim design submissions as such submissions may have been modified in a design review meeting and recorded in the meeting minutes.

2.3.8 In addition to the interim design submissions and Construction Documents, if requested by Design-Builder, Design-Build Subcontractor shall prepare (i) those design documents and pricing information for the Work that may be necessary for the establishment of a GMP Exhibit or GMP Proposal and (ii) interim design submissions and Construction Documents for the Work required to permit commencement of construction on a portion of the Project before the entire Construction Documents for the Project are completed.

2.3.9 Design-Builder's and Owner's review and/or approval of interim design submissions and the Construction Documents are for the purpose of mutually establishing a conformed set of Construction Documents for the Work compatible with the requirements of the Contract Documents. The review and/or approval by either Design-Builder or Owner of any interim design submission or the Construction Documents shall not be deemed to transfer any design liability from Design-Build Subcontractor to Design-Builder or Owner.

2.3.10 Design-Build Subcontractor will, at its own cost, revise any interim design submission or Construction Document it has provided to correct any errors, mistakes or omissions. Such revisions shall be performed timely and so as not to jeopardize the Project Schedule.

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2.4 Construction Services Generally.

2.4.1 Design-Build Subcontractor shall perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents and the Project Schedule.

2.4.2 At the request of Design-Builder, Design-Build Subcontractor shall attend meetings with Design-Builder, Owner and/or separate design professionals or contractors of Design-Builder or Owner to discuss design and/or construction issues which may arise during the Project.

2.5 Submittals and Substitutions.

2.5.1 In accordance with the Contract Documents and the Project Schedule, Design-Build Subcontractor shall submit for Design-Builder's review and approval submittals, including shop drawings, product data and samples. Design-Builder shall advise Design-Build Subcontractor on or before the meeting required by Section 2.1.1 hereof of the submittal requirements for the Project. Any variances with the Construction Documents shall be specifically identified in Design-Build Subcontractor's submittals. Design-Builder's review and approval shall not relieve Design-Build Subcontractor of its responsibilities to perform the Work in accordance with the Construction Documents unless Design-Builder expressly approves in writing any such variance in its response to Design-Build Subcontractor's submittals. Design-Build Subcontractor shall make any necessary revisions to the submittals requested by Design-Builder.

2.5.2 Design-Build Subcontractor shall not make any substitutions in the Work or procedures or methods specified by Owner, Design-Builder or the Construction Documents for performing the Work unless it first receives written approval for such substitution from Design-Builder.

2.6 Sub-Subcontractors.

2.6.1 Design-Build Subcontractor shall employ only Sub-Subcontractors who are duly licensed and qualified to perform the Work consistent with the Contract Documents. Design-Build Subcontractor agrees that each Sub-Subcontractor shall be fully bound to Design-Build Subcontractor in the same manner as Design-Build Subcontractor is bound to Design-Builder for all the requirements of the Contract Documents to the extent applicable to the Sub-Subcontractor's scope of work.

2.6.2 Design-Build Subcontractor assumes responsibility to Design-Builder for the proper performance of the Work of Sub-Subcontractors and any acts and omissions in connection with such performance. Design-Build Subcontractor shall coordinate the activities of all Sub-Subcontractors. Nothing in this Agreement is intended or deemed to relieve Design-Build Subcontractor from responsibility for the work performed by its Sub-Subcontractors, or create any legal or contractual relationship between Owner or Design-Builder and any Sub-Subcontractor, including but not limited to any third-party beneficiary rights.

2.7 Work of Others.

2.7.1 Design-Build Subcontractor agrees to reasonably cooperate with, and coordinate its activities so as not to interfere with, those parties performing work at the Site, including Owner's and Design-Builder's separate contractors, so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

2.7.2 If any part of the Work depends upon other work performed by Design-Builder, or Design-Builder's or Owner's separate contractors, Design-Build Subcontractor shall, prior to proceeding with that part of the Work, inspect such other work and promptly notify Design-Builder of any discovered discrepancies or defects that would render it unacceptable for the proper performance of the Work. Design-Build Subcontractor shall not proceed with such part of the Work without further direction from Design-Builder. Design-Builder shall promptly correct or cause to be corrected any such discrepancy or defect in the other work. Except to the extent such discrepancies or defects in such other work are latent, Design-Build Subcontractor shall be liable for appropriate losses or damages incurred due to any discrepancies or defects in such other work not reported to Design-Builder by Design-Build Subcontractor.

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2.8 Site Cleanup.

2.8.1 Design-Build Subcontractor shall keep the Site reasonably free from debris, trash and construction wastes resulting from the performance of the Work. Upon Substantial Completion of the Work, or a portion of the Work, Design-Build Subcontractor shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit Owner to occupy the Project or a portion of the Project for its intended use.

2.9 Inspection.

2.9.1 At all reasonable times, Design-Build Subcontractor shall provide sufficient facilities for inspection of the Work by Design-Builder at the Site and at all locations where portions of the Work are in progress or various stages of completion. When appropriate portions of the Work are ready for inspection, Design-Build Subcontractor shall notify Design-Builder.

2.10 Patents and Copyrights.

2.10.1 Design-Build Subcontractor shall pay all license fees and royalties due for items, materials, methods, systems or processes applicable to the Work which are subject to copyrights or patent rights and which are selected by Design-Build Subcontractor.

2.11 Legal Requirements.

2.11.1 Design-Build Subcontractor shall perform the Work in accordance with all applicable Legal Requirements.

2.11.2 The Contract Price and/or the times for completion of the Work shall be adjusted to compensate Design-Build Subcontractor for the effects, if any, of any changes in the Legal Requirements enacted after the date of the Agreement affecting the performance of the Work.

2.12 Government Approvals and Permits.

2.12.1 Design-Build Subcontractor shall obtain and pay for the necessary permits, approvals, licenses, government charges and inspection fees required for the prosecution of the Work as set forth in Exhibit _____.

2.12.2 Design-Build Subcontractor shall provide reasonable assistance to Design-Builder in obtaining those permits, approvals and licenses, if any, that are the responsibility of Owner or Design-Builder and related to the Work.

2.12.3 Design-Build Subcontractor shall make any revisions to the Construction Documents necessary to secure permits, approvals and licenses, including those which have been denied for failure of the Construction Documents to meet Legal Requirements. If such revisions are necessary for reasons beyond the control of Design-Build Subcontractor or its Design Consultants, Design-Build Subcontractor shall be compensated for such revisions as a change to this Agreement.

2.13 Project Safety.

2.13.1 Design-Build Subcontractor recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting, (ii) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site, (iii) the work of others on the Project, and (iv) all other property at the Site or adjacent thereto. Design-Build Subcontractor assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work.

2.13.2 Design-Build Subcontractor and Sub-Subcontractors shall comply with all Legal Requirements relating to safety, as well as any Owner-specific and/or Design-Builder-specific safety requirements set forth in the Contract Documents or established for the Project, provided that such Owner-specific and/or Design-Builder-specific requirements do not violate any applicable Legal Requirement. Design-Build Subcontractor will immediately report in writing any safety-related

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injury, loss, damage or accident arising from the Work to Design-Builder's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.

2.14 Warranty.

2.14.1 Design-Build Subcontractor warrants to Design-Builder that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship. Design-Build Subcontractor's warranty obligation excludes defects caused by abuse, alterations or failure to maintain the Work in a commercially reasonable manner. Nothing in this warranty is intended to limit any manufacturer's warranty which provides Owner and/or Design-Builder with greater warranty rights than set forth in this Section 2.14 or the Contract Documents. Design-Build Subcontractor will provide and, if requested, assign to Design-Builder all manufacturers' warranties upon Substantial Completion.

2.15 Correction of Defective Work.

2.15.1 Design-Build Subcontractor agrees to correct any of the Work that is found not to be in conformance with the Contract Documents, including that part of the Work subject to Section 2.14 hereof, within a period of one year from the date of Substantial Completion of the Work or any portion of the Work, or within such longer period to the extent required by any specific warranty included in the Contract Documents.

2.15.2 Design-Build Subcontractor shall, within seven (7) days of receipt of written notice from Design-Builder that the Work is not in conformance with the Contract Documents, take meaningful steps to commence correction of such nonconforming Work, including the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work or the Project affected by the nonconforming Work. If Design-Build Subcontractor fails to commence the necessary steps within such seven (7) day period, Design-Builder, in addition to any other remedies provided under the Contract Documents, may provide Design-Build Subcontractor with written notice that Design-Builder will commence correction of such nonconforming Work with its own forces. If Design-Builder does perform such corrective Work, Design-Build Subcontractor shall be responsible for all reasonable costs incurred by Design-Builder in performing such correction. If the nonconforming Work creates an emergency requiring an immediate response, the seven (7) day period identified herein shall be deemed inapplicable.

2.15.3 The one year period referenced in Section 2.15.1 above applies only to Design-Build Subcontractor's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies Design-Builder may have regarding Design-Build Subcontractor's obligations under the Contract Documents.

2.16 Start-Up and Training.

2.16.1 If required as part of Design-Build Subcontractor's Work, Design-Build Subcontractor shall be responsible for the start-up, testing, and commissioning of the Work, and shall train Owner's personnel with respect to the operation and maintenance of the Work.

2.17 Hazardous Conditions.

2.17.1 Design-Build Subcontractor is responsible for Hazardous Conditions introduced to the Site by itself, Sub-Subcontractors or anyone for whose acts they may be liable. Design-Build Subcontractor shall indemnify, defend and hold harmless Owner, Design-Builder and their officers, directors, employees and agents from and against all claims, losses, damages, liabilities and expenses, including reasonable attorneys' fees and expenses, arising out of or resulting from those Hazardous Conditions introduced to the Site by Design-Build Subcontractor, Sub-Subcontractors or anyone for whose acts they may be liable.

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Article 3

Design-Builder's Services and Responsibilities

3.1 Timely Reviews and Approvals.

3.1.1 Design-Builder shall provide timely reviews and approvals of all interim design submissions, Construction Documents and submittals, consistent with the turnaround times set forth in the Project Schedule, or as agreed to by the parties at the meeting required under Section 2.1.1 hereof.

3.2 Design-Builder's Representative.

3.2.1 Design-Builder's Representative shall be responsible for providing Design-Builder-supplied information and approvals in a timely manner to permit Design-Build Subcontractor to fulfill its obligations under the Contract Documents.

3.3 Furnishing of Services and Information.

3.3.1 Unless expressly stated to the contrary in the Contract Documents, and to the extent Design-Builder has received such items from Owner, Design-Builder shall provide for Design-Build Subcontractor's information the items listed below. Design-Builder does not warrant the accuracy or completeness of such items provided, however, that Design-Build Subcontractor is entitled to rely on these items to the same extent Design-Builder is entitled to rely upon such items in the Design-Build Agreement:

3.3.1.1 Surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;

3.3.1.2 Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;

3.3.1.3 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper construction of the Project and enable Design-Build Subcontractor to perform the Work;

3.3.1.4 A legal description of the Site;

3.3.1.5 Record drawings of any existing structures at the Site;

3.3.1.6 Environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, in existence at the Site;

3.3.1.7 Owner's Project Criteria;

3.3.1.8 All permits, approvals and licenses set forth in the Owner's Permit List attached as an exhibit to the Design-Build Agreement; and

3.3.1.9 Test and inspection reports.

3.3.2 Design-Builder shall provide Design-Build Subcontractor with a copy of the Design-Build Agreement, including all exhibits, attachments and other Contract Documents enumerated and incorporated therein.

3.3.3 Upon Design-Build Subcontractor's written request, Design-Builder shall provide Design-Build Subcontractor with information in Design-Builder's possession regarding Owner's financial ability to pay for the Work set forth in this Agreement.

3.3.4 Design-Builder shall provide Design-Build Subcontractor with the Project Schedule and appropriate updates thereto.

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3.3.5 Design-Builder shall, upon request of Design-Build Subcontractor, provide Design-Build Subcontractor with interim design documents and Construction Documents for portions of the Project that are not being designed by Design-Build Subcontractor.

3.3.6 Design-Builder shall obtain those permits, approvals and licenses that are not required to be provided by Owner pursuant to the Design-Build Agreement or by Design-Build Subcontractor pursuant to Section 2.12.1 hereof. Design-Builder shall provide reasonable assistance to Design-Build Subcontractor in obtaining those permits, approvals and licenses that are Design-Build Subcontractor's responsibility.

3.4 Notification of Errors.

3.4.1 Design-Builder shall notify Design-Build Subcontractor of any errors, inconsistencies or omissions Design-Builder discovers in the Work. Notwithstanding anything to the contrary in this Agreement, nothing in this Agreement shall relieve Design-Build Subcontractor of responsibility for errors, inconsistencies or omissions in the Work.

3.5 Attendance at Design Meetings.

3.5.1 Design-Builder shall afford Design-Build Subcontractor and its Sub-Subcontractors the opportunity to attend all necessary design meetings with Owner, Design-Builder's Design Consultant or others furnishing portions of the design for the Project.

3.6 Review and Approval of Submittals.

3.6.1 Design-Builder shall review and approve submittals, including shop drawings, product data and samples, submitted by Design-Build Subcontractor. Design-Builder's review and approval of submittals shall be only for the purpose of confirming general conformance with the Construction Documents. Design-Builder's review and approval shall not relieve Design-Build Subcontractor of its responsibilities to perform the Work in accordance with the Construction Documents unless Design-Builder expressly approves in writing any such variance in its response to Design-Build Subcontractor's submittals. If revisions are necessary to a submittal prior to Design-Builder's approval, Design-Builder shall inform Design-Build Subcontractor of any such necessary revisions.

3.7 Design-Builder's Separate Contractors.

3.7.1 Design-Builder is responsible for all work performed on the Project or at the Site by separate contractors under Design-Builder's control. Design-Builder shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, Design-Build Subcontractor's ability to timely complete the Work consistent with the Contract Documents.

Article 4

Ownership of Work Product

4.1 Work Product.

4.1.1 All drawings, specifications and other documents and electronic data furnished by Design-Build Subcontractor to Design-Builder under this Agreement ("Work Product") are deemed to be instruments of service and Design-Build Subcontractor shall retain ownership and property interests therein provided, however, that Design-Build Subcontractor hereby grants Design-Builder (for the purpose of allowing Design-Builder to grant to Owner), upon Design-Builder's payment to Design-Build Subcontractor of amounts properly due under this Agreement, a limited license to use the Work Product in connection with completing this Project. Notwithstanding the preceding sentence, if the Design-Build Agreement grants ownership and/or property rights to Owner that conflict with the above, then Design-Build Subcontractor hereby grants such rights to Design-Builder (for the purpose of allowing Design-Builder to grant to Owner) under the same terms and conditions that Design-Builder grants such rights to Owner.

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4.2 Agreement to Grant Rights to Owner.

4.2.1 Design-Build Subcontractor has reviewed the Design-Build Agreement and is fully aware of the ownership and property rights to use the Work Product which may be granted to Owner therein. Design-Build Subcontractor accepts and agrees to Owner's ownership and property rights with respect to the Work Product contained in the Design-Build Agreement.

4.3 Indemnification for Use of Work Product.

4.3.1 If either Design-Builder or Design-Build Subcontractor uses the Work Product on any other project, such party agrees that it shall do so at its sole risk and without liability or legal exposure to the other party, Owner or anyone working through them. Such party further agrees that it shall defend, indemnify and hold harmless the other party and Owner from and against any and all claims, damages, liabilities, losses and expenses, including attorneys' fees, arising out of or resulting from such use of the Work Product on another project.

4.4 Use of Work Product On Termination or Default.

4.4.1 If Design-Builder terminates this Agreement for its convenience as set forth in Section 8.2 hereof, or if Design-Build Subcontractor elects to terminate this Agreement in accordance with Section 8.5 of this Agreement, Design-Build Subcontractor, upon Design-Builder's payment in full of the amounts due Design-Build Subcontractor under the Contract Documents, grants Design-Builder and Owner the same rights as set forth in Section 4.1.1 above to use the Work Product to complete the Project and subsequently occupy the Project, conditioned on the following:

4.4.1.1 Use of the Work Product is at Design-Builder's sole risk without liability or legal exposure to Design-Build Subcontractor or anyone working by or through Design-Build Subcontractor, and on Design-Builder's obligation to provide the indemnity set forth in Section 4.3 herein, and

4.4.1.2 Design-Builder agrees to pay Design-Build Subcontractor the additional sum of __ _____Dollars ($_____) as compensation for the right to use the Work Product to complete the Project and subsequently use the Work Product in accordance with Section 4.1.1 if Design-Builder resumes the Project through its employees, agents, or third parties.

4.4.2 If this Agreement is terminated due to Design-Build Subcontractor's default pursuant to Section 8.3 of this Agreement, then Design-Builder shall have the same rights as set forth in Section 4.1.1 above to use the Work Product to complete the Project and subsequently occupy the Project, and Design-Builder and Owner shall thereafter have the same rights and obligations as set forth in Section 4.1.1 above. Notwithstanding the preceding sentence, if it is ultimately determined that Design-Build Subcontractor was not in default, Design-Builder shall be deemed to have terminated the Agreement for convenience, and Design-Build Subcontractor shall be entitled to the rights and remedies set forth in Section 4.4.1 above.

Article 5

Time of Performance

5.1 Date of Commencement.

5.1.1 The Work shall commence five (5) days after Design-Build Subcontractor's receipt of Design-Builder's Notice to Proceed ("Date of Commencement") unless the parties mutually agree otherwise in writing.

5.2 Time of Completion.

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5.2.1 Design-Build Subcontractor shall diligently and continuously prosecute and complete the Work in accordance with the Project Schedule as it may be revised and issued from time to time during the performance of the Work, and any other scheduling requirements listed in the Contract Documents.

5.2.2 Design-Build Subcontractor shall participate and cooperate in the development of schedules and other efforts to achieve timely completion of the Work. Design-Build Subcontractor shall provide Design-Builder information for the scheduling of the times and sequence of operations required for the Work to meet Design-Builder's overall schedule requirements, shall continuously monitor the Project Schedule, including any revisions thereto, so as to be fully familiar with the timing, phasing and sequence of operation of the Work and of other work on the Project, and shall execute the Work in accordance with the requirements of the Project Schedule including any revisions thereto.

5.2.3 Design-Build Subcontractor shall timely perform the various stages of the Work so that Design-Builder can achieve the dates set forth in the Project Schedule, including any revisions thereto.

5.3 Time is of the Essence.

5.3.1 Design-Builder and Design-Build Subcontractor mutually agree that time is of the essence with respect to the dates and times set forth in the Contract Documents and the Project Schedule.

5.4 Delays to the Work.

5.4.1 If Design-Build Subcontractor is delayed on the critical path in the performance of the Work due to acts, omissions, conditions, events or circumstances beyond its control and due to no fault of its own or those for whom Design-Build Subcontractor is responsible, the time for performance shall be reasonably extended by Change Order. By way of example, events that may entitle Design-Build Subcontractor to an extension of the time for completion of the work include acts or omissions of Design-Builder, Owner or anyone under Design-Builder's or Owner's control (including separate contractors), changes in the Work, Differing Site Conditions, Hazardous Conditions and Force Majeure Events.

5.4.2 In addition to Design-Build Subcontractor's right to a time extension for those events set forth in Section 5.4.1 above, Design-Build Subcontractor shall also be entitled to an appropriate adjustment of the Contract Price provided, however, that the Contract Price shall not be adjusted for Force Majeure Events unless otherwise expressly provided in Article 17 of this Agreement.

5.4.3 Notwithstanding any other provision to the contrary, any delay and resulting damages that arise out of, or relate to, problems caused by Owner or for which Owner is responsible shall be resolved pursuant to Section 13.3 hereof.

5.4.4 If the Project is delayed due to the Design-Build Subcontractor or anyone for whom Design-Build Subcontractor is responsible, and not due to Design-Builder or Owner, Design-Build Subcontractor shall compensate and indemnify Design-Builder for all costs, damages and expenses arising from such delay, including but not limited to any liquidated damages or other damages that Owner may assess against Design-Builder which are attributable to Design-Build Subcontractor or anyone for whom Design-Build Subcontractor is responsible. In addition, Design-Build Subcontractor shall, at the direction of Design-Builder and at Design-Build Subcontractor's own cost and expense, work such overtime and take such other measures as may be necessary to make up for all time lost in the completion of the Project due to such delay.

Article 6

Contract Price

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6.1 Contract Price.

6.1.1 Design-Builder shall pay Design-Build Subcontractor in accordance with Article 7 hereof the sum of _____ Dollars ($_____) ("Contract Price"), subject to adjustments made in accordance with the Contract Documents. Unless otherwise provided in the Contract Documents, the Contract Price is deemed to include all sales, use, consumer and other taxes mandated by applicable Legal Requirements. The parties acknowledge that the Contract Price herein is based upon Design-Build Subcontractor's List of Assumptions and Qualifications. To the extent Design-Build Subcontractor is required to perform work which is not consistent with its List of Assumptions and Qualifications, Design-Build Subcontractor shall be entitled to an adjustment in the Contract Price pursuant to Article 12 of this Agreement. Notwithstanding the above, Design-Builder is not responsible for Design-Build Subcontractor's bidding or estimating mistakes or miscalculation of market conditions.

6.2 Markups for Changes.

6.2.1 If the Contract Price requires an adjustment due to changes in the Work, and the cost of such changes is determined under Sections 12.6.1.3 or 12.6.1.4 hereof, the following markups shall be allowed on such changes:

6.2.1.1 For additive Change Orders, including additive Change Orders arising from both additive and deductive items, it is agreed that Design-Build Subcontractor shall receive a Fee of _____ percent (_____%) of the additional Costs of the Work incurred for that Change Order, plus any other markups set forth at Exhibit _____ hereto.

6.2.1.2 For deductive Change Orders, including deductive Change Orders arising from both additive and deductive items, the deductive amounts shall include:

[Check one box only.]

☐ No additional reduction to account for Design-Build Subcontractor's Fee or any other markup.

or

☐ An amount equal to the sum of: (a) _____ percent (_____%) applied to the direct costs of the net reduction (which amount will account for a reduction associated with Design-Build Subcontractor's Fee); plus (b) any other markups set forth at Exhibit _____ hereto applied to the direct costs of the net reduction.

Article 7

Procedure for Payment

7.1 Schedule of Values.

7.1.1 Unless required by Design-Builder upon execution of this Agreement, within ten (10) days of execution of the Agreement, Design-Build Subcontractor shall submit for Design-Builder's review and approval a schedule of values for all of the Work. The Schedule of Values will (i) subdivide the Work into its respective parts; (ii) include values for all items comprising the Work; and (iii) serve as the basis for monthly progress payments made to Design-Build Subcontractor throughout the Work.

7.2 Progress Payments.

7.2.1 Beginning with the first month after the Date of Commencement, Design-Build Subcontractor shall submit on the _____ (_____) day of each month for

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Design-Builder's review and approval, Design-Build Subcontractor's Application for Payment requesting payment for all Work performed as of the date of the Application for Payment. The Application for Payment shall be accompanied by all supporting documentation required by the Contract Documents and/or established at the meeting required by Section 2.1.1 hereof. Design-Builder will submit Design-Build Subcontractor's proper Application for Payment to Owner with Design-Builder's application.

7.2.2 The Application for Payment may request payment for equipment and materials not yet incorporated into the Project, provided that (i) Design-Builder is satisfied that the equipment and materials are suitably stored at either the Site or another acceptable location, (ii) the equipment and materials are protected by suitable insurance and (iii) upon payment, Design-Builder will receive the equipment and materials free and clear of all liens and encumbrances.

7.2.3 The Application for Payment shall constitute Design-Build Subcontractor's representation that the Work has been performed consistent with the Contract Documents, has progressed to the point indicated in the Application for Payment and that title to all Work will pass to Owner free and clear of all claims, liens, encumbrances and security interests upon the incorporation of the Work into the Project, or upon Design-Build Subcontractor's receipt of payment, whichever occurs earlier.

7.2.4 Design-Builder shall make payment on Design-Build Subcontractor's properly submitted and accurate Application for Payment within three (3) days after Design-Builder's receipt of payment from Owner on account of Design-Build Subcontractor's monthly Application for Payment, but in each case less the total of payments previously made, and less amounts properly withheld under this Agreement.

7.3 Retainage on Progress Payments.

7.3.1 Design-Builder will retain from each of Design-Build Subcontractor's Application for Payment _____ percent (_____%). Unless mutually agreed otherwise between the parties, retainage will be included in Design-Builder's final payment to Design-Build Subcontractor, provided Design-Builder has received such retained amounts from Owner.

7.4 Withholding of Payments.

7.4.1 If Design-Builder determines that Design-Build Subcontractor is not entitled to all or part of an Application for Payment, it will notify Design-Build Subcontractor in writing at least five (5) days prior to the date payment is due. The notice shall indicate the specific amounts Design-Builder intends to withhold, the reasons and contractual basis for the withholding, and the specific measures Design-Build Subcontractor must take to rectify Design-Builder's concerns. Design-Builder and Design-Build Subcontractor will attempt to resolve Design-Builder's concerns prior to the date payment is due. If the parties cannot resolve such concerns, Design-Builder shall pay Design-Build Subcontractor the uncontested amount of the Application for Payment, and Design-Build Subcontractor may pursue its rights under the Contract Documents, including those under Article 13 hereof.

7.5 Final Payment.

7.5.1 Design-Build Subcontractor shall submit its Final Application for Payment to Design-Builder in accordance with Section 7.5.2 below. Design-Builder shall make payment on Design-Build Subcontractor's properly submitted and accurate Final Application for Payment within ten (10) days after Design-Builder's receipt of final payment from Owner on account of Design-Build Subcontractor's Final Application for Payment, provided also that Design-Build Subcontractor has satisfied the requirements for final payment set forth in Section 7.5.2 below.

7.5.2 At the time of submission of its Final Application for Payment, Design-Build Subcontractor shall provide the following information:

7.5.2.1 An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or

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incurred for or in connection with the Work which will in any way affect Design-Builder's or Owner's interests;

7.5.2.2 A general release executed by Design-Build Subcontractor waiving, upon receipt of final payment by Design-Build Subcontractor, all claims, except those claims previously made in writing to Design-Builder and remaining unsettled at the time of final payment;

7.5.2.3 Consent of Design-Build Subcontractor's surety, if any, to final payment;

7.5.2.4 All operating manuals, warranties and other deliverables required by the Contract Documents; and

7.5.2.5 Certificates of insurance confirming that required coverages will remain in effect consistent with the requirements of the Contract Documents.

7.5.3 Upon making final payment, Design-Builder waives all claims against Design-Build Subcontractor except claims relating to (i) Design-Build Subcontractor's failure to satisfy its payment obligations, if such failure affects Design-Builder's or Owner's interests; (ii) Design-Build Subcontractor's failure to complete the Work consistent with the Contract Documents, including defects appearing after final completion of the Work; and (iii) the terms of any special warranties required by the Contract Documents.

7.6 Pay When Paid.

7.6.1 Design-Build Subcontractor agrees that all payments to Design-Build Subcontractor hereunder, whether progress or final payment, or for changes or delays to the Work, shall not be due until after Design-Builder actually receives payment on account of same from Owner. Notwithstanding the preceding sentence, Design-Builder shall pay Design-Build Subcontractor within a reasonable time if it has not been paid by Owner unless Owner's failure to pay Design-Builder is caused by Design-Build Subcontractor's failure to perform in accordance with this Agreement.

7.7 Interest.

7.7.1 Payments due and unpaid under this Agreement shall bear interest commencing five (5) days after payment is due at the rate of _____percent (_____%) per annum.

7.8 Advance Payments.

7.8.1 Design-Builder has the right, at its sole option, to advance any payment due Design-Build Subcontractor under this Agreement.

7.9 Payment Not Acceptance.

7.9.1 No payment to Design-Build Subcontractor under this Agreement shall be evidence of, or construed to be, acceptance of defective, faulty, improper or non-conforming work.

7.10 Design-Build Subcontractor's Payment Obligations.

7.10.1 Design-Build Subcontractor will pay its Design Consultants and Sub-Subcontractors, in accordance with its contractual obligations to such parties, all the amounts Design-Build Subcontractor has received from Design-Builder on account of their work. Design-Build Subcontractor will impose similar requirements on its Design Consultants and Sub-Subcontractors to pay those parties with whom they have contracted. Design-Build Subcontractor will indemnify and defend Owner and Design-Builder against any claims for payment and mechanic's liens as set forth in Section 11.3 hereof, providing Design-Builder is not in breach of its contractual obligations to make payment to Design-Build Subcontractor for its Work.

7.11 Record Keeping and Finance Controls.

7.11.1 With respect to changes in the Work performed on a cost basis by Design-Build Subcontractor pursuant to the Contract Documents, Design-Build Subcontractor shall keep full and

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detailed accounts and exercise such controls as may be necessary for proper financial management, using accounting and control systems in accordance with generally accepted accounting principles and as may be provided in the Contract Documents. During the performance of the Work and for a period of three (3) years after final payment of the Work, Design-Builder and Design-Builder's accountants shall be afforded access to and the right to audit from time-to-time, upon reasonable notice, Design-Build Subcontractor's records, books, correspondence, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to the changes in the Work performed on a cost basis in accordance with the Contract Documents, all of which Design-Build Subcontractor shall preserve for a period of three (3) years after final payment. Such inspection shall take place at Design-Build Subcontractor's offices during normal business hours unless another location and time is agreed to by the parties. Any multipliers or markups agreed to by the Design-Builder and Design-Build Subcontractor as part of this Agreement are only subject to audit to confirm that such multiplier or markup has been charged in accordance with this Agreement, with the composition of such multiplier or markup not being subject to audit.

Article 8

Stop Work and Termination

8.1 Design-Builder's Right To Stop Work.

8.1.1 Design-Builder may, without cause and for its convenience, order Design-Build Subcontractor in writing to stop and suspend the Work. Such suspension shall not exceed sixty (60) consecutive days or aggregate more than ninety (90) days during the duration of the Project.

8.1.2 Design-Build Subcontractor is entitled to seek an adjustment of the Contract Price and/or times for completion of the Work if its cost or time to perform the Work has been adversely impacted by any suspension or stoppage of work by Design-Builder. Notwithstanding anything to the contrary herein, if Design-Builder's suspension of the Work is the result of Owner's suspension of the Design-Builder's work under the Design-Build Agreement, then Design-Builder shall pay Design-Build Subcontractor only those amounts Design-Builder actually receives from Owner on account of the Work.

8.2 Design-Builder's Right to Terminate for Convenience.

8.2.1 Upon ten (10) days' written notice to Design-Build Subcontractor, Design-Builder may, for its convenience and without cause, elect to terminate this Agreement. In such event, Design-Builder's right to use the existing Work Product shall be as set forth in Section 4.4.1, and Design-Builder shall pay Design-Build Subcontractor for the following:

8.2.1.1 All Work executed and for proven loss, cost or expense in connection with the Work;

8.2.1.2 The reasonable costs and expenses attributable to such termination, including amounts due in settlement of terminated contracts with its Design Consultants and Sub-Subcontractors; and

8.2.1.3 ***[Choose one of the following.]***

☐ The fair and reasonable sums for overhead and profit on the sum of items 8.2.1.1 and 8.2.1.2 above.

or

☐ Overhead and profit in the amount of _____ percent (_____%) on the sum of items 8.2.1.1 and 8.2.1.2 above.

8.2.2 If Design-Builder's termination of Design-Build Subcontractor for convenience is the result of Owner's termination of Design-Builder for convenience under the Design-Build Agreement, then

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Design-Builder shall pay Design-Build Subcontractor only those amounts Design-Builder actually receives from Owner on behalf of Design-Build Subcontractor.

8.3 Design-Builder's Right to Terminate for Cause.

8.3.1 If Design-Build Subcontractor persistently fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, its Sub-Subcontractors or Design Consultants, (v) prosecute the Work with promptness and diligence to ensure that the Work is completed in accordance with the Project Schedule, as such schedule may be adjusted or (vi) perform material obligations under the Contract Documents, then Design-Builder shall have the rights, in addition to any other rights and remedies provided in the Contract Documents or by law, set forth in Sections 8.3.2 and 8.3.3 below.

8.3.2 Upon the occurrence of an event set forth in Section 8.3.1 above, Design-Builder may provide written notice to Design-Build Subcontractor that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Design-Build Subcontractor's receipt of such notice. If Design-Build Subcontractor fails to cure, or reasonably commence to cure, such problem, then Design-Builder may give a second written notice to Design-Build Subcontractor of its intent to terminate within an additional seven (7) day period. If Design-Build Subcontractor, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Design-Builder may declare the Agreement terminated for default by providing written notice to Design-Build Subcontractor of such declaration.

8.3.3 Upon declaring the Agreement terminated pursuant to Section 8.3.2 above, Design-Builder may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which Design-Build Subcontractor hereby transfers, assigns and sets over to Design-Builder for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items. Design-Builder shall have the right to use the existing Work Product for purposes of completing the Project as set forth in Section 4.4.2. In the event of such termination, Design-Build Subcontractor shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, if the unpaid balance of the Contract Price exceeds the cost and expense incurred by Design-Builder in completing the Work, such excess shall be paid by Design-Builder to Design-Build Subcontractor. If Design-Builder's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Design-Build Subcontractor shall be obligated to pay the difference to Design-Builder. Such cost and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expenses, including attorneys' fees and expenses, incurred by Design-Builder in connection with the reprocurement and defense of claims arising from Design-Build Subcontractor's default, subject to the waiver of consequential damages set forth in Section 13.7 hereof.

8.3.4 If Design-Builder improperly terminates the Agreement for cause, the termination for cause will be converted to a termination for convenience in accordance with the provisions of Section 8.2 of the Agreement.

8.4 Design-Build Subcontractor's Right To Stop Work.

8.4.1 If (i) Owner fails to pay amounts due Design-Builder under the Design-Build Agreement for Work performed by Design-Build Subcontractor, such failure is not due to the fault of Design-Build Subcontractor, and Design-Build Subcontractor has not been paid such amounts due, or (ii) Design-Builder fails to pay any undisputed amounts due Design-Build Subcontractor under this Agreement, Design-Build Subcontractor may, in addition to any other rights afforded under the Contract Documents or at law, stop work in accordance with Section 8.4.2.

8.4.2 Design-Build Subcontractor shall provide Design-Builder with written notice that Design-Build Subcontractor will stop work unless said failure to pay the amount is cured within seven (7) days from Design-Builder's receipt of Design-Build Subcontractor's notice. Design-Build

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Subcontractor shall not stop work unless it provides such written notice and Design-Builder has failed to cure the reason for default within the seven (7) day cure period. If Design-Builder does not cure the problem within such seven (7) day period, Design-Build Subcontractor may stop work. In such case, Design-Build Subcontractor shall be entitled to make a claim for adjustment to the Contract Price and the times for completion of the Work to the extent it has been adversely impacted by such stoppage. To the extent Design-Builder's failure to pay is related to a dispute between the parties, the dispute will be resolved in accordance with Article 13 and the parties will continue performance in accordance with Section 13.6.

8.5 Design-Build Subcontractor's Right to Terminate For Cause.

8.5.1 Design-Build Subcontractor, in addition to any other rights and remedies afforded under the Contract Documents or at law, may terminate the Agreement for cause in accordance with Section 8.5.2 below if Design-Builder fails to cure the problems set forth in Section 8.4.1 above within thirty (30) days after Design-Build Subcontractor has stopped the work.

8.5.2 Upon the occurrence of the event set forth in Section 8.5.1 above, Design-Build Subcontractor may provide written notice to Design-Builder that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Design-Builder's receipt of such notice. If Design-Builder fails to cure, or reasonably commence to cure, such problem, then Design-Build Subcontractor may give a second written notice to Design-Builder of its intent to terminate within an additional seven (7) day period. If Design-Builder, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Design-Build Subcontractor may declare the Agreement terminated for default by providing written notice to Design-Builder of such declaration. In such case, Design-Build Subcontractor shall be entitled to recover in the same manner as if Design-Builder had terminated this Agreement for its convenience under Section 8.2 of the Agreement.

8.6 Bankruptcy of Design-Builder or Design-Build Subcontractor.

8.6.1 If either Design-Builder or Design-Build Subcontractor institutes or has instituted against it a case under the United States Bankruptcy Code (such party being referred to as the "Bankrupt Party"), such event may impair or frustrate the Bankrupt Party's ability to perform its obligations under the Contract Documents. Accordingly, should such event occur:

8.6.1.1 The Bankrupt Party, its trustee or other successor, shall furnish, upon request of the non-Bankrupt Party, adequate assurance of the ability of the Bankrupt Party to perform all future material obligations under the Contract Documents, which assurances shall be provided within ten (10) days after receiving notice of the request; and

8.6.1.2 The Bankrupt Party shall file an appropriate action within the bankruptcy court to seek assumption or rejection of the Agreement within sixty (60) days of the institution of the bankruptcy filing and shall diligently prosecute such action.

If the Bankrupt Party fails to comply with its foregoing obligations, the non-Bankrupt Party shall be entitled to request the bankruptcy court to reject the Agreement, declare the Agreement terminated and pursue any other recourse available to the non-Bankrupt Party under this Article 8.

8.6.2 The rights and remedies under Section 8.6.1 above shall not be deemed to limit the ability of the non-Bankrupt Party to seek any other rights and remedies provided by the Contract Documents or by law, including its ability to seek relief from any automatic stays under the United States Bankruptcy Code.

Article 9

Representatives of the Parties

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9.1 Design-Builder's Representatives.

9.1.1 Design-Builder designates the individual listed below as its Senior Representative ("Design-Builder's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 13.4 of the Agreement: *(Identify individual's name, title, address and telephone numbers.)*

9.1.2 Design-Builder designates the individual listed below as its Design-Builder's Representative, which individual has the authority and responsibility set forth in Section 3.2 of the Agreement: *(Identify individual's name, title, address and telephone numbers.)*

9.2 Design-Build Subcontractor's Representatives.

9.2.1 Design-Build Subcontractor designates the individual listed below as its Senior Representative ("Design-Build Subcontractor's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 13.4 of the Agreement: *(Identify individual's name, title, address and telephone numbers.)*

9.2.2 Design-Build Subcontractor designates the individual listed below as its Design-Build Subcontractor's Representative, which individual has the authority and responsibility set forth in Section 2.1.2 of the Agreement: *(Identify individual's name, title, address and telephone numbers.)*

Article 10

Insurance and Bonds

10.1 Design-Build Subcontractor's Insurance Requirements.

10.1.1 Design-Build Subcontractor is responsible for procuring and maintaining, from insurance companies authorized to do business in the state in which the Project is located, the insurance coverages set forth in the Insurance Exhibit to this Agreement, with the minimum ratings set forth in said exhibit for certain claims which may arise from or out of the performance of this Agreement and obligations under the Contract Documents.

10.1.2 Design-Build Subcontractor shall require its Design Consultants and Sub-Subcontractors to procure and maintain, from insurance companies authorized to do business in the state in which the Project is located, the insurance coverages set forth in the Insurance Exhibit.

10.1.3 Design-Build Subcontractor's and its Design Consultants' and Sub-Subcontractors' insurance coverage set forth in the Insurance Exhibit shall specifically delete any design-build or similar exclusions that could compromise coverages because of the design-build delivery of the Project.

10.1.4 To the extent Design-Builder requires Design-Build Subcontractor or its Design Consultant to provide professional liability insurance for claims arising from the negligent performance of design services by Design-Build Subcontractor or the Design Consultant, the coverage limits, duration and other specifics of such insurance shall be as set forth in the Insurance Exhibit. Such policies shall be provided prior to the commencement of any design services hereunder.

10.1.5 Prior to commencing any services hereunder, Design-Build Subcontractor shall provide Design-Builder with certificates evidencing that (i) all insurance obligations required by the Contract Documents are in full force and in effect and will remain in effect for the duration required by the Contract Documents and (ii) no insurance coverage will be canceled, renewal refused or materially changed unless at least thirty (30) days prior written notice is given to Design-Builder.

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10.1.6 Except as otherwise stated in the Insurance Exhibit, the insurance policies required herein shall list Design-Builder, and any other entities required by the Contract Documents, if any, as an additional insured.

10.1.7 If any of the foregoing insurance coverages are required to remain in force after final payment, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment.

10.2 Property Insurance.

10.2.1 In accordance with the Contract Documents, Owner or Design-Builder shall procure and maintain property insurance upon the entire Project.

10.3 Waiver of Subrogation.

10.3.1 Design-Builder and Design-Build Subcontractor waive against each other and Owner, Sub-Subcontractors, Design Consultants, Owner's or Design-Builder's separate contractors, agents and employees of each and all of them, all damages covered by property insurance provided herein, except such rights as they may have to the proceeds of such insurance. Design-Builder and Design-Build Subcontractor shall, where appropriate, require similar waivers of subrogation from Design Consultants and Sub-Subcontractors and separate contractors of Design-Builder, and shall require each of them to include similar waivers in their contracts. These waivers of subrogation shall not contain any restriction or limitation that will impair the full and complete extent of its applicability to any person or entity unless agreed to in writing prior to the execution of this Agreement.

10.4 Bonds and Other Performance Security.

10.4.1 Design-Build Subcontractor shall provide the following performance bond and labor and material payment bond or other performance security: *(Indicate the amount of bonds and any other conditions of the bonds or other security.)*

Article 11

Indemnification

11.1 Patent and Copyright Infringement.

11.1.1 Design-Build Subcontractor shall defend any action or proceeding brought against Owner or Design-Builder based on any claim that the Work, or any part thereof, or the operation or use of the Work or any part thereof, constitutes infringement of any United States patent or copyright, now or hereafter issued. Design-Builder shall give prompt written notice to Design-Build Subcontractor of any such action or proceeding and will reasonably provide authority, information and assistance in the defense of same. Design-Build Subcontractor shall indemnify and hold harmless Owner and Design-Builder from and against all damages and costs, including but not limited to attorneys' fees and expenses awarded against Owner or Design-Builder in any such action or proceeding. Design-Build Subcontractor agrees to keep Design-Builder informed of all developments in the defense of such actions.

11.1.2 If Owner is enjoined from the operation or use of the Work, or any part thereof, as the result of any patent or copyright suit, claim or proceeding, Design-Build Subcontractor shall at its sole expense take reasonable steps to procure the right to operate or use the Work. If Design-Build Subcontractor cannot so procure such right within a reasonable time, Design-Build Subcontractor shall promptly, at Design-Build Subcontractor's option and at Design-Build Subcontractor's expense, (i) modify the Work so as to avoid infringement of any patents or copyrights, or (ii) replace said Work with Work that does not infringe or violate any such patent or copyright.

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11.1.3 Sections 11.1.1 and 11.1.2 above shall not be applicable to any suit, claim or proceeding based on infringement or violation of a patent or copyright (i) relating to a particular process or product of a particular manufacturer specified by Owner or Design-Builder or (ii) arising from modifications to the Work by Owner or Design-Builder after acceptance of the Work. If the suit, claim or proceeding is based upon events set forth in the preceding sentence, Design-Builder shall defend, indemnify and hold harmless Design-Build Subcontractor to the same extent Design-Build Subcontractor is obligated to defend, indemnify and hold harmless Design-Builder in Section 11.1.1 above.

11.1.4 The obligations set forth in this Section 11.1 shall constitute the sole agreement between the parties relating to liability for infringement or violation of any patent or copyright.

11.2 Tax Claim Indemnification.

11.2.1 If, in accordance with Design-Builder's direction, an exemption for all or part of the Work is claimed for taxes, Design-Builder shall indemnify, defend and hold harmless Design-Build Subcontractor from and against any liability, penalty, interest, fine, tax assessment, attorneys' fees or other expenses or costs incurred by Design-Build Subcontractor as a result of any action taken by Design-Build Subcontractor in accordance with Design-Builder's directive.

11.3 Payment Claim Indemnification.

11.3.1 Providing that Design-Builder is not in breach of its contractual obligation to make payments to Design-Build Subcontractor for the Work, Design-Build Subcontractor shall indemnify, defend and hold harmless Owner and Design-Builder from any claims or mechanic's liens brought against Owner, Design-Builder or against the Project as a result of the failure of Design-Build Subcontractor, or those for whose acts it is responsible, to pay for any services, materials, labor, equipment, taxes or other items or obligations furnished or incurred for, or in connection with the Work. Within three (3) days of receiving written notice from Design-Builder that such a claim or mechanic's lien has been filed, Design-Build Subcontractor shall commence to take the steps necessary to discharge said claim or lien, including, if necessary, the furnishing of a mechanic's lien bond. If Design-Build Subcontractor fails to do so, Design-Builder will have the right to discharge the claim or lien and hold Design-Build Subcontractor liable for costs and expenses incurred, including attorneys' fees.

11.4 Design-Build Subcontractor's General Indemnification.

11.4.1 Except as set forth in Section 11.4.2 below, Design-Builder Subcontractor, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Owner, Design-Builder its officers, directors, and employees from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for non-party bodily injury, sickness or death and non-party property damage or destruction (other than to the Work itself) but only to the extent resulting from the negligent acts or omissions of Design-Builder Subcontractor, Design Consultants, its Sub-Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

11.4.2 For indemnity obligations that arise from professional errors and omissions, Design-Builder Subcontractor, to the fullest extent permitted by law, shall indemnify Owner, Design-Builder its officers, directors, and employees from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for non-party bodily injury, sickness, or death and non-party property damage or destruction (other than to the Work itself) but only to the extent resulting from the negligent acts or omissions of Design-Builder Subcontractor, Design Consultants, its Sub-Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

11.4.3 If an employee of Design-Build Subcontractor, Design Consultant, anyone employed directly or indirectly by Design-Build Subcontractor or anyone for whose acts any of them may be liable has a claim against any party indemnified pursuant to Section 11.4.1 and 11.4.2 above, Design-Build Subcontractor's indemnity obligations shall not be limited by any limitation on the

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amount of damages, compensation or benefits payable by or for Design-Build Subcontractor, its Design Consultants, its Sub-Subcontractors, or other entity under any employee benefit acts, including workers' compensation or disability acts.

11.5 Design-Builder's General Indemnification.

11.5.1 Except as set forth in Section 11.5.2 below, Design-Builder, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Design-Build Subcontractor and its officers, directors, employees and agents from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for non-party bodily injury, sickness or death and non-party property damage or destruction (other than to the Work itself) but only to the extent resulting from the negligent acts or omissions of Design-Builder, Design-Builder's Design Consultants, Design-Builder's other contractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

11.5.2 For indemnity obligations that arise from professional errors and omissions, Design-Builder, to the fullest extent permitted by law, shall indemnify Design-Build Subcontractor, its officers, directors and employees from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for non-party bodily injury, sickness or death and non-party property damage or destruction (other than to the Work itself) but only to the extent resulting from the negligent acts or omissions of Design-Builder, Design-Builder's Design Consultants, Design-Builder's other contractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

11.5.3 If an employee of Design-Builder, anyone employed directly or indirectly by Design-Builder or anyone for whose acts any of them may be liable has a claim against any party indemnified pursuant to this Section 11.5, Design-Builder's indemnity obligations set forth in Sections 11.5.1 and 11.5.2 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Design-Builder, Design-Builder's Design Consultant, Design-Builder's other contractors or other entity under any employee benefit acts, including workers' compensation or disability acts.

11.6 Limited Recourse.

11.6.1 None of the obligations set forth in this Agreement (on behalf of any Party) constitute personal obligations of any natural persons who are the officers, shareholders, members, partners, employees or agents of any Party unless the natural person is expressly identified as a contracting party. All Parties to this Agreement shall not seek recourse against any natural person described herein. This provision, however, shall not protect such natural persons from liability for willful misconduct, illegal acts or intentional violation of any duty of corporate loyalty.

Article 12

Changes to the Contract Price and Time

12.1 Owner-Generated Changes.

12.1.1 If Owner issues changes affecting the Work, Design-Build Subcontractor agrees, if directed by Design-Builder, to meet with Design-Builder and Owner to review and discuss the changes. Design-Build Subcontractor shall only be entitled to adjustments in its Contract Price and the times for completion of the Work attributable to such Owner-generated changes to the extent Design-Builder actually receives such adjustments from Owner. If Design-Build Subcontractor disputes the adjustment, such dispute shall be resolved pursuant to Section 13.3 of this Agreement.

12.2 Design-Builder Generated Changes.

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12.2.1 Changes to the Work issued by Design-Builder shall be governed by the provisions set forth in the following sections of this Article 12.

12.3 Change Orders.

12.3.1 A Change Order is a written instrument issued after execution of the Agreement signed by Design-Builder and Design-Build Subcontractor, stating their agreement upon all of the following:

12.3.1.1 The scope of the change in the Work;

12.3.1.2 The amount of the adjustment to the Contract Price; and

12.3.1.3 The extent of the adjustment to the times for completion of the Work.

12.3.2 All changes in the Work authorized by applicable Change Order shall be performed under the applicable conditions of the Contract Documents. Design-Builder and Design-Build Subcontractor shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for such changes.

12.3.3 If Design-Builder requests a proposal for a change in the Work from Design-Build Subcontractor and subsequently elects not to proceed with the change, a Change Order shall be issued to reimburse Design-Build Subcontractor for reasonable costs incurred for preparing the proposal.

12.4 Work Change Directives.

12.4.1 A Work Change Directive is a written order prepared and signed by Design-Builder directing a change in the Work prior to agreement on an adjustment in the Contract Price and/or the times for completion of the Work.

12.4.2 Design-Builder and Design-Build Subcontractor shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for the Work Change Directive. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the agreement.

12.5 Minor Changes in the Work.

12.5.1 Minor changes in the Work are changes that do not involve an adjustment in the Contract Price and/or times for completion of the Work and do not materially and adversely affect the Work, including the design, quality, performance and workmanship required by the Contract Documents. Design-Builder may make minor changes in the Work consistent with the intent of the Contract Documents, provided, however, that Design-Builder shall promptly inform Design-Build Subcontractor, in writing, of any such changes.

12.6 Contract Price Adjustment.

12.6.1 The increase or decrease in Contract Price resulting from a change in the Work shall be determined by one or more of the following methods:

12.6.1.1 Unit prices set forth in the Agreement or as subsequently agreed between the parties;

12.6.1.2 A mutually accepted lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by Design-Builder;

12.6.1.3 Costs, fees and any other markups set forth in the Agreement; and

12.6.1.4 If an increase or decrease cannot be agreed to as set forth in items 12.6.1.1 through 12.6.1.3 above and Design-Builder issues a Work Change Directive, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in this Agreement. If the net result of both additions and deletions to the Work is an increase in the Contract Price, reasonable overhead and profit shall be

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calculated on the basis of the net increase to the Contract Price. Design-Build Subcontractor shall maintain a documented, itemized accounting evidencing the expenses and savings associated with such changes.

12.6.2 If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices will cause substantial inequity to Design-Builder or Design-Build Subcontractor because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.

12.6.3 If Design-Builder and Design-Build Subcontractor disagree upon whether Design-Build Subcontractor is entitled to be paid for any services required by Design-Builder, or if there are any other disagreements over the scope of Work or proposed changes to the Work, Design-Builder and Design-Build Subcontractor shall resolve the disagreement pursuant to Article 13 hereof. As part of the negotiation process, Design-Build Subcontractor shall furnish Design-Builder with a good faith estimate of the costs to perform the disputed services in accordance with Design-Builder's interpretations. If the parties are unable to agree and Design-Builder expects Design-Build Subcontractor to perform the services in accordance with Design-Builder's interpretations, Design-Build Subcontractor shall proceed to perform the disputed services, conditioned upon Design-Builder issuing a written order to Design-Build Subcontractor (i) directing Design-Build Subcontractor to proceed and (ii) specifying Design-Builder's interpretation of the services that are to be performed.

12.7 Emergencies.

12.7.1 In any emergency affecting the safety of persons and/or property, Design-Build Subcontractor shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price and/or times for completion of the Work on account of emergency work shall be determined as provided in this Article 12.

Article 13

Contract Adjustments and Disputes

13.1 Requests for Contract Adjustments and Relief.

13.1.1 If either Design-Build Subcontractor or Design-Builder believes that it is entitled to relief against the other for any event arising out of or related to the Work or the Project, such party shall provide written notice to the other party of the basis for its claim for relief. Such notice shall be in accordance with specific notice requirements contained in applicable sections of the Contract Documents and, if possible, be made prior to incurring any cost or expense. Design-Build Subcontractor shall provide Design-Builder written notice of claims for which Owner may be responsible in sufficient time for Design-Builder to meet its notice requirements to Owner set forth in the Contract Documents. In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed ten (10) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later. The claimant shall provide more complete information with respect to the claim within ten (10) days of the initial notice. The more complete information shall be in accordance with the Contract Documents and shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request. Design-Build Subcontractor shall comply with all documentation requirements set forth in the Design-Build Agreement when submitting its claim to Design-Builder.

13.2 Dispute Avoidance and Resolution.

13.2.1 The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, Design-Build Subcontractor and Design-

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Builder each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work.

13.3 Disputes Involving Owner.

13.3.1 To the extent a claim, dispute or controversy arises out of, or relates to, problems caused by Owner or for which Owner is responsible ("Owner Disputes"), such Owner Disputes shall be resolved pursuant to the dispute resolution clause set forth in the Design-Build Agreement. Both Design-Builder and Design-Build Subcontractor agree to cooperate in the presentation and prosecution or defense of Owner Disputes. If, after a request for an extension of time or additional compensation from Design-Build Subcontractor, Design-Builder believes that the event causing the delay or additional compensation is the responsibility of Owner, then Design-Builder will cooperate with and assist Design-Build Subcontractor in presenting a request for an extension of time or additional compensation to Owner. Notwithstanding the above, Design-Builder reserves the right not to submit a claim to Owner. In such cases, the claim shall be resolved pursuant to Section 13.4.

13.3.2 Notwithstanding any other provisions herein to the contrary, Design-Builder and Design-Build Subcontractor each agree to accept the relief as to a time extension or additional compensation obtained from Owner, if any, as well as all other aspects of the final decision following appeal or the expiration of the time for appeal, as full and final resolution of any Owner Dispute.

13.3.3 If Design-Builder asserts a claim against Owner involving Design-Build Subcontractor, each party shall bear its own costs for outside counsel and third-party consultants retained to prosecute claims against Owner and for any other litigation costs. Each party shall present its portion of the claim to Owner.

13.3.4 If Owner contends that the Contract Documents have been breached, or otherwise asserts a claim or set-off against Design-Builder, the party determined to be responsible for the breach either by settlement or by the trier of fact shall be responsible for all costs occasioned by the breach, including counsel and litigation costs. If the trier of fact fails to determine the relative degrees of fault of Design-Builder and Design-Build Subcontractor in connection with any claim by Owner, then Design-Builder and Design-Build Subcontractor agree that the allocation of fault shall be determined pursuant to Section 13.4.

13.4 Disputes Not Involving Owner.

13.4.1 For any claim, dispute or controversy not arising out of, or relating to, problems caused by Owner or for which Owner is responsible, Design-Build Subcontractor and Design-Builder will first attempt to resolve such claim, dispute or controversy at the field level through discussions between Design-Builder's Representative and Design-Build Subcontractor's Representative.

13.4.2 If a claim, dispute or controversy cannot be resolved through Section 13.4.1, Design-Builder's Senior Representative and Design-Build Subcontractor's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than thirty (30) days after such a request is made, to attempt to resolve such claim, dispute or controversy. Five (5) days prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving the claim, dispute or controversy.

13.4.3 If after meeting the Senior Representatives determine that the claim, dispute or controversy cannot be resolved on terms satisfactory to both parties, the parties shall submit within thirty (30) days of the conclusion of the meeting by the Senior Representatives the claim, dispute or controversy to non-binding mediation. The mediation shall be conducted by a mutually agreeable impartial mediator, or if the parties cannot so agree, a mediator designated by the American Arbitration Association ("AAA") pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator. Unless otherwise mutually agreed by Design-Builder and Design-Build Subcontractor and consistent with the mediator's schedule, the mediation shall commence within ninety (90) days of the submission of the dispute for mediation. Representatives with authority to resolve the dispute shall be present at the mediation.

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13.5 Arbitration.

13.5.1 Any claims, disputes or controversies between the parties arising out of or relating to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures set forth in Section 13.4 above, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the AAA then in effect, unless the parties mutually agree otherwise.

13.5.2 The award of the arbitrator(s) shall be final and binding upon the parties without the right of appeal to the courts. Judgment may be entered upon it in accordance with applicable law by any court having jurisdiction thereof.

13.5.3 Design-Build Subcontractor and Design-Builder expressly agree that any arbitration pursuant to this Section 13.5 may be joined or consolidated with any arbitration involving any other person or entity (i) necessary to resolve the claim, dispute or controversy, or (ii) substantially involved in or affected by such claim, dispute or controversy. Both Design-Builder and Design-Build Subcontractor will include appropriate provisions in all contracts they execute with other parties in connection with the Project to require such joinder or consolidation.

13.5.4 The prevailing party in any arbitration, or any other final, binding dispute proceeding upon which the parties may agree, shall be entitled to recover from the other party reasonable attorneys' fees and expenses incurred by the prevailing party. The prevailing party, if any, shall be determined by the applicable binding dispute tribunal.

13.6 Duty to Continue Performance.

13.6.1 Unless provided to the contrary in the Contract Documents, Design-Build Subcontractor shall continue to perform the Work and Design-Builder shall continue to satisfy its payment obligations for undisputed amounts to Design-Build Subcontractor, pending the final resolution of any dispute or disagreement between Design-Builder and Design-Build Subcontractor.

13.7 CONSEQUENTIAL DAMAGES.

13.7.1 NOTWITHSTANDING ANYTHING HEREIN TO THE CONTRARY (EXCEPT AS SET FORTH IN SECTION 13.7.2 BELOW), NEITHER DESIGN-BUILDER NOR DESIGN-BUILD SUBCONTRACTOR SHALL BE LIABLE TO THE OTHER FOR ANY CONSEQUENTIAL LOSSES OR DAMAGES, WHETHER ARISING IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, INCLUDING BUT NOT LIMITED TO LOSSES OF USE, PROFITS, BUSINESS, REPUTATION OR FINANCING.

13.7.2 Notwithstanding Section 13.7.1 above, Design-Builder shall be entitled to recover against Design-Build Subcontractor (i) any liquidated damages that Owner may assess against Design-Builder which are attributable to Design-Build Subcontractor, even though both parties recognize that such liquidated damages may include some damages that might otherwise be deemed to be consequential and (ii) any liability of Design-Build Subcontractor for consequential damages that may be imposed upon the Design-Builder by the Design-Build Agreement.

Article 14

Miscellaneous

14.1 Assignment.

14.1.1 Neither Design-Build Subcontractor nor Design-Builder shall, without the written consent of the other, assign, transfer or sublet any portion or part of the Work or the obligations required by the Contract Documents.

14.2 Successorship.

14.2.1 Design-Builder and Design-Build Subcontractor intend that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.

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14.3 Governing Law.

14.3.1 The Agreement and all Contract Documents shall be governed by the laws of the location of the Project, without giving effect to its conflict of law principles.

14.4 Severability.

14.4.1 If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal or otherwise unenforceable pursuant to any applicable Legal Requirements or court order, such determination shall not impair or otherwise affect the validity, legality or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

14.5 No Waiver.

14.5.1 The failure of either Design-Builder or Design-Build Subcontractor to insist, in any one or more instances, on the performance of any of the obligations required by the other under the Contract Documents shall not be construed as a waiver or relinquishment of such obligation or right with respect to future performance.

14.6 Headings.

14.6.1 The headings used in this Agreement, or any other Contract Document, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

14.7 Notice.

14.7.1 Whenever the Contract Documents require that notice be provided to the other party, notice will be deemed to have been validly given (i) if delivered in person to the individual intended to receive such notice, (ii) four (4) days after being sent by registered or certified mail, postage prepaid to the address indicated in the Agreement, or (iii) if transmitted by facsimile, by the time stated in a machine generated confirmation that notice was received at the number of the intended recipient or (iv) by electronic mail, by the time frame stated in the email-generated confirmation that notice was received by the email of the intended recipient.

14.8 Amendments.

14.8.1 The Contract Documents may not be changed, altered or amended in any way except in writing signed by a duly authorized representative of each party.

14.9 Survival.

14.9.1 Design-Build Subcontractor's obligations under this Agreement shall not be released and shall specifically survive the completion of all services hereunder by Design-Build Subcontractor, final payment to Design-Build Subcontractor, and the termination of this Agreement for any reason.

Article 15

Electronic Data

15.1 Electronic Data.

15.1.1 The parties recognize that Contract Documents, including drawings, specifications and three-dimensional modeling (such as Building Information Models) and other Work Product may be transmitted among Design-Builder, Design-Build Subcontractor and others in electronic media as an alternative to paper hard copies (collectively "Electronic Data").

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15.2 Transmission of Electronic Data.

15.2.1 Design-Builder shall determine, after consultation with Design-Build Subcontractor, the software and the format for the transmission of Electronic Data. Each party shall be responsible for securing the legal rights to access the agreed-upon format, including, if necessary, obtaining appropriately licensed copies of the applicable software or electronic program to display, interpret and/or generate the Electronic Data.

15.2.2 Neither party makes any representations or warranties to the other with respect to the functionality of the software or computer program associated with the electronic transmission of Work Product. Unless specifically set forth in the Agreement, ownership of the Electronic Data does not include ownership of the software or computer program with which it is associated, transmitted, generated or interpreted.

15.2.3 By transmitting Work Product in electronic form, the transmitting party does not transfer or assign its rights in the Work Product. The rights in the Electronic Data shall be as set forth in Article 4 of the Agreement. Under no circumstances shall the transfer of ownership of Electronic Data be deemed to be a sale by the transmitting party of tangible goods.

15.3 Electronic Data Protocol.

15.3.1 The parties acknowledge that Electronic Data may be altered or corrupted, intentionally or otherwise, due to occurrences beyond their reasonable control or knowledge, including but not limited to compatibility issues with user software, manipulation by the recipient, errors in transcription or transmission, machine error, environmental factors and operator error. Consequently, the parties understand that there is some level of increased risk in the use of Electronic Data for the communication of design and construction information and, in consideration of this, agree, and shall require their independent contractors, Subcontractors and Design Consultants to agree, to the following protocols, terms and conditions set forth in this Section 15.3.

15.3.2 Electronic Data will be transmitted in the format determined in Section 15.2.1 above, including file conventions and document properties, unless prior arrangements are made in advance in writing.

15.3.3 The Electronic Data represents the information at a particular point in time and is subject to change. Therefore, the parties shall agree upon protocols for notification by the author to the recipient of any changes which may thereafter be made to the Electronic Data, which protocol shall also address the duty, if any, to update such information if such information changes prior to Final Completion of the Project.

15.3.4 The transmitting party specifically disclaims all warranties, expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with respect to the media transmitting the Electronic Data. However, transmission of the Electronic Data via electronic means shall not invalidate or negate any duties pursuant to the applicable standard of care with respect to the creation of the Electronic Data, unless such data is materially changed or altered after it is transmitted to the receiving party, and the transmitting party did not participate in such change or alteration.

15.4 In the event the Design-Build Agreement contains a provision governing Electronic Data, and there is a conflict between the provision in the Design-Build Agreement and this Article 15, the provision in the Design-Build Agreement takes precedence notwithstanding the order of precedence set forth in Section 1.4.2.

Article 16

Confidential Information

16.1 Confidential and/or Proprietary Information.

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16.1.1 Confidential Information is defined as information which is determined by the transmitting party to be of a confidential or proprietary nature and: (i) the transmitting party identifies as either confidential or proprietary; (ii) the transmitting party takes steps to maintain the confidential or proprietary nature of the information; and (iii) the document is not otherwise available in or considered to be in the public domain. The receiving party agrees to maintain the confidentiality of the Confidential Information and agrees to use the Confidential Information solely in connection with the Project.

16.1.2 Design-Build Subcontractor may receive information from Design-Builder that is either confidential or proprietary to either Design-Builder or to Owner. Such information shall be labeled as confidential and/or proprietary. Design-Build Subcontractor agrees to maintain the confidential nature of such information and to execute any such additional agreements as may be required by Owner or Design-Builder with respect to such information.

16.1.3 In the event the Design-Build Agreement contains a provision governing Confidential Information, and there is a conflict between the provision in the Design-Build Agreement and this Article 16, the provision in the Design-Build Agreement takes precedence notwithstanding the order of precedence set forth in Section 1.4.2.

Article 17

Other Provisions

17.1 Other provisions, if any, are as follows:

(Insert any additional provisions, including those that relate to options that might have been selected by Design-Builder and Owner in the Design-Build Agreement related to Warranty Reserves, alternatives to Liquidated Damages, etc. as the parties may deem commercially appropriate.)

[In lieu of Sections 13.5.1 through 13.5.3 of the Agreement, the parties may want to delete such sections and include the following alternative dispute resolution clause.]

☐ Any claims, disputes, or controversies between the parties arising out of or related to the Agreement, or the breach thereof which have not been resolved in accordance with the procedures set forth in Section 13.4 herein shall be resolved in a court of competent jurisdiction in the state in which the Project is located.

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In executing this Agreement, Design-Builder and Subcontractor each individually represents that it has the necessary financial resources to fulfill its obligations under this Agreement, and each has the necessary corporate approvals to execute this Agreement, and perform the Work described herein.

DESIGN-BUILDER:	**SUBCONTRACTOR:**
_____	_____
(Name of Design-Builder)	*(Name of Subcontractor)*
_____	_____
(Signature)	*(Signature)*
Printed Name: _____	Printed Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

Caution: You should sign an original DBIA document which has this caution printed in blue. An original assures that changes will not be obscured as may occur when documents are reproduced.

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DBIA Contract Document #570

Standard Form of Agreement Between Design-Builder and Subcontractor (Where Subcontractor Does Not Provide Design Services)

Document No. 570
Third Edition, 2022

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Washington, D.C.



Design-Build Institute of America - Contract Documents

LICENSE AGREEMENT

By using the DBIA Contract Documents, you agree to and are bound by the terms of this License Agreement.

1. **License.** The Design-Build Institute of America ("DBIA") provides DBIA Contract Documents and licenses their use worldwide. You acknowledge that DBIA Contract Documents are protected by the copyright laws of the United States. You have a limited nonexclusive license to: (a) Use DBIA Contract Documents on any number of machines owned, leased or rented by your company or organization; (b) Use DBIA Contract Documents in printed form for bona fide contract purposes; and (c) Copy DBIA Contract Documents into any machine-readable or printed form for backup or modification purposes in support of your permitted use.

2. **User Responsibility.** You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results, and for the installation, use and results obtained from the DBIA Contract Documents. You acknowledge that you understand that the text of the DBIA Contract Documents has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You will not represent that any of the contract documents you generate from DBIA Contract Documents are DBIA documents unless (a) the document text is used without alteration or (b) all additions and changes to, and deletions from, the text are clearly shown.

3. **Copies.** You may not use, copy, modify or transfer DBIA Contract Documents, or any copy, modification or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification or portion merged into another document or program.

4. **Transfers.** You may not transfer possession of any copy, modification or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.

5. **Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.

6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.

7. **Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.

8. **Acknowledgement.** You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

INSTRUCTIONS

For DBIA Document No. 570, Standard Form of Agreement Between Design-Builder and Subcontractor (Where Subcontractor Does Not Provide Design Services) (2022 Edition)

Checklist

Use this Checklist to ensure that the Agreement is fully completed and all exhibits are attached.

Page 1	Enter date of Agreement
Page 1	Design-Builder's name, address and form of business
Page 1	Subcontractor's name, address and form of business
Page 1	Project name, location and address
Page 1	Owner's name, address and form of business
Section 1.2.1.15	Identify portion of the Project which comprises the Work
Section 2.11.1	Attach permit list
Section 6.1.1	Insert Contract Price
Section 6.2.1	Insert financial arrangements for adjustment
Section 7.2.1	Complete blanks for day of month
Section 7.3.1	Complete blanks for retainage
Section 7.7.1	Complete blanks for interest rate
Section 8.2.1.3	Choose overhead/profit method for termination for convenience
Section 9.1.1	Insert Design-Builder's Senior Representative's name, etc.
Section 9.1.2	Insert Design-Builder's Representative's name, etc.
Section 9.2.1	Insert Subcontractor's Senior Representative's name, etc.
Section 9.2.2	Insert Subcontractor's Representative's name, etc.
Section 10.1.1	Attach Insurance Exhibit
Section 10.4.1	Insert amount and conditions of bonds or other security
Section 17.1	Insert any other provisions (optional)
Last Page	Design-Builder's and Subcontractor's execution of the Agreement

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General Instructions

No.	Subject	Instruction
1.	Standard Forms	Standard form contracts have long served an important function in the United States and international construction markets. The common purpose of these forms is to provide an economical and convenient way for parties to contract for design and construction services. As standard forms gain acceptance and are used with increased frequency, parties are able to enter into contracts with greater certainty as to their rights and responsibilities.
2.	DBIA Standard Form Contract Documents	Since its formation in 1993, the Design-Build Institute of America ("DBIA") has regularly evaluated the needs of owners, design-builders and other parties to the design-build process in preparation for developing its own contract forms. Consistent with DBIA's mission of promulgating best design-build practices, DBIA believes that the design-build contract should reflect a balanced approach to risk that considers the legitimate interests of all parties to the design-build process. DBIA's Standard Form Contract Documents reflect a modern risk allocation approach, allocating each risk to the party best equipped to manage and minimize that risk, with the goal of promoting best design-build practices.
3.	Use of Non-DBIA Documents	To avoid inconsistencies among documents used for the same project, DBIA's Standard Form Contract Documents should not be used in conjunction with non-DBIA documents unless the non-DBIA documents are appropriately modified on the advice of legal counsel. Moreover, care should also be taken when using different editions of the DBIA Standard Form Documents on the same project to ensure consistency.
4.	Legal Consequences	DBIA Standard Form Contract Documents are legally binding contracts with important legal consequences. Contracting parties are advised and encouraged to seek legal counsel in completing or modifying these Documents.
5.	Reproduction	DBIA hereby grants to purchasers a limited license to reproduce its original Documents consistent with the License Agreement accompanying these Documents. At least two original versions of the Agreement should be signed by the parties. Any other reproduction of DBIA Documents is strictly prohibited.
6.	Modifications	Effective contracting is accomplished when the parties give specific thought to their contracting goals and then tailor the contract to meet the unique needs of the project and the design-build team. For that reason, these Documents may require modification for various purposes including, for example, to comply with local codes and laws, or to add special terms. Also, in some instances, these Documents must be modified to indicate the selection of a particular contract term. DBIA's latest revisions to its Documents provide the parties an opportunity to customize their contractual relationship by selecting various optional contract clauses that may better reflect the unique needs and risks associated with the project. Any modifications to these Documents should be initialed by the parties. At no time should a document be re-typed in its entirety. Re-creating the document violates copyright laws and destroys one of the advantages of standard forms — familiarity with the terms.
7.	Execution	It is good practice to execute two original copies of the Agreement. Only persons authorized to sign for the contracting parties may execute the Agreement.

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Specific Instructions

Section	Title	Instruction
General	Purpose of This Agreement	DBIA Document No. 570, *Standard Form of Agreement Between Design-Builder and Subcontractor (Where Subcontractor Does Not Provide Design Services),* 2022 Edition ("Agreement") sets forth the terms and conditions under which construction of a specified portion of the Project will be performed, and should be used when the parties intend that Design-Builder pay a lump sum to a Subcontractor that is not providing design services for the completion of the Work.
General	Purpose of These Instructions	These Instructions are not part of this Agreement, but are provided to aid the parties in their understanding of the Agreement and in completing the Agreement.
General	Date	On Page 1, enter the date when both parties reach a final understanding. It is possible, due to logistical reasons, that the dates when the parties execute the Agreement may be different. Once both parties execute the Agreement, the effective date of the Agreement will be the date recorded on Page 1. This date does not, however, determine the Date of Commencement, which is measured according to the terms of Article 5.
General	Parties: Design-Builder and Subcontractor	On Page 1, enter the legal name and full address of Design-Builder, Subcontractor and Owner, as well as the legal form of each entity, e.g., corporation, partnership, limited partnership, limited liability company or other.
1.1.1	Pass Through	The section recognizes that Subcontractor has the same rights, responsibilities and obligations to Design-Builder as Design-Builder by the Design-Build Agreement has against and to Owner. However, because the Design-Build Agreement also affords Design-Builder and Owner many opportunities to customize their contractual relationship by the selection of optional provisions, DBIA does not believe that these optional provisions should automatically pass through to Subcontractor. Accordingly, if Design-Builder and Subcontractor believe it is appropriate to afford Subcontractor the same rights, responsibilities and obligations as it relates to these optional provisions, the parties should make that clear by adding the necessary and appropriate provisions at Article 17 of this Agreement.
1.2	Definitions	Except to the extent set forth in Section 1.2 of this Agreement, terms, words and phrases used in the Agreement shall have the same meanings used in the Design-Build Agreement between Owner and Design-Builder (either DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder — Lump Sum* (2022 Edition), or DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder — Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2022 Edition), and including DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2022 Edition).
1.2.1.15	Definition of the Work	The parties must identify the specific portion of the Project which Subcontractor is responsible for constructing.
1.3.1	Contract Documents	Identify any other Contract Documents.
1.4.2	Order of Precedence	The Contract Documents are listed in Section 1.3 in the order of their precedence.
2.9	Patents and Copyrights	Subcontractor shall pay all license fees and royalties for items or processes it selects which are subject to copyrights or patent rights.
2.11.1	Government Approvals and Permits	Subcontractor is responsible for obtaining the specific permits, approvals and licenses set forth in an exhibit to the Agreement.
3.3.1	Furnishing of Information	Design-Builder shall furnish Subcontractor with the listed Owner-provided information. Subcontractor is entitled to rely on the Owner-provided information to the same extent Design-Builder is entitled to pursuant to the Design-Build Agreement.

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Section	Title	Instruction
5.1	Date of Commencement	Subcontractor's obligation to commence work is triggered by its receipt of a Notice to Proceed unless the parties mutually agree otherwise.
6.1.1	Contract Price	Insert lump sum price Design-Builder will pay Subcontractor for the Work.
6.2.1	Markups for Changes	Enter the markups agreed upon by Design-Builder and Subcontractor to be used for pricing Changes to the Work.
7.2.1	Progress Payments	Enter the day of the month when Subcontractor shall submit its Application for Payment.
7.3.1	Retainage on Progress Payments	Enter the percent Design-Builder will retain from Progress Payments to Subcontractor. Note that the contract between Owner and Design-Builder may contain a number of ways to release retainage. The parties in this Agreement should be mindful of these options when developing this provision.
7.7.1	Interest	The parties should enter the rate at which interest will accrue on Subcontractor's payments if unpaid five (5) days after due. Late payment creates a hardship for Subcontractor and its Sub-Subcontractors.
7.11.1	Record Keeping	The Design-Builder is provided access to, and has the right to audit Subcontractor's records with respect to changes in the Work. However, if the parties have agreed to multipliers or markups, the time to challenge and negotiate those percentages is at the time the parties execute the Agreement and not during the Project or after it has been completed. Accordingly, Design-Builder can at any time audit these percentages only to confirm that such percentage has been properly charged and not to challenge the composition of such percentage.
8.2.1.3	Termination for Convenience: Overhead and Profit	The parties should choose prior to execution of the Agreement the method that will be used to determine overhead and profit paid to Subcontractor in the event Design-Builder terminates Subcontractor for its convenience. The parties may choose to set percentage rates for overhead and profit prior to execution of the Agreement, or may choose to determine reasonable sums to be paid for overhead and profit at the time of the termination. If the parties choose to set overhead and profit rates prior to execution of the Agreement, the percentages should be entered in Section 8.2.1.3.
8.2.2	Termination for Convenience	If Design-Builder terminates Subcontractor for convenience because Owner has terminated Design-Builder for its convenience, Subcontractor is only entitled to receive such amount as Design-Builder receives from Owner on behalf of Subcontractor.
8.5	Subcontractor's Right to Terminate for Cause	If Subcontractor properly terminates the Agreement for cause, it shall recover from Design-Builder in the same way as if Design-Builder had terminated the Agreement for convenience under Section 8.2 of the Agreement.
Article 9	Representatives of the Parties	Enter the name, title, address and telephone number of Design-Builder's Senior Representative and Design-Builder's Representative at Sections 9.1.1 and 9.1.2, respectively. Enter the name, title, address and telephone number of Subcontractor's Senior Representative and Subcontractor's Representative at Sections 9.2.1 and 9.2.2, respectively. The parties can elect to establish these Representatives during the performance of the Project rather than at the time of execution of this Agreement. If Representatives are identified after execution of the Agreement, an appropriate amendment should be made to the Agreement at the time these individuals are designated.

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Section	Title	Instruction
10.1.1	Subcontractor's Insurance Requirements	Attach an Insurance Exhibit setting forth in detail the insurance coverages Subcontractor is required to provide for the Project. Parties are advised to familiarize themselves with the terms of Article 5 of the General Conditions of Contract, Insurance and Bonds, and to consult their insurance advisors.
10.1.2	Sub-Subcontractor's Insurance Requirements	Subcontractor is obligated to require its Sub-Subcontractors to provide the insurance coverage set forth in the Insurance Exhibit. Parties are advised to consult their insurance advisors.
10.1.3	Exclusions to Design-Build	Parties are advised that standard liability insurance policies may contain exclusions for the design-build delivery method. This Section 10.1.3 requires that any such exclusions be deleted from the policy.
10.4.1	Bonds and Other Performance Security	Enter the type and amount of bonds or other performance security required for the Project. Where bonding is not required by statute, Design-Builder may want to evaluate the project risk versus the bonding costs in deciding what type of performance security to require.
13.3	Disputes Involving Owner	Disputes for which Owner is responsible will be resolved in accordance with the dispute resolution clause in the Design-Build Agreement.
13.4	Disputes Not Involving Owner	DBIA endorses the use of partnering, negotiation, mediation and arbitration for the prevention and resolution of disputes. The Agreement provides for the parties' Representatives and Senior Representatives to attempt to negotiate the dispute. If this attempt fails, the dispute shall be submitted to mandatory, non-binding mediation. Any dispute that cannot be resolved by mediation shall then be submitted to binding arbitration pursuant to Section 13.5.4.
13.5	Arbitration	The prevailing party in any arbitration shall receive reasonable attorneys' fees from the other party. DBIA supports this "loser pays" provision to encourage parties to negotiate or mediate their differences and to minimize the number of frivolous disputes.
13.6	Duty to Continue Performance	Pending the resolution of any dispute, both Design-Builder and Subcontractor shall continue to perform their respective duties under the Contract Documents, unless the parties provide otherwise in the Contract Documents.
13.7	Consequential Damages	DBIA believes that it is inappropriate for either Design-Builder or Subcontractor to be responsible to the other for consequential damages arising from the Project. This limitation on consequential damages in no way restricts, however, Design-Builder's entitlement to recover against Subcontractor liquidated damages assessed by Owner against Design-Builder which are attributable to Subcontractor and which may include damages that might otherwise be deemed consequential.
Article 15	Electronic Data	Design-Builder will determine, after consultation with Subcontractor, the software and format for the transmission of Electronic Data. The transmitting party disclaims all warranties with respect to the media transmitting the Electronic Data, but nothing in this Article is intended to negate duties with respect to the standard of care in creating the Electronic Data. In the event the Design-Build Agreement contains a conflicting provision governing Electronic Data, the provision in the Design-Build Agreement takes precedence.
Article 17	Other Provisions	Insert any other provisions. For example, the parties may elect to have disputes resolved through litigation rather than arbitration in which case the optional language in this Section should be included.

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Standard Form of Agreement Between Design-Builder and Subcontractor (Where Subcontractor Does Not Provide Design Services)

This document has important legal consequences. Consultation with an attorney is recommended with respect to its completion or modification.

This **AGREEMENT** is made as of the _____ day of _____ _____ in the year of 20_____, by and between the following parties, for services in connection with the Project identified below:

DESIGN-BUILDER:
(Name and address)

SUBCONTRACTOR:
(Name and address)

PROJECT:
(Include Project name and location as it will appear in the Contract Documents)

OWNER:
(Name and address)

In consideration of the mutual covenants and obligations contained herein, Design-Builder and Subcontractor agree as set forth herein.

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Article 1

General

1.1 Basic Purpose.

1.1.1 Design-Builder has contracted with Owner to provide the services necessary for the design and construction of the Project as set forth in the Design-Build Agreement. Subcontractor, through itself, and Sub-Subcontractors, agrees to provide all construction and other aspects of the Work consistent with the Contract Documents. Design-Builder and Subcontractor agree that to the extent applicable to the performance of the Work hereunder, Subcontractor shall have the same rights, responsibilities and obligations as to Design-Builder as Design-Builder by the Design-Build Agreement has against and to Owner, except as may be modified herein. Notwithstanding the foregoing, if Design-Builder and Owner have checked boxes indicating the selection of optional provisions from the Design-Build Agreement, those optional provisions are only passed through to the Subcontractor to the extent, those provisions have been expressly set forth in Article 17.

1.2 Basic Definitions.

1.2.1 Terms used in this Agreement shall have the meanings set forth in the Design-Build Agreement between Owner and Design-Builder unless otherwise provided herein, with the following specific terms defined as follows:

1.2.1.1 *Agreement* refers to this executed contract between Design-Builder and Subcontractor under DBIA Document 570, *Standard Form of Agreement Between Design-Builder and Subcontractor (Where Subcontractor Does Not Provide Design Services)*, 2022 Edition.

1.2.1.2 *Construction Documents* are the documents consisting of Drawings and Specifications, prepared or assembled by Design-Builder in accordance with the Design-Build Agreement.

1.2.1.3 *Day* or *Days* shall mean calendar days unless otherwise specifically noted in the Contract Documents.

1.2.1.4 *Design-Build Agreement* refers to the contract between Design-Builder and Owner for the design and construction of the Project under either DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum* (2022 Edition), or DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2022 Edition), including the DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2022 Edition), and all exhibits, attachments, and other Contract Documents enumerated and incorporated therein.

1.2.1.5 *Design Consultant* is a qualified, licensed design professional who is not an employee of Design-Builder, but is retained by Design-Builder, or employed or retained by anyone under contract with Design-Builder, to furnish design services required under the Design-Build Agreement.

1.2.1.6 *Final Completion* is the date on which all Work is complete in accordance with the Contract Documents, including but not limited to any items identified in the punch list prepared under the Design-Build Agreement and the submission of all documents set forth in Section 7.5.2.

1.2.1.7 *Force Majeure Events* are those events that are beyond the control of

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Subcontractor, Design-Builder and Owner, including the events of war, floods, labor disputes, earthquakes, epidemics, adverse weather conditions not reasonably anticipated and other acts of God.

1.2.1.8 *Hazardous Conditions* are any materials, wastes, substances and chemicals deemed to be hazardous under applicable Legal Requirements, or the handling, storage, remediation or disposal of which are regulated by applicable Legal Requirements.

1.2.1.9 *Legal Requirements* are all applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the parties, the Project or Site, the practices involved in the Project or Site, or any Work.

1.2.1.10 *Owner's Project Criteria* are developed by or for Owner to describe Owner's program requirements and objectives for the Project, including use, space, price, time, site and expandability requirements, as well as submittal requirements and other requirements governing Design-Builder's performance of the Work. Owner's Project Criteria may include conceptual documents, design criteria, design performance specifications, design specifications and LEED® or other sustainable design criteria and other Project-specific technical materials and requirements.

1.2.1.11 *Project Schedule* refers to the schedule setting forth the dates by which the various stages of both the design and construction of the Project must be performed so as to satisfy Design-Builder's obligations to Owner.

1.2.1.12 *Site* is the land or premises on which the Project is located.

1.2.1.13 *Sub-Subcontractor* is any person or entity retained by Subcontractor as an independent contractor to perform a portion of the Subcontractor's Work and shall include materialmen and suppliers.

1.2.1.14 *Substantial Completion or Substantially Complete* is the date on which the Project, or an agreed upon portion of the Project, is sufficiently complete in accordance with the Contract Documents so that Owner can occupy and use the Project or a portion thereof for its intended purposes.

1.2.1.15 *Work* is comprised of all Subcontractor's construction and other services required by the Contract Documents, including procuring and furnishing all supervision, labor, inspection, testing, start-up, materials, tools, equipment, machinery, transportation, temporary utilities, temporary facilities and all other items and services reasonably inferable from this Agreement and the other Contract Documents necessary to complete the portion of the Project described in Exhibit _____.

1.3 Contract Documents.

1.3.1 The Contract Documents are comprised of the following:

1.3.1.1 All written modifications, amendments, minor changes and Change Orders to this Agreement;

1.3.1.2 This Agreement, including all exhibits. (*List for example, performance standard requirements, performance incentive arrangements, markup exhibits, allowances, unit prices or exhibit detailing offsite reimbursable personnel.*);

1.3.1.3 The Construction Documents; and

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1.3.1.4 The Design-Build Agreement, but only to the extent the Design-Build Agreement relates to the Work and the terms and conditions under which the Work shall be performed.

1.4 Interpretation and Intent.

1.4.1 Design-Builder and Subcontractor, prior to execution of the Agreement, shall carefully review all the Contract Documents for any conflicts or ambiguities. Design-Builder and Subcontractor will discuss and resolve any identified conflicts or ambiguities prior to execution of the Agreement.

1.4.2 The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted consistent with construction and design industry standards. In the event of any inconsistency, conflict, or ambiguity between or among the Contract Documents, the Contract Documents shall take precedence in the order in which they are listed in Section 1.3 hereof.

1.5 Mutual Obligations and Acknowledgments.

1.5.1 Design-Builder and Subcontractor commit at all times to cooperate fully with each other, and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents. Design-Builder and Subcontractor shall perform their respective responsibilities, obligations and services in a timely manner to facilitate the other's timely and efficient performance and so as not to delay or interfere with the other's performance of its obligations under the Contract Documents.

1.5.2 Subcontractor acknowledges that it has reviewed the Design-Build Agreement, and has met with Design-Builder to review, discuss and familiarize itself with the Design-Build Agreement, as well as all documents incorporated therein and attached thereto.

1.6 Entire Agreement.

1.6.1 Subject to the limitation in Section 1.3.1.4, the Contract Documents, all of which are incorporated by reference into this Agreement, form the entire agreement between Design-Builder and Subcontractor and are as fully binding on the parties as if repeated herein. No oral representations or other agreements have been made by the parties except as specifically stated in the Contract Documents.

Article 2

Subcontractor's Services and Responsibilities

2.1 General.

2.1.1 Within seven (7) days after execution of this Agreement, Design-Builder and Subcontractor will meet to discuss issues affecting the administration and schedule of the Work, and implement the necessary procedures, including but not limited to those relating to schedule updates, submittals and payment, to facilitate the ability of the parties to perform their obligations under this Agreement.

2.1.2 Subcontractor's Representative shall be reasonably available to Design-Builder and shall have the necessary expertise and experience required to supervise the Work. Subcontractor's

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Representative shall communicate regularly with Design-Builder and shall be vested with the authority to act on behalf of Subcontractor. Subcontractor shall replace its Representative upon the reasonable request of Design-Builder.

2.1.3 Subcontractor shall only communicate with Owner, Design-Builder's Design Consultant or separate contractors of Design-Builder or Owner through Design-Builder.

2.2 Review of Site and Contract Documents.

2.2.1 Subcontractor represents that it has examined the Site and the Contract Documents prior to executing this Agreement so as to reasonably ascertain the nature of the Work and the various conditions affecting the Work.

2.2.2 Subcontractor shall promptly report to Design-Builder any errors, inconsistencies, omissions or violations of Legal Requirements that Subcontractor discovers. Subcontractor shall be liable to Design-Builder for any damages resulting from any such errors, inconsistencies, omissions or violations of Legal Requirements which Subcontractor discovers and fails to report to Design-Builder. Nothing in this Agreement shall be deemed to transfer any design liability from Design-Builder to Subcontractor.

2.3 Construction Services Generally.

2.3.1 Subcontractor shall perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents and the Project Schedule.

2.3.2 At the request of Design-Builder, Subcontractor shall attend meetings with Design-Builder, Owner and/or separate design professionals or contractors of Design-Builder or Owner to discuss design and/or construction issues which may arise during the Project.

2.4 Submittals and Substitutions.

2.4.1 In accordance with the Contract Documents and the Project Schedule, Subcontractor shall submit for Design-Builder's review and approval submittals, including shop drawings, product data and samples. Design-Builder shall advise Subcontractor on or before the meeting required by Section 2.1.1 hereof of the submittal requirements for the Project. Any variances with the Construction Documents shall be specifically identified in Subcontractor's submittals. Design-Builder's review and approval shall not relieve Subcontractor of its responsibilities to perform the Work in accordance with the Construction Documents unless Design-Builder expressly approves in writing any such variance in its response to Subcontractor's submittals. Subcontractor shall make any necessary revisions to the submittals requested by Design-Builder.

2.4.2 Subcontractor shall not make any substitutions in the Work or procedures or methods specified by Owner, Design-Builder or the Construction Documents for performing the Work unless it first receives written approval for such substitution from Design-Builder.

2.5 Sub-Subcontractors.

2.5.1 Subcontractor shall employ only Sub-Subcontractors who are duly licensed and qualified to perform the Work consistent with the Contract Documents. Subcontractor agrees that each Sub-Subcontractor shall be fully bound to Subcontractor in the same manner as Subcontractor is bound to Design-Builder for all the requirements of the Contract Documents to the extent applicable to the Sub-Subcontractor's scope of work.

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2.5.2 Subcontractor assumes responsibility to Design-Builder for the proper performance of the Work of Sub-Subcontractors and any acts and omissions in connection with such performance. Subcontractor shall coordinate the activities of all Sub-Subcontractors. Nothing in this Agreement is intended or deemed to relieve Subcontractor from responsibility for the work performed by its Sub-Subcontractors, or create any legal or contractual relationship between Owner or Design-Builder and any Sub-Subcontractor, including but not limited to any third-party beneficiary rights.

2.6 Work of Others.

2.6.1 Subcontractor agrees to reasonably cooperate with, and coordinate its activities so as not to interfere with, those parties performing work at the Site, including Owner's and Design-Builder's separate contractors, so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

2.6.2 If any part of the Work depends upon other work performed by Design-Builder, or Design-Builder's or Owner's separate contractors, Subcontractor shall, prior to proceeding with that part of the Work, inspect such other work and promptly notify Design-Builder of any discovered discrepancies or defects that would render it unacceptable for the proper performance of the Work. Subcontractor shall not proceed with such part of the Work without further direction from Design-Builder. Design-Builder shall promptly correct or cause to be corrected any such discrepancy or defect in the other work. Except to the extent such discrepancies or defects in such other work are latent, Subcontractor shall be liable for appropriate losses or damages incurred due to any discrepancies or defects in such other work not reported to Design-Builder by Subcontractor.

2.7 Site Cleanup.

2.7.1 Subcontractor shall keep the Site reasonably free from debris, trash and construction wastes resulting from the performance of the Work. Upon Substantial Completion of the Work, or a portion of the Work, Subcontractor shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit Owner to occupy the Project or a portion of the Project for its intended use.

2.8 Inspection.

2.8.1 At all reasonable times, Subcontractor shall provide sufficient facilities for inspection of the Work by Design-Builder at the Site and at all locations where portions of the Work are in progress or various stages of completion. When appropriate portions of the Work are ready for inspection, Subcontractor shall notify Design-Builder.

2.9 Patents and Copyrights.

2.9.1 Subcontractor shall pay all license fees and royalties due for items, materials, methods, systems or processes applicable to the Work which are subject to copyrights or patent rights and which are selected by Subcontractor.

2.10 Legal Requirements.

2.10.1 Subcontractor shall perform the Work in accordance with all applicable Legal Requirements.

2.10.2 The Contract Price and/or the times for completion of the Work shall be adjusted to compensate Subcontractor for the effects, if any, of any changes in the Legal Requirements enacted after the date of the Agreement affecting the performance of the Work.

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2.11 Government Approvals and Permits.

2.11.1 Subcontractor shall obtain and pay for the necessary permits, approvals, licenses, government charges and inspection fees required for the prosecution of the Work as set forth in Exhibit _____.

2.11.2 Subcontractor shall provide reasonable assistance to Design-Builder in obtaining those permits, approvals and licenses, if any, that are the responsibility of Owner or Design-Builder and related to the Work.

2.12 Project Safety.

2.12.1 Subcontractor recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting; (ii) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site; (iii) the work of others on the Project; and (iv) all other property at the Site or adjacent thereto. Subcontractor assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work.

2.12.2 Subcontractor and Sub-Subcontractors shall comply with all Legal Requirements relating to safety, as well as any Owner-specific and/or Design-Builder-specific safety requirements set forth in the Contract Documents or established for the Project, provided that such Owner-specific and/or Design-Builder-specific requirements do not violate any applicable Legal Requirement. Subcontractor will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to Design-Builder's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.

2.13 Warranty.

2.13.1 Subcontractor warrants to Design-Builder that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship. Subcontractor's warranty obligation excludes defects caused by abuse, alterations or failure to maintain the Work in a commercially reasonable manner. Nothing in this warranty is intended to limit any manufacturer's warranty which provides Owner and/or Design-Builder with greater warranty rights than set forth in this Section 2.13 or the Contract Documents. Subcontractor will provide and, if requested, assign to Design-Builder all manufacturers' warranties upon Substantial Completion.

2.14 Correction of Defective Work.

2.14.1 Subcontractor agrees to correct any of the Work that is found not to be in conformance with the Contract Documents, including that part of the Work subject to Section 2.13 hereof, within a period of one year from the date of Substantial Completion of the Work or any portion of the Work, or within such longer period to the extent required by any specific warranty included in the Contract Documents.

2.14.2 Subcontractor shall, within seven (7) days of receipt of written notice from Design-Builder that the Work is not in conformance with the Contract Documents, take meaningful steps to commence correction of such nonconforming Work, including the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work or the Project affected by the nonconforming Work. If Subcontractor fails to commence the necessary steps within such seven (7) day period, Design-Builder, in addition to any other remedies provided under the Contract Documents, may provide Subcontractor with written notice that Design-Builder

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will commence correction of such nonconforming Work with its own forces. If Design-Builder does perform such corrective Work, Subcontractor shall be responsible for all reasonable costs incurred by Design-Builder in performing such correction. If the nonconforming Work creates an emergency requiring an immediate response, the seven (7) day period identified herein shall be deemed inapplicable.

2.14.3 The one year period referenced in Section 2.14.1 above applies only to Subcontractor's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies Design-Builder may have regarding Subcontractor's obligations under the Contract Documents.

2.15 Start-Up and Training.

2.15.1 If required as part of Subcontractor's Work, Subcontractor shall be responsible for the start-up, testing and commissioning of the Work, and shall train Owner's personnel with respect to the operation and maintenance of the Work.

2.16 Hazardous Conditions.

2.16.1 Subcontractor is responsible for Hazardous Conditions introduced to the Site by itself, Sub-Subcontractors or anyone for whose acts they may be liable. Subcontractor shall indemnify, defend and hold harmless Owner, Design-Builder and their officers, directors, employees and agents from and against all claims, losses, damages, liabilities and expenses, including reasonable attorneys' fees and expenses, arising out of or resulting from those Hazardous Conditions introduced to the Site by Subcontractor, Sub-Subcontractors or anyone for whose acts they may be liable.

Article 3

Design-Builder's Services and Responsibilities

3.1 Timely Reviews and Approvals.

3.1.1 Design-Builder shall provide timely reviews and approvals of all submittals, consistent with the turnaround times set forth in the Project Schedule, or as agreed to by the parties at the meeting required under Section 2.1.1 hereof.

3.2 Design-Builder's Representative.

3.2.1 Design-Builder's Representative shall be responsible for providing Design-Builder-supplied information and approvals in a timely manner to permit Subcontractor to fulfill its obligations under the Contract Documents.

3.3 Furnishing of Services and Information.

3.3.1 Unless expressly stated to the contrary in the Contract Documents, and to the extent Design-Builder has received such items from Owner, Design-Builder shall provide for Subcontractor's information the items listed below. Design-Builder does not warrant the accuracy or completeness of such items provided, however, that Subcontractor is entitled to rely on these items to the same extent Design-Builder is entitled to rely upon such items in the Design-Build Agreement:

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3.3.1.1 Surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;

3.3.1.2 Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;

3.3.1.3 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper construction of the Project and enable Subcontractor to perform the Work;

3.3.1.4 A legal description of the Site;

3.3.1.5 Record drawings of any existing structures at the Site;

3.3.1.6 Environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, in existence at the Site;

3.3.1.7 Owner's Project Criteria;

3.3.1.8 All permits, approvals and licenses set forth in the Owner's Permit List attached as an exhibit to the Design-Build Agreement; and

3.3.1.9 Test and inspection reports.

3.3.2 Design-Builder shall provide Subcontractor with a copy of the Design-Build Agreement, including all exhibits, attachments and other Contract Documents enumerated and incorporated therein.

3.3.3 Upon Subcontractor's written request, Design-Builder shall provide Subcontractor with information in Design-Builder's possession regarding Owner's financial ability to pay for the Work set forth in this Agreement.

3.3.4 Design-Builder shall provide Subcontractor with the Project Schedule and appropriate updates thereto.

3.3.5 Design-Builder shall obtain those permits, approvals and licenses that are not required to be provided by Owner pursuant to the Design-Build Agreement or by Subcontractor pursuant to Section 2.11.1 hereof. Design-Builder shall provide reasonable assistance to Subcontractor in obtaining those permits, approvals and licenses that are Subcontractor's responsibility.

3.4 Notification of Errors.

3.4.1 Design-Builder shall notify Subcontractor of any errors, inconsistencies, or omissions Design-Builder discovers in the Work. Notwithstanding anything to the contrary in this Agreement, nothing in this Agreement shall relieve Subcontractor of responsibility for errors, inconsistencies, or omissions in the Work.

3.5 Attendance at Design Meetings.

3.5.1 Design-Builder shall afford Subcontractor and its Sub-Subcontractors the opportunity to attend all necessary design meetings with Owner, Design-Builder's Design Consultant or others furnishing portions of the design for the Project.

3.6 Review and Approval of Submittals.

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3.6.1 Design-Builder shall review and approve submittals, including shop drawings, product data and samples, submitted by Subcontractor. Design-Builder's review and approval of submittals shall be only for the purpose of confirming general conformance with the Construction Documents. Design-Builder's review and approval shall not relieve Subcontractor of its responsibilities to perform the Work in accordance with the Construction Documents unless Design-Builder expressly approves in writing any such variance in its response to Subcontractor's submittals. If revisions are necessary to a submittal prior to Design-Builder's approval, Design-Builder shall inform Subcontractor of any such necessary revisions.

3.7 Design-Builder's Separate Contractors.

3.7.1 Design-Builder is responsible for all work performed on the Project or at the Site by separate contractors under Design-Builder's control. Design-Builder shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, Subcontractor's ability to timely complete its Work consistent with the Contract Documents.

Article 4

Ownership of Work Product

4.1 Work Product.

4.1.1 The Subcontractor shall have no ownership and property rights in any drawings, specifications and other documents and electronic data ("Work Product") furnished by Design-Builder to Subcontractor under this Agreement. Design-Builder shall be granted ownership of all Work Product, if any, furnished by Subcontractor to Design- Builder under this Agreement.

4.2 Indemnification for Use of Work Product.

4.2.1 If either Design-Builder or Subcontractor uses the Work Product furnished to them by the other on any other project, it agrees that it shall do so at its sole risk and without liability or legal exposure to the other party, Owner or anyone working through them. Such party further agrees that it shall defend, indemnify and hold harmless the other party from and against any and all claims, damages, liabilities, losses and expenses, including attorneys' fees, arising out of or resulting from such use of the Work Product on another project.

Article 5

Time of Performance

5.1 Date of Commencement.

5.1.1 The Work shall commence five (5) days after Subcontractor's receipt of Design-Builder's Notice to Proceed ("Date of Commencement") unless the parties mutually agree otherwise in writing.

5.2 Time of Completion.

5.2.1 Subcontractor shall diligently and continuously prosecute and complete the Work in accordance with the Project Schedule as it may be revised and issued from time to time during the performance of the Work, and any other scheduling requirements listed in the Contract Documents.

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5.2.2 Subcontractor shall participate and cooperate in the development of schedules and other efforts to achieve timely completion of the Work. Subcontractor shall provide Design-Builder information for the scheduling of the times and sequence of operations required for the Work to meet Design-Builder's overall schedule requirements; shall continuously monitor the Project Schedule, including any revisions thereto, so as to be fully familiar with the timing, phasing and sequence of operation of the Work and of other work on the Project; and shall execute the Work in accordance with the requirements of the Project Schedule including any revisions thereto.

5.2.3 Subcontractor shall timely perform the various stages of the Work so that Design-Builder can achieve the dates set forth in the Project Schedule, including any revisions thereto.

5.3 Time is of the Essence.

5.3.1 Design-Builder and Subcontractor mutually agree that time is of the essence with respect to the dates and times set forth in the Contract Documents and the Project Schedule.

5.4 Delays to the Work.

5.4.1 If Subcontractor is delayed on the critical path in the performance of the Work due to acts, omissions, conditions, events or circumstances beyond its control and due to no fault of its own or those for whom Subcontractor is responsible, the time for performance shall be reasonably extended by Change Order. By way of example, events that may entitle Subcontractor to an extension of the time for completion of the work include acts or omissions of Design-Builder, Owner or anyone under Design-Builder's or Owner's control (including separate contractors), changes in the Work, Differing Site Conditions, Hazardous Conditions and Force Majeure events.

5.4.2 In addition to Subcontractor's right to a time extension for those events set forth in Section 5.4.1 above, Subcontractor shall also be entitled to an appropriate adjustment of the Contract Price provided, however, that the Contract Price shall not be adjusted for Force Majeure events unless otherwise provided for in Article 17.

5.4.3 Notwithstanding any other provision to the contrary, any delay and resulting damages that arise out of, or relate to, problems caused by Owner or for which Owner is responsible shall be resolved pursuant to Section 13.3 hereof.

5.4.4 If the Project is delayed due to the Subcontractor or anyone for whom Subcontractor is responsible, and not due to Design-Builder or Owner, Subcontractor shall compensate and indemnify Design-Builder for all costs, damages and expenses arising from such delay, including but not limited to any liquidated damages or other damages that Owner may assess against Design-Builder which are attributable to Subcontractor or anyone for whom Subcontractor is responsible. In addition, Subcontractor shall, at the direction of Design-Builder and at Subcontractor's own cost and expense, work such overtime and take such other measures as may be necessary to make up for all time lost in the completion of the Project due to such delay.

Article 6

Contract Price

6.1 Contract Price.

6.1.1 Design-Builder shall pay Subcontractor in accordance with Article 6 hereof the sum of ___ _____ Dollars ($_____) ("Contract Price"), subject to adjustments made in accordance with the Contract Documents. Unless otherwise provided in the Contract Documents, the Contract Price is deemed to include all sales, use, consumer and other

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taxes mandated by applicable Legal Requirements. Design-Builder is not responsible for Subcontractor's bidding or estimating mistakes or miscalculation of market conditions.

6.2 Markups for Changes.

6.2.1 If the Contract Price requires an adjustment due to changes in the Work, and the cost of such changes is determined under Sections 12.6.1.3 or 12.6.1.4 hereof, the following markups shall be allowed on such changes:

6.2.1.1 For additive Change Orders, including additive Change Orders arising from both additive and deductive items, it is agreed that Subcontractor shall receive a Fee of _____ _____ percent (_____%) of the additional Costs of the Work incurred for that Change Order, plus any other markups set forth at Exhibit _____ hereto.

6.2.1.2 For deductive Change Orders, including deductive Change Orders arising from both additive and deductive items, the deductive amounts shall include:

[Check one box only.]

☐ No additional reduction to account for Subcontractor's Fee or any other markup.

or

☐ An amount equal to the sum of: (a) _____percent (_____ %) applied to the direct costs of the net reduction (which amount will account for a reduction associated with Subcontractor's Fee); plus (b) any other markups set forth at Exhibit ____ _____ hereto applied to the direct costs of the net reduction.

Article 7

Procedure for Payment

7.1 Schedule of Values.

7.1.1 Unless required by Design-Builder upon execution of this Agreement, within ten (10) days of execution of the Agreement, Subcontractor shall submit for Design-Builder's review and approval a schedule of values for all of the Work. The Schedule of Values will (i) subdivide the Work into its respective parts; (ii) include values for all items comprising the Work; and (iii) serve as the basis for monthly progress payments made to Subcontractor throughout the Work.

7.2 Progress Payments.

7.2.1 Beginning with the first month after the Date of Commencement, Subcontractor shall submit on the _____(_____) day of each month for Design-Builder's review and approval, Subcontractor's Application for Payment requesting payment for all Work performed as of the date of the Application for Payment. The Application for Payment shall be accompanied by all supporting documentation required by the Contract Documents and/or established at the meeting required by Section 2.1.1 hereof. Design-Builder will submit Subcontractor's proper Application for Payment to Owner with Design-Builder's Application.

7.2.2 The Application for Payment may request payment for equipment and materials not yet incorporated into the Project, provided that (i) Design-Builder is satisfied that the equipment and materials are suitably stored at either the Site or another acceptable location, (ii) the equipment

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and materials are protected by suitable insurance, and (iii) upon payment, Design-Builder will receive the equipment and materials free and clear of all liens and encumbrances.

7.2.3 The Application for Payment shall constitute Subcontractor's representation that the Work has been performed consistent with the Contract Documents, has progressed to the point indicated in the Application for Payment, and that title to all Work will pass to Owner free and clear of all claims, liens, encumbrances and security interests upon the incorporation of the Work into the Project, or upon Subcontractor's receipt of payment, whichever occurs earlier.

7.2.4 Design-Builder shall make payment on Subcontractor's properly submitted and accurate Application for Payment within three (3) days after Design-Builder's receipt of payment from Owner on account of Subcontractor's monthly Application for Payment, but in each case less the total of payments previously made, and less amounts properly withheld under this Agreement.

7.3 Retainage on Progress Payments.

7.3.1 Design-Builder will retain from each of Subcontractor's Application for Payment _____ _____ percent (_____%). Unless mutually agreed otherwise between the parties, retainage will be included in Design-Builder's final payment to Subcontractor, provided Design-Builder has received such retained amounts from Owner.

7.4 Withholding of Payments.

7.4.1 If Design-Builder determines that Subcontractor is not entitled to all or part of an Application for Payment, it will notify Subcontractor in writing at least five (5) days prior to the date payment is due. The notice shall indicate the specific amounts Design-Builder intends to withhold, the reasons and contractual basis for the withholding and the specific measures Subcontractor must take to rectify Design-Builder's concerns. Design-Builder and Subcontractor will attempt to resolve Design-Builder's concerns prior to the date payment is due. If the parties cannot resolve such concerns, Design-Builder shall pay Subcontractor the uncontested amount of the Application for Payment, and Subcontractor may pursue its rights under the Contract Documents, including those under Article 13 hereof.

7.5 Final Payment.

7.5.1 Subcontractor shall submit its Final Application for Payment to Design-Builder in accordance with Section 7.5.2 below. Design-Builder shall make payment on Subcontractor's properly submitted and accurate Final Application for Payment within ten (10) days after Design-Builder's receipt of final payment from Owner on account of Subcontractor's Final Application for Payment, provided also that Subcontractor has satisfied the requirements for final payment set forth in Section 7.5.2 below.

7.5.2 At the time of submission of its Final Application for Payment, Subcontractor shall provide the following information:

7.5.2.1 An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect Design-Builder's or Owner's interests;

7.5.2.2 A general release executed by Subcontractor waiving, upon receipt of final payment by Subcontractor, all claims, except those claims previously made in writing to Design-Builder and remaining unsettled at the time of final payment;

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7.5.2.3 Consent of Subcontractor's surety, if any, to final payment;

7.5.2.4 All operating manuals, warranties and other deliverables required by the Contract Documents; and

7.5.2.5 Certificates of insurance confirming that required coverages will remain in effect consistent with the requirements of the Contract Documents.

7.5.3 Upon making final payment, Design-Builder waives all claims against Subcontractor except claims relating to (i) Subcontractor's failure to satisfy its payment obligations, if such failure affects Design-Builder's or Owner's interests; (ii) Subcontractor's failure to complete the Work consistent with the Contract Documents, including defects appearing after final completion of the Work; and (iii) the terms of any special warranties required by the Contract Documents.

7.6 Pay When Paid.

7.6.1 Subcontractor agrees that all payments to Subcontractor hereunder, whether progress or final payment, or for changes or delays to the Work, shall not be due until after Design-Builder actually receives payment on account of same from Owner. Notwithstanding the preceding sentence, Design-Builder shall pay Subcontractor within a reasonable time if it has not been paid by the Owner unless the Owner's failure to pay the Design-Builder is caused by the Subcontractor's failure to perform in accordance with this Agreement.

7.7 Interest.

7.7.1 Payments due and unpaid under this Agreement shall bear interest commencing five (5) days after payment is due at the rate of _____ percent (_____%) per month until paid.

7.8 Advance Payments.

7.8.1 Design-Builder has the right, at its sole option, to advance any payment due Subcontractor under this Agreement.

7.9 Payment Not Acceptance.

7.9.1 No payment to Subcontractor under this Agreement shall be evidence of, or construed to be, acceptance of defective, faulty, improper or non-conforming work.

7.10 Subcontractor's Payment Obligations.

7.10.1 Subcontractor will pay its Sub-Subcontractors, in accordance with its contractual obligations to such parties, all the amounts Subcontractor has received from Design-Builder on account of their work. Subcontractor will impose similar requirements on its Sub-Subcontractors to pay those parties with whom they have contracted. Subcontractor will indemnify and defend Owner and Design-Builder against any claims for payment and mechanic's liens as set forth in Section 11.3 hereof, providing Design-Builder is not in breach of its contractual obligations to make payment to Subcontractor for its Work.

7.11 Record Keeping and Finance Controls.

7.11.1 With respect to changes in the Work performed on a cost basis by Subcontractor pursuant to the Contract Documents, Subcontractor shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management, using accounting and control systems in accordance with generally accepted accounting principles and as may be provided in

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the Contract Documents. During the performance of the Work and for a period of three (3) years after final payment of the Work, Design-Builder and Design-Builder's accountants shall be afforded access to and the right to audit from time to time, upon reasonable notice, Subcontractor's records, books, correspondence, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to the changes in the Work, all of which Subcontractor shall preserve for a period of three (3) years after final payment. Such inspection shall take place at Subcontractor's offices during normal business hours unless another location and time is agreed to by the parties. Any multipliers or markups agreed to by Subcontractor and Design-Builder as part of this Agreement are only subject to audit to confirm that such multiplier or markup has been charged in accordance with this Agreement, with the composition of such multiplier or markup not being subject to audit.

Article 8

Stop Work and Termination

8.1 Design-Builder's Right to Stop Work.

8.1.1 Design-Builder may, without cause and for its convenience, order Subcontractor in writing to stop and suspend the Work. Such suspension shall not exceed sixty (60) consecutive days or aggregate more than ninety (90) days during the duration of the Project.

8.1.2 Subcontractor is entitled to seek an adjustment of the Contract Price and/or times for completion of the Work if its cost or time to perform the Work has been adversely impacted by any suspension or stoppage of work by Design-Builder. Notwithstanding anything to the contrary herein, if Design-Builder's suspension of the Work is the result of Owner's suspension of Design-Builder's work under the Design-Build Agreement, then Design-Builder shall pay Subcontractor only those amounts Design-Builder actually receives from Owner on account of the Work.

8.2 Design-Builder's Right to Terminate for Convenience.

8.2.1 Upon ten (10) days' written notice to Subcontractor, Design-Builder may, for its convenience and without cause, elect to terminate this Agreement. In such event, Design-Builder shall have the right to use the existing Work Product, if any, for purposes of completing the Project, and shall pay Subcontractor for the following:

8.2.1.1 All Work executed and for proven loss, cost or expense in connection with the Work;

8.2.1.2 The reasonable costs and expenses attributable to such termination, including amounts due in settlement of terminated contracts with Sub-Subcontractors; and

8.2.1.3 ***[Choose one of the following.]***

☐ The fair and reasonable sums for overhead and profit on the sum of items 8.2.1.1 and 8.2.1.2 above.

or

☐ Overhead and profit in the amount of _____ percent (_____%) on the sum of items 8.2.1.1 and 8.2.1.2 above.

8.2.2 If Design-Builder's termination of Subcontractor for convenience is the result of Owner's termination of Design-Builder for convenience under the Design-Build Agreement, then Design-

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Builder shall pay Subcontractor only those amounts Design-Builder actually receives from Owner on behalf of Subcontractor.

8.3 Design-Builder's Right to Terminate for Cause.

8.3.1 If Subcontractor persistently fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, its Sub-Subcontractors, (v) prosecute the Work with promptness and diligence to ensure that the Work is completed in accordance with the Project Schedule, as such schedule may be adjusted, or (vi) perform material obligations under the Contract Documents, then Design-Builder shall have the rights, in addition to any other rights and remedies provided in the Contract Documents or by law, set forth in Sections 8.3.2 and 8.3.3 below.

8.3.2 Upon the occurrence of an event set forth in Section 8.3.1 above, Design-Builder may provide written notice to Subcontractor that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Subcontractor's receipt of such notice. If Subcontractor fails to cure, or reasonably commence to cure, such problem, then Design-Builder may give a second written notice to Subcontractor of its intent to terminate within an additional seven (7) day period. If Subcontractor, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Design-Builder may declare the Agreement terminated for default by providing written notice to Subcontractor of such declaration.

8.3.3 Upon declaring the Agreement terminated pursuant to Section 8.3.2 above, Design-Builder may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which Subcontractor hereby transfers, assigns and sets over to Design-Builder for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items. In the event of such termination, Subcontractor shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, if the unpaid balance of the Contract Price exceeds the cost and expense incurred by Design-Builder in completing the Work, such excess shall be paid by Design-Builder to Subcontractor. If Design-Builder's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Subcontractor shall be obligated to pay the difference to Design-Builder. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expenses, including attorneys' fees and expenses, incurred by Design-Builder in connection with the reprocurement and defense of claims arising from Subcontractor's default, subject to the waiver of consequential damages set forth in Section 13.7 hereof.

8.3.4 If Design-Builder improperly terminates the Agreement for cause, the termination for cause will be converted to a termination for convenience in accordance with the provisions of Section 8.2 of the Agreement.

8.4 Subcontractor's Right to Stop Work.

8.4.1 If (i) Owner fails to pay amounts due Design-Builder under the Design-Build Agreement for Work performed by Subcontractor, such failure is not due to the fault of Subcontractor and Subcontractor has not been paid such amounts due, or (ii) Design-Builder fails to pay any undisputed amounts due Subcontractor under this Agreement, Subcontractor may, in addition to any other rights afforded under the Contract Documents or at law, stop work in accordance with Section 8.4.2.

8.4.2 Subcontractor shall provide Design-Builder with written notice that Subcontractor will stop work unless said failure to pay the amount is cured within seven (7) days from Design-Builder's

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receipt of Subcontractor's notice. Subcontractor shall not stop work unless it provides written notice and Design-Builder has failed to cure the reason for default within the seven (7) day cure period. If Design-Builder does not cure the problem within such seven (7) day period, Subcontractor may stop work. In such case, Subcontractor shall be entitled to make a claim for adjustment to the Contract Price and the times for completion of the Work to the extent it has been adversely impacted by such stoppage. To the extent Design-Builder's failure to pay is related to a dispute between the parties, the dispute will be resolved in accordance with Article 13 and the parties will continue performance in accordance with Section 13.6.

8.5 Subcontractor's Right to Terminate For Cause.

8.5.1 Subcontractor, in addition to any other rights and remedies afforded under the Contract Documents or at law, may terminate the Agreement for cause in accordance with Section 8.5.2 below if Design-Builder fails to cure the problems set forth in Section 8.4.1 above within thirty (30) days after Subcontractor has stopped the work.

8.5.2 Upon the occurrence of the event set forth in Section 8.5.1 above, Subcontractor may provide written notice to Design-Builder that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Design-Builder's receipt of such notice. If Design-Builder fails to cure, or reasonably commence to cure, such problem, then Subcontractor may give a second written notice to Design-Builder of its intent to terminate within an additional seven (7) day period. If Design-Builder, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Subcontractor may declare the Agreement terminated for default by providing written notice to Design-Builder of such declaration. In such case, Subcontractor shall be entitled to recover in the same manner as if Design-Builder had terminated this Agreement for its convenience under Section 8.2 of the Agreement.

8.6 Bankruptcy of Design-Builder or Subcontractor.

8.6.1 If either Design-Builder or Subcontractor institutes or has instituted against it a case under the United States Bankruptcy Code (such party being referred to as the "Bankrupt Party"), such event may impair or frustrate the Bankrupt Party's ability to perform its obligations under the Contract Documents. Accordingly, should such event occur:

8.6.1.1 The Bankrupt Party, its trustee or other successor, shall furnish, upon request of the non-Bankrupt Party, adequate assurance of the ability of the Bankrupt Party to perform all future material obligations under the Contract Documents, which assurances shall be provided within ten (10) days after receiving notice of the request; and

8.6.1.2 The Bankrupt Party shall file an appropriate action within the bankruptcy court to seek assumption or rejection of the Agreement within sixty (60) days of the institution of the bankruptcy filing and shall diligently prosecute such action.

If the Bankrupt Party fails to comply with its foregoing obligations, the non-Bankrupt Party shall be entitled to request the bankruptcy court to reject the Agreement, declare the Agreement terminated and pursue any other recourse available to the non-Bankrupt Party under this Article 8.

8.6.2 The rights and remedies under Section 8.6.1 above shall not be deemed to limit the ability of the non-Bankrupt Party to seek any other rights and remedies provided by the Contract Documents or by law, including its ability to seek relief from any automatic stays under the United States Bankruptcy Code.

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Article 9

Representatives of the Parties

9.1 Design-Builder's Representatives.

9.1.1 Design-Builder designates the individual listed below as its Senior Representative ("Design-Builder's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 13.4 of the Agreement: *(Identify individual's name, title, address and telephone numbers.)*

9.1.2 Design-Builder designates the individual listed below as its Design-Builder's Representative, which individual has the authority and responsibility set forth in Section 3.2 of the Agreement: *(Identify individual's name, title, address and telephone numbers.)*

9.2 Subcontractor's Representatives.

9.2.1 Subcontractor designates the individual listed below as its Senior Representative ("Subcontractor's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 13.4 of the Agreement: *(Identify individual's name, title, address and telephone numbers.)*

9.2.2 Subcontractor designates the individual listed below as its Subcontractor's Representative, which individual has the authority and responsibility set forth in Section 2.1.2 of the Agreement: *(Identify individual's name, title, address and telephone numbers.)*

Article 10

Insurance and Bonds

10.1 Subcontractor's Insurance Requirements.

10.1.1 Subcontractor is responsible for procuring and maintaining, from insurance companies authorized to do business in the state in which the Project is located, the insurance coverages set forth in the Insurance Exhibit to this Agreement, with the minimum ratings set forth in said Exhibit, for certain claims which may arise from or out of the performance of this Agreement and obligations

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under the Contract Documents.

10.1.2 Subcontractor shall require its Sub-Subcontractors to procure and maintain, from insurance companies authorized to do business in the state in which the Project is located, the insurance coverages set forth in the Insurance Exhibit.

10.1.3 Subcontractor's and its Sub-Subcontractors' insurance coverage set forth in the Insurance Exhibit shall specifically delete any design-build or similar exclusions that could compromise coverages because of the design-build delivery of the Project.

10.1.4 Prior to commencing any services hereunder, Subcontractor shall provide Design-Builder with certificates evidencing that (i) all insurance obligations required by the Contract Documents are in full force and in effect and will remain in effect for the duration required by the Contract Documents and (ii) no insurance coverage will be canceled, renewal refused or materially changed unless at least thirty (30) days' prior written notice is given to Design-Builder.

10.1.5 Except as otherwise stated in the Insurance Exhibit, the insurance policies required herein shall list Design-Builder, and any other entities required by the Contract Documents, if any, as an additional insured.

10.1.6 If any of the foregoing coverages are required to remain in force after final payment, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment.

10.2 Property Insurance.

10.2.1 In accordance with the Contract Documents, Owner or Design-Builder shall procure and maintain property insurance upon the entire Project.

10.3 Waiver of Subrogation.

10.3.1 Design-Builder and Subcontractor waive against each other and Owner, Sub-Subcontractors, Design Consultants, Owner's or Design-Builder's separate contractors, agents and employees of each and all of them, all damages covered by property insurance provided herein, except such rights as they may have to the proceeds of such insurance. Design-Builder and Subcontractor shall, where appropriate, require similar waivers of subrogation from Design Consultant and Sub-Subcontractors and separate contractors of Design-Builder, and shall require each of them to include similar waivers in their contracts. These waivers of subrogation shall not contain any restriction or limitation that will impair the full and complete extent of its applicability to any person or entity unless agreed to in writing prior to the execution of this Agreement.

10.4 Bonds and Other Performance Security.

10.4.1 Subcontractor shall provide the following performance bond and labor and material payment bond or other performance security: *(Indicate the amount of bonds and any other conditions of the bonds or other security.)*

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Article 11

Indemnification

11.1 Patent and Copyright Infringement.

11.1.1 Subcontractor shall defend any action or proceeding brought against Owner or Design-Builder based on any claim that the Work, or any part thereof, or the operation or use of the Work or any part thereof, constitutes infringement of any United States patent or copyright, now or hereafter issued. Design-Builder shall give prompt written notice to Subcontractor of any such action or proceeding and will reasonably provide authority, information and assistance in the defense of same. Subcontractor shall indemnify and hold harmless Owner and Design-Builder from and against all damages and costs, including but not limited to attorneys' fees and expenses awarded against Owner or Design-Builder in any such action or proceeding. Subcontractor agrees to keep Design-Builder informed of all developments in the defense of such actions.

11.1.2 If Owner is enjoined from the operation or use of the Work, or any part thereof, as the result of any patent or copyright suit, claim or proceeding, Subcontractor shall at its sole expense take reasonable steps to procure the right to operate or use the Work. If Subcontractor cannot so procure such right within a reasonable time, Subcontractor shall promptly, at Subcontractor's option and at Subcontractor's expense, (i) modify the Work so as to avoid infringement of any patents, or copyrights, or (ii) replace said Work with Work that does not infringe or violate any such patent or copyright.

11.1.3 Sections 11.1.1 and11.1.2 above shall not be applicable to any suit, claim or proceeding based on infringement or violation of a patent or copyright (i) relating to a particular process or product of a particular manufacturer specified by Owner or Design-Builder or (ii) arising from modifications to the Work by Owner or Design-Builder after acceptance of the Work. If the suit, claim or proceeding is based upon events set forth in the preceding sentence, Design-Builder shall defend, indemnify and hold harmless Subcontractor to the same extent Subcontractor is obligated to defend, indemnify and hold harmless Design-Builder in Section 11.1.1 above.

11.1.4 The obligations set forth in this Section 11.1 shall constitute the sole agreement between the parties relating to liability for infringement or violation of any patent or copyright.

11.2 Tax Claim Indemnification.

11.2.1 If, in accordance with Design-Builder's direction, an exemption for all or part of the Work is claimed for taxes, Design-Builder shall indemnify, defend and hold harmless Subcontractor from and against any liability, penalty, interest, fine, tax assessment, attorneys' fees or other expenses or costs incurred by Subcontractor as a result of any action taken by Subcontractor in accordance with Design-Builder's directive.

11.3 Payment Claim Indemnification.

11.3.1 Providing that Design-Builder is not in breach of its contractual obligation to make payments to Subcontractor for the Work, Subcontractor shall indemnify, defend and hold harmless Owner and Design-Builder from any claims or mechanic's liens brought against Owner, Design-Builder, or against the Project as a result of the failure of Subcontractor, or those for whose acts it is responsible, to pay for any services, materials, labor, equipment, taxes or other items or obligations furnished or incurred for, or in connection with the Work. Within three (3) days of receiving written notice from Design-Builder that such a claim or mechanic's lien has been filed, Subcontractor shall commence to take the steps necessary to discharge said claim or lien, including, if necessary, the furnishing of a mechanic's lien bond. If Subcontractor fails to do so, Design-Builder will have the right to discharge the claim or lien and hold Subcontractor liable for

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costs and expenses incurred, including attorneys' fees.

11.4 Subcontractor's General Indemnification.

11.4.1 Subcontractor, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Owner, Design-Builder, their officers, directors, employees and agents from and against claims, losses, damages and liabilities, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) to the extent resulting from the negligent acts or omissions of Subcontractor, Sub-Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

11.4.2 If an employee of Subcontractor, anyone employed directly or indirectly by Subcontractor or anyone for whose acts any of them may be liable has a claim against any party indemnified pursuant to Section 11.4.1 above, Subcontractor's indemnity obligation set forth in Section 11.4.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Subcontractor, Sub-Subcontractors, or other entity under any employee benefit acts, including workers' compensation or disability acts.

11.5 Design-Builder's General Indemnification.

11.5.1 Design-Builder, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Subcontractor and its officers, directors, employees and agents from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for non-party bodily injury, sickness or death, and non-party property damage or destruction (other than to the Work itself) but only to the extent resulting from the negligent acts or omissions of Design-Builder, Design Consultant, Design-Builder's other contractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

11.5.2 If an employee of Design-Builder, anyone employed directly or indirectly by Design-Builder or anyone for whose acts any of them may be liable has a claim against any party indemnified pursuant to Section 11.5.1 above, Design-Builder's indemnity obligation set forth in Section 11.5.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Design-Builder, Design-Builder's Design Consultant, Design-Builder's other contractors or other entity under any employee benefit acts, including workers' compensation or disability acts.

11.6 Limited Recourse.

11.6.1 None of the obligations set forth in this Agreement (on behalf of any Party) constitute personal obligations of any natural persons who are the officers, shareholders, members, partners, employees or agents of any Party unless the natural person is expressly identified as a contracting party. All Parties to this Agreement shall not seek recourse against any natural person described herein. This provision, however, shall not protect such natural persons from liability for willful misconduct, illegal acts or intentional violation of any duty of corporate loyalty.

Article 12

Changes to the Contract Price and Time

12.1 Owner-Generated Changes.

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12.1.1 If Owner issues changes affecting the Work, Subcontractor agrees, if directed by Design-Builder, to meet with Design-Builder and Owner to review and discuss the changes. Subcontractor shall only be entitled to adjustments in its Contract Price and the times for completion of the Work attributable to such Owner-generated changes to the extent Design-Builder actually receives such adjustments from Owner. If Subcontractor disputes the adjustment, such dispute shall be resolved pursuant to Section 13.3 of this Agreement.

12.2 Design-Builder-Generated Changes.

12.2.1 Changes to the Work issued by Design-Builder shall be governed by the provisions set forth in the following sections of this Article 12.

12.3 Change Orders.

12.3.1 A Change Order is a written instrument issued after execution of the Agreement signed by Design-Builder and Subcontractor, stating their agreement upon all of the following:

12.3.1.1 The scope of the change in the Work;

12.3.1.2 The amount of the adjustment to the Contract Price; and

12.3.1.3 The extent of the adjustment to the times for completion of the Work.

12.3.2 All changes in the Work authorized by applicable Change Order shall be performed under the applicable conditions of the Contract Documents. Design-Builder and Subcontractor shall negotiate, in good faith and as expeditiously as possible, the appropriate adjustments for such changes.

12.3.3 If Design-Builder requests a proposal for a change in the Work from Subcontractor and subsequently elects not to proceed with the change, a Change Order shall be issued to reimburse Subcontractor for reasonable costs incurred for preparing the proposal.

12.4 Work Change Directives.

12.4.1 A Work Change Directive is a written order prepared and signed by Design-Builder directing a change in the Work prior to agreement on an adjustment in the Contract Price and/or the times for completion of the Work.

12.4.2 Design-Builder and Subcontractor shall negotiate, in good faith and as expeditiously as possible, the appropriate adjustments for the Work Change Directive. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the agreement.

12.5 Minor Changes in the Work.

12.5.1 Minor changes in the Work are changes that do not involve an adjustment in the Contract Price and/or times for completion of the Work and do not materially and adversely affect the Work, including the design, quality, performance and workmanship required by the Contract Documents. Design-Builder may make minor changes in the Work consistent with the intent of the Contract Documents, provided, however, that Design-Builder shall promptly inform Subcontractor, in writing, of any such changes.

12.6 Contract Price Adjustment.

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12.6.1 The increase or decrease in Contract Price resulting from a change in the Work shall be determined by one or more of the following methods:

12.6.1.1 Unit prices set forth in the Agreement or as subsequently agreed between the parties;

12.6.1.2 A mutually accepted lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by Design-Builder;

12.6.1.3 Costs, fees and any other markups set forth in the Agreement; and

12.6.1.4 If an increase or decrease cannot be agreed to as set forth in items 12.6.1.1 through 12.6.1.3 above and Design-Builder issues a Work Change Directive, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in this Agreement. If the net result of both additions and deletions to the Work is an increase in the Contract Price, reasonable overhead and profit shall be calculated on the basis of the net increase to the Contract Price. Subcontractor shall maintain a documented, itemized accounting evidencing the expenses and savings associated with such changes.

12.6.2 If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices will cause substantial inequity to Design-Builder or Subcontractor because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.

12.6.3 If Design-Builder and Subcontractor disagree upon whether Subcontractor is entitled to be paid for any services required by Design-Builder, or if there are any other disagreements over the scope of Work or proposed changes to the Work, Design-Builder and Subcontractor shall resolve the disagreement pursuant to Article 13 hereof. As part of the negotiation process, Subcontractor shall furnish Design-Builder with a good faith estimate of the costs to perform the disputed services in accordance with Design-Builder's interpretations. If the parties are unable to agree and Design-Builder expects Subcontractor to perform the services in accordance with Design-Builder's interpretations, Subcontractor shall proceed to perform the disputed services, conditioned upon Design-Builder issuing a written order to Subcontractor (i) directing Subcontractor to proceed and (ii) specifying Design-Builder's interpretation of the services that are to be performed.

12.7 Emergencies.

12.7.1 In any emergency affecting the safety of persons and/or property, Subcontractor shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price and/or times for completion of the Work on account of emergency work shall be determined as provided in this Article 12.

Article 13

Contract Adjustments and Disputes

13.1 Requests for Contract Adjustments and Relief.

13.1.1 If either Subcontractor or Design-Builder believes that it is entitled to relief against the other for any event arising out of or related to the Work or the Project, such party shall provide written notice to the other party of the basis for its claim for relief. Such notice shall be in accordance with

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specific notice requirements contained in applicable sections of the Contract Documents and, if possible, be made prior to incurring any cost or expense. Subcontractor shall provide Design-Builder written notice of claims for which Owner may be responsible in sufficient time for Design-Builder to meet its notice requirements to Owner set forth in the Contract Documents. In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed ten (10) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later. The claimant shall provide more complete information with respect to the claim within ten (10) days of the initial notice. The more complete information shall be in accordance with the Contract Documents and shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request. Subcontractor shall comply with all documentation requirements set forth in the Design-Build Agreement when submitting its claim to Design-Builder.

13.2 Dispute Avoidance and Resolution.

13.2.1 The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, Subcontractor and Design-Builder each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work.

13.3 Disputes Involving Owner.

13.3.1 To the extent a claim, dispute or controversy arises out of, or relates to, problems caused by Owner or for which Owner is responsible ("Owner Disputes"), such Owner Disputes shall be resolved pursuant to the dispute resolution clause set forth in the Design-Build Agreement. Both Design-Builder and Subcontractor agree to cooperate in the presentation and prosecution or defense of Owner Disputes. If, after a request for an extension of time or additional compensation from Subcontractor, Design-Builder believes that the event causing the delay or additional compensation is the responsibility of Owner, then Design-Builder will cooperate with and assist Subcontractor in presenting a request for an extension of time or additional compensation to Owner. Notwithstanding the above, Design-Builder reserves the right not to submit a claim to Owner. In such cases, the claim shall be resolved pursuant to Section 13.4.

13.3.2 Notwithstanding any other provisions herein to the contrary, Design-Builder and Subcontractor each agree to accept the relief as to a time extension or additional compensation obtained from Owner, if any, as well as all other aspects of the final decision following appeal or the expiration of the time for appeal, as full and final resolution of any Owner Dispute.

13.3.3 If Design-Builder asserts a claim against Owner involving Subcontractor, each party shall bear its own costs for outside counsel and third-party consultants retained to prosecute claims against Owner and for any other litigation costs. Each party shall present its portion of the claim to Owner.

13.3.4 If Owner contends that the Contract Documents have been breached, or otherwise asserts a claim or set-off against Design-Builder, the party determined to be responsible for the breach either by settlement or by the trier of fact shall be responsible for all costs occasioned by the breach, including counsel and litigation costs. If the trier of fact fails to determine the relative degrees of fault of Design-Builder and Subcontractor in connection with any claim by Owner, then Design-Builder and Subcontractor agree that the allocation of fault shall be determined pursuant to Section 13.4.

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13.4 Disputes Not Involving Owner.

13.4.1 For any claim, dispute or controversy not arising out of, or relating to, problems caused by Owner or for which Owner is responsible, Subcontractor and Design-Builder will first attempt to resolve such claim, dispute or controversy at the field level through discussions between Design-Builder's Representative and Subcontractor's Representative.

13.4.2 If a claim, dispute or controversy cannot be resolved through Section 13.4.1, Design-Builder's Senior Representative and Subcontractor's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than thirty (30) days after such a request is made, to attempt to resolve such claim, dispute or controversy. Five (5) days prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving the claim, dispute or controversy.

13.4.3 If after meeting the Senior Representatives determine that the claim, dispute or controversy cannot be resolved on terms satisfactory to both parties, the parties shall submit within thirty (30) days of the conclusion of the meeting by the Senior Representatives the claim, dispute or controversy to non-binding mediation. The mediation shall be conducted by a mutually agreeable impartial mediator, or if the parties cannot so agree, a mediator designated by the American Arbitration Association ("AAA") pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator. Unless otherwise mutually agreed by Design-Builder and Subcontractor and consistent with the mediator's schedule, the mediation shall commence within ninety (90) days of the submission of the dispute for mediation. Representatives with authority to resolve the dispute shall be present at the mediation.

13.5 Arbitration.

13.5.1 Any claims, disputes or controversies between the parties arising out of or relating to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures set forth in Section 13.4 above, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the AAA then in effect, unless the parties mutually agree otherwise.

13.5.2 The award of the arbitrator(s) shall be final and binding upon the parties without the right of appeal to the courts. Judgment may be entered upon it in accordance with applicable law by any court having jurisdiction thereof.

13.5.3 Subcontractor and Design-Builder expressly agree that any arbitration pursuant to this Section 13.5 may be joined or consolidated with any arbitration involving any other person or entity (i) necessary to resolve the claim, dispute or controversy, or (ii) substantially involved in or affected by such claim, dispute or controversy. Both Design-Builder and Subcontractor will include appropriate provisions in all contracts they execute with other parties in connection with the Project to require such joinder or consolidation.

13.5.4 The prevailing party in any arbitration, or any other final, binding dispute proceeding upon which the parties may agree, shall be entitled to recover from the other party reasonable attorneys' fees and expenses incurred by the prevailing party. The prevailing party, if any, shall be determined by the applicable binding dispute tribunal.

13.6 Duty to Continue Performance.

13.6.1 Unless provided to the contrary in the Contract Documents, Subcontractor shall continue to perform the Work and Design-Builder shall continue to satisfy its payment obligations for

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undisputed amounts to Subcontractor, pending the final resolution of any dispute or disagreement between Design-Builder and Subcontractor.

13.7 CONSEQUENTIAL DAMAGES.

13.7.1 NOTWITHSTANDING ANYTHING HEREIN TO THE CONTRARY (EXCEPT AS SET FORTH IN SECTION 13.7.2 BELOW), NEITHER DESIGN-BUILDER NOR SUBCONTRACTOR SHALL BE LIABLE TO THE OTHER FOR ANY CONSEQUENTIAL LOSSES OR DAMAGES, WHETHER ARISING IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, INCLUDING BUT NOT LIMITED TO LOSSES OF USE, PROFITS, BUSINESS, REPUTATION OR FINANCING.

13.7.2 Notwithstanding Section 13.7.1 above, Design-Builder shall be entitled to recover against Subcontractor (i) any liquidated damages that Owner may assess against Design-Builder which are attributable to Subcontractor, even though both parties recognize that such liquidated damages may include some damages that might otherwise be deemed to be consequential and (ii) any liability of Subcontractor for consequential damages that may be imposed upon the Design-Builder by Design-Build Agreement.

Article 14

Miscellaneous

14.1 Assignment.

14.1.1 Neither Subcontractor nor Design-Builder shall, without the written consent of the other, assign, transfer or sublet any portion or part of the Work or the obligations required by the Contract Documents.

14.2 Successorship.

14.2.1 Design-Builder and Subcontractor intend that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.

14.3 Governing Law.

14.3.1 The Agreement and all Contract Documents shall be governed by the laws of the location of the Project, without giving effect to its conflict of law principles.

14.4 Severability.

14.4.1 If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal or otherwise unenforceable pursuant to any applicable Legal Requirements or court order, such determination shall not impair or otherwise affect the validity, legality or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

14.5 No Waiver.

14.5.1 The failure of either Design-Builder or Subcontractor to insist, in any one or more instances, on the performance of any of the obligations required by the other under the Contract Documents

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shall not be construed as a waiver or relinquishment of such obligation or right with respect to future performance.

14.6 Headings.

14.6.1 The headings used in this Agreement, or any other Contract Document, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

14.7 Notice.

14.7.1 Whenever the Contract Documents require that notice be provided to the other party, notice will be deemed to have been validly given (i) if delivered in person to the individual intended to receive such notice, (ii) four (4) days after being sent by registered or certified mail, postage prepaid to the address indicated in the Agreement, (iii) if transmitted by facsimile, by the time stated in a machine-generated confirmation that notice was received at the number of the intended recipient, or (iv) by electronic mail, by the time frame stated in the email-generated confirmation that notice was received by the email of the intended recipient.

14.8 Amendments.

14.8.1 The Contract Documents may not be changed, altered or amended in any way except in writing signed by a duly authorized representative of each party.

14.9 Survival.

14.9.1 Subcontractor's obligations under this Agreement shall not be released and shall specifically survive the completion of all services hereunder by Subcontractor, final payment to Subcontractor and the termination of this Agreement for any reason.

Article 15

Electronic Data

15.1 Electronic Data.

15.1.1 The parties recognize that Contract Documents, including drawings, specifications and three-dimensional modeling (such as Building Information Models) and other Work Product may be transmitted among Design-Builder, Subcontractor and others in electronic media as an alternative to paper hard copies (collectively "Electronic Data").

15.2 Transmission of Electronic Data.

15.2.1 Design-Builder shall determine, after consultation with Subcontractor, the software and the format for the transmission of Electronic Data. Each party shall be responsible for securing the legal rights to access the agreed-upon format, including, if necessary, obtaining appropriately licensed copies of the applicable software or electronic program to display, interpret and/or generate the Electronic Data.

15.2.2 Neither party makes any representations or warranties to the other with respect to the functionality of the software or computer program associated with the electronic transmission of Work Product. Unless specifically set forth in the Agreement, ownership of the Electronic Data does not include ownership of the software or computer program with which it is associated, transmitted, generated or interpreted.

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15.2.3 By transmitting Work Product in electronic form, the transmitting party does not transfer or assign its rights in the Work Product. The rights in the Electronic Data shall be as set forth in Article 4 of the Agreement. Under no circumstances shall the transfer of ownership of Electronic Data be deemed to be a sale by the transmitting party of tangible goods.

15.3 Electronic Data Protocol.

15.3.1 The parties acknowledge that Electronic Data may be altered or corrupted, intentionally or otherwise, due to occurrences beyond their reasonable control or knowledge, including but not limited to compatibility issues with user software, manipulation by the recipient, errors in transcription or transmission, machine error, environmental factors and operator error. Consequently, the parties understand that there is some level of increased risk in the use of Electronic Data for the communication of design and construction information and, in consideration of this, agree, and shall require their independent contractors, Subcontractors and Design Consultants to agree, to the following protocols, terms and conditions set forth in this Section 15.3.

15.3.2 Electronic Data will be transmitted in the format determined in Section 15.2.1 above, including file conventions and document properties, unless prior arrangements are made in advance in writing.

15.3.3 The Electronic Data represents the information at a particular point in time and is subject to change. Therefore, the parties shall agree upon protocols for notification by the author to the recipient of any changes which may thereafter be made to the Electronic Data, which protocol shall also address the duty, if any, to update such information if such information changes prior to Final Completion of the Project.

15.3.4 The transmitting party specifically disclaims all warranties, expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with respect to the media transmitting the Electronic Data. However, transmission of the Electronic Data via electronic means shall not invalidate or negate any duties pursuant to the applicable standard of care with respect to the creation of the Electronic Data, unless such data is materially changed or altered after it is transmitted to the receiving party, and the transmitting party did not participate in such change or alteration.

15.4 In the event the Design-Build Agreement contains a provision governing Electronic Data, and there is a conflict between the provision in the Design-Build Agreement and this Article 15, the provision in the Design-Build Agreement takes precedence, notwithstanding the order of precedence set forth in Section 1.4.2.

Article 16

Confidential Information

16.1 Confidential and/or Proprietary Information.

16.1.1 Confidential Information is defined as information which is determined by the transmitting party to be of a confidential or proprietary nature and: (i) the transmitting party identifies as either confidential or proprietary; (ii) the transmitting party takes steps to maintain the confidential or proprietary nature of the information; and (iii) the document is not otherwise available in or considered to be in the public domain. The receiving party agrees to maintain the confidentiality of the Confidential Information and agrees to use the Confidential Information solely in connection with the Project.

16.1.2 Subcontractor may receive information from Design-Builder that is either confidential or proprietary to either Design-Builder or to Owner. Such information shall be labeled as confidential

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and/or proprietary. Subcontractor agrees to maintain the confidential nature of such information and to execute any such additional agreements as may be required by Owner or Design-Builder with respect to such information.

16.1.3 In the event the Design-Build Agreement contains a provision governing Confidential Information, and there is a conflict between the provision in the Design-Build Agreement and this Article 16, the provision in the Design-Build Agreement takes precedence, notwithstanding the order of precedence set forth in Section 1.4.2.

Article 17

Other Provisions

17.1 Other provisions, if any, are as follows:

(Insert any additional provisions, including those that relate to options that might have been selected by Design-Builder and Owner in the Design-Build Agreement related to Warranty Reserves, alternatives to Liquidated Damages, etc. as the parties may deem commercially appropriate.)

[In lieu of Sections 13.5.1 through 13.5.3 of the Agreement, the parties may want to delete such sections and include the following alternative disputes proceeding clause.]

☐ Any claims, disputes or controversies between the parties arising out of or related to the Agreement, or the breach thereof which have not been resolved in accordance with the procedures set forth in Section 13.4 herein shall be resolved in a court of competent jurisdiction in the state in which the Project is located.

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In executing this Agreement, Design-Builder and Subcontractor each individually represents that it has the necessary financial resources to fulfill its obligations under this Agreement, and each has the necessary corporate approvals to execute this Agreement, and perform the Work described herein.

DESIGN-BUILDER:	**SUBCONTRACTOR:**
_____	_____
(Name of Design-Builder)	*(Name of Subcontractor)*
_____	_____
(Signature)	*(Signature)*
Printed Name: _____	Printed Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

Caution: You should sign an original DBIA document which has this caution printed in blue. An original assures that changes will not be obscured as may occur when documents are reproduced.

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DBIA Contract Document #575

Standard Form of Agreement Between Design Consultant and Design Sub-Consultant

Document No. 575
Second Edition, 2022

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Washington, D.C.



Design-Build Institute of America – Contract Documents

LICENSE AGREEMENT

By using the DBIA Contract Documents, you agree to and are bound by the terms of this License Agreement.

1. **License.** The Design-Build Institute of America ("DBIA") provides DBIA Contract Documents and licenses their use worldwide. You acknowledge that DBIA Contract Documents are protected by the copyright laws of the United States. You have a limited nonexclusive license to: (a) Use DBIA Contract Documents on any number of machines owned, leased or rented by your company or organization; (b) Use DBIA Contract Documents in printed form for bona fide contract purposes; and (c) Copy DBIA Contract Documents into any machine-readable or printed form for backup or modification purposes in support of your permitted use.
2. **User Responsibility.** You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results and for the installation, use and results obtained from the DBIA Contract Documents. You acknowledge that you understand that the text of the DBIA Contract Documents has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You will not represent that any of the contract documents you generate from DBIA Contract Documents are DBIA documents unless (a) the document text is used without alteration or (b) all additions and changes to, and deletions from, the text are clearly shown.
3. **Copies.** You may not use, copy, modify or transfer DBIA Contract Documents, or any copy, modification or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification or portion merged into another document or program.
4. **Transfers.** You may not transfer possession of any copy, modification or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.
5. **Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.
6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.
7. **Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.
8. **Acknowledgement.** You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

INSTRUCTIONS

For DBIA Document No. 575 Standard Form of Agreement Between Design Consultant and Design Sub-Consultant (2022 Edition)

Checklist

Use this Checklist to ensure that the Agreement is fully completed and all exhibits are attached.

_____	Page 1	Enter date of the Agreement
_____	Page 1	Design Consultant's name, address and form of business
_____	Page 1	Design Sub-Consultant's name, address and form of business
_____	Page 1	Project name, location and general description
_____	Page 1	Owner's name, address and form of business
_____	Section 1.1.1	Attach Exhibit outlining Scope of Services
_____	Section 2.4.1	Attach list of primary personnel
_____	Section 2.5.1	Attach permit list (optional)
_____	Section 2.7.6	Attach requirements for frequency of site visits (optional)
_____	Section 2.8.1	Attach Additional Services list (optional)
_____	Section 4.4.1.2	Insert additional compensation the Design Sub-Consultant is due for the use of its Work Product under the circumstances described in this section.
_____	Section 6.1.2	Attach basis for compensation for Design Phase Services, Construction Phase Services, Additional Services, if any, and list of Reimbursable Costs
_____	Section 6.2.1	Complete blanks for day of month
_____	Section 6.7.1	Complete blanks for interest rate
_____	Section 8.1.1	Insert Design Consultant's Senior Representative's name, etc.
_____	Section 8.1.2	Insert Design Consultant's Representative's name, etc.
_____	Section 8.2.1	Insert Design Sub-Consultant's Senior Representative's name, etc.
_____	Section 8.2.2	Insert Design Sub-Consultant's Representative's name, etc.
_____	Section 9.1.1	Attach Insurance Exhibit
_____	Section 15.1	Insert any other provisions (optional)
_____	Last Page	Design Consultant's and Design Sub-Consultant's execution of the agreement

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General Instructions

No.	Subject	Instruction
1.	Standard Forms	Standard form contracts have long served an important function in the United States and international construction markets. The common purpose of these forms is to provide an economical and convenient way for parties to contract for design and construction services. As standard forms gain acceptance and are used with increased frequency, parties are able to enter into contracts with greater certainty as to their rights and responsibilities.
2.	DBIA Standard Form Contract Documents	Since its formation in 1993, the Design-Build Institute of America ("DBIA") has regularly evaluated the needs of owners, design-builders, and other parties to the design-build process in preparation for developing its own contract forms. Consistent with DBIA's mission of promulgating best design-build practices, DBIA believes that the design-build contract should reflect a balanced approach to risk that considers the legitimate interests of all parties to the design-build process. DBIA's Standard Form Contract Documents reflect a modern risk allocation approach, allocating each risk to the party best equipped to manage and minimize that risk, with the goal of promoting best design-build practices.
3.	Use of Non-DBIA Documents	To avoid inconsistencies among documents used for the same project, DBIA's Standard Form Contract Documents should not be used in conjunction with non-DBIA documents unless the non-DBIA documents are appropriately modified on the advice of legal counsel. Moreover, care should also be taken when using different editions of the DBIA Standard Form Documents on the same project to ensure consistency.
4.	Legal Consequences	DBIA Standard Form Contract Documents are legally binding contracts with important legal consequences. Contracting parties are advised and encouraged to seek legal counsel in completing or modifying these Documents.
5.	Reproduction	DBIA hereby grants to purchasers a limited license to reproduce its Documents consistent with the License Agreement accompanying these Documents. At least two original versions of the Agreement should be signed by the parties. Any other reproduction of DBIA Documents is strictly prohibited.
6.	Modifications	Effective contracting is accomplished when the parties give specific thought to their contracting goals and then tailor the contract to meet the unique needs of the project and the design-build team. For that reason, these Documents may require modification for various purposes including, for example, to comply with local codes and laws, or to add special terms. DBIA's latest revisions to its Documents provide the parties an opportunity to customize their contractual relationship by selecting various optional contract clauses that may better reflect the unique needs and risks associated with the project. Any modifications to these Documents should be initialed by the parties. At no time should a document be re-typed in its entirety. Re-creating the document violates copyright laws and destroys one of the advantages of standard forms – familiarity with the terms.
7.	Execution	It is good practice to execute two original copies of the Agreement. Only persons authorized to sign for the contracting parties may execute the Agreement.

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Specific Instructions

Section	Title	Instruction
General	Purpose of This Agreement	DBIA Document No. 575, *Standard Form of Agreement Between Design Consultant and Design Sub-Consultant* (2022 Edition) ("Agreement"), sets forth the terms and conditions under which the design for the Project and other design services during the construction phase of the Project will be performed. This Agreement envisions that Design Sub-Consultant and Design Consultant have reviewed the requirements of the Design Consultant Agreement between Design-Builder and Design Consultant and the Design-Build Agreement between Design-Builder and Owner (either DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum* (2022 Edition), DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2022 Edition), DBIA Document No. 544, *Standard Form of Progressive Design-Build Agreement* (2022 Edition), or DBIA Document No. 545, *Standard Form Progressive Design-Build Agreement for Water and Wastewater Projects* (2022 Edition) and including DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2022 Edition), and requires Design Sub-Consultant to design the portion of the Project within Design Sub-Consultant's Scope of Services consistent with the Contract Documents.
General	Purpose of These Instructions	These Instructions are not part of this Agreement, but are provided to aid the parties in their understanding of the Agreement and in completing the Agreement.
General	Date	On Page 1, enter the date when both parties reach a final understanding. It is possible, due to logistical reasons, that the dates when the parties execute the Agreement may be different. Once both parties execute the Agreement, the effective date of the Agreement will be the date recorded on Page 1. This date does not, however, determine the Date of Commencement, which is measured according to the terms of Section 5.1.1.
General	Parties: Design-Builder and Design Consultant	On Page 1 enter the legal name and full address of Design Consultant, Design Sub-Consultant, Design-Builder and Owner, as well as the legal form of each entity, e.g., corporation, partnership, limited partnership, limited liability company or other.
1.1.1	Pass Through	The section recognizes that Design Sub-Consultant has the same rights, responsibilities and obligations as to Design Consultant as Design Consultant by the Design Consultant Agreement has against and to Design-Builder. However, because the Design Consultant Agreement also affords Design Consultant and Design-Builder many opportunities to customize their contractual relationship by the selection of optional provisions, DBIA does not believe that these optional provisions should automatically pass through to Design Sub-Consultant. Accordingly, if Design Consultant and Design Sub-Consultant believe it is appropriate to afford Design Sub-Consultant the same rights, responsibilities and obligations as it relates to these optional provisions, the parties should make that clear by adding the necessary and appropriate provisions at Article 15 of this Agreement. This section requires that the parties identify in an Exhibit Design Sub-Consultant's Scope of Services, defined as that portion of the professional services for the Project to be performed by Design Sub-Consultant.
1.2	Definitions	Terms, words and phrases used in the Agreement shall have the same meanings used in the Design Consultant Agreement between Design-Builder and Design Consultant except to the extent set forth in Section 1.2.
1.3.1	Contract Documents	This section identifies the Contract Documents, which include the Basis of Design Documents defined in Section 1.2.1.3.
1.4.2	Order of Precedence	The Contract Documents are listed in Section 1.3 in the order of their precedence.

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Section	Title	Instruction
1.4.3	Design Specifications	If Design-Builder has provided design specifications to Design Consultant, Design Sub-Consultant is entitled to rely on the information provided to the same extent as Design Consultant. If said information is not accurate, Design Sub-Consultant may be entitled to an adjustment of costs and/or time to the extent Design Consultant recovers from Design-Builder.
1.5.2	Mutual Obligations and Acknowledgments	This Agreement contemplates that Design Consultant and Design Sub-Consultant have either cooperated in the procurement of the Design-Build Agreement and/or Design Consultant Agreement or met to review, discuss and familiarize themselves with the Design-Build Agreement and the Design Consultant Agreement and that Design Sub-Consultant has familiarized itself with Design Consultant Agreement and Design-Build Agreement, including Owner's Project Criteria and the Basis of Design Documents.
2.1.1	Design Professional Services	The parties should be aware that in addition to requiring compliance with state licensing laws for design professionals, some states also require that the design professional have a corporate professional license.
2.1.2	Lower Tier Design Sub-Consultants	Design Sub-Consultant must obtain Design Consultant's approval to engage Lower Tier Design Sub-Consultants and to substitute any approved Lower Tier Design Sub-Consultants. Design Consultant's approval cannot be unreasonably withheld.
2.2.1	Standard of Care for Design Professional Services	Design Sub-Consultant's obligation is to deliver a design that meets prevailing industry standards.
2.4.1	Primary Personnel	Attach a list of Design Sub-Consultant's primary personnel for the Project.
2.5.1	Government Approvals and Permits	Design Sub-Consultant is responsible for obtaining the specific permits, approvals and licenses set forth in an exhibit to the Agreement.
2.6.1	Design Development Services	In accordance with the Design Schedule, the parties will hold design monitoring meetings during the development of the Project design so that the final design shall be consistent with the requirements of the Contract Documents, including Owner's Project Criteria and the Basis of Design Documents, as the Basis of Design Documents may have been modified.
2.6.1	Deviations from the Basis of Design Documents	Under the Design-Build Agreement, Design-Builder is obligated to provide notice to Owner of the evolution of the design or if there are any changes or deviations from the Contract Documents. Design-Builder is obligated to incorporate Owner's Comments to Design Submissions; however, if incorporation of Owner's Comments results in a design that is inconsistent with or otherwise gives rise to a change for which Design-Builder would be entitled to a change under the Design-Build Agreement, Design-Builder must provide notice to Owner of such change. Design Consultant, Design Sub-Consultants have the same obligation to review the Design Submissions and to identify and provide notice to Design-Builder of such changes with respect to those documents that are within Design Sub-Consultant's Scope of Services, if Design Sub-Consultant fails to identify changes that it made to the Contract Documents, including the Basis of Design Documents, or fails to produce Construction Documents consistent with approved changes, Design Sub-Consultant is responsible for any additional costs incurred by Design Consultant as a result of the undisclosed changes.
2.7.6	Site Visits	If the parties agree to a specific frequency of Design Sub-Consultant site visits, attach an exhibit setting forth such requirements.
2.8	Additional Services	If the parties agree that Design Sub-Consultant shall provide any services beyond those contained in the Agreement, such Additional Services shall be set forth in an exhibit attached to the Agreement.

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Section	Title	Instruction
3.3.1	Furnishing of Information	Design-Consultant shall furnish Design Sub-Consultant with the listed Design-Builder-provided information. Design Sub-Consultant is entitled to rely on the Design-Builder-provided information to the same extent Design Consultant is entitled to pursuant to the Design Consultant Agreement.
4.1	Work Product	This Agreement provides that Design Sub-Consultant shall retain ownership of the Work Product. However, if the Design Consultant Agreement conflicts with the above, then Design Sub-Consultant grants Design Consultant the same rights that Design Consultant has provided Design-Builder and Owner.
4.2	Agreement to Grant Rights to Owner	Design Sub-Consultant has reviewed the Design Consultant Agreement and Design-Build Agreement and understands that it is required to grant Design-Builder and/or Owner the rights to the Work Product according to the terms and circumstances described in the Design Consultant Agreement and the Design-Build Agreement.
4.3	Indemnification for Use of Work Product	If either Design Consultant or Design Sub-Consultant uses the Work Product on any other project, that party shall defend, indemnify and hold harmless the other party, Design-Builder and Owner.
4.4.1	Use of Work Product Upon Termination for Convenience or Design Consultant's Default	If Design Consultant terminates this Agreement for convenience or if Design Sub-Consultant terminates this Agreement due to Design Consultant's default, Design Sub-Consultant grants Design Consultant, Design-Builder and Owner the right to use the Work Product as set forth in Section 4.1.1. The granting of these rights is conditioned on (i) paying Design Sub-Consultant all amounts due under the Agreement, including paying Design Sub-Consultant an additional sum (to be negotiated) under Section 4.4.1.2 for the use of the Work Product; and (ii) Design Consultant, Design-Builder and/or Owner using the Work Product at their risk.
4.4.2	Use of Work Product Upon Design Sub-Consultant's Default	If Design Sub-Consultant is properly terminated for default, Design Consultant shall have the same rights to use the Work Product as set forth in Section 4.1.1.
5.1	Date of Commencement	Design Sub-Consultant's obligation to commence work is triggered by its receipt of a Notice to Proceed unless the parties mutually agree otherwise.
6.1.2	Design Sub-Consultant's Fee	Attach an exhibit setting forth the basis for compensating Design Sub-Consultant for its Design Phase Services, Construction Phase Services, Additional Services, if any, and Reimbursable Costs.
6.2.1	Applications for Payment	Enter the day of the month when Design Sub-Consultant shall submit its Application for Payment.
6.7	Interest	The parties should enter the rate at which interest will accrue on Design Sub-Consultant's payments if unpaid five (5) days after due. Late payment creates a hardship for Design Sub-Consultant and its Lower Tier Design Sub-Consultants.
6.9	Record Keeping	Design Consultant is provided access to, and the right to audit Design Sub-Consultant's records. However, if the parties have agreed to fees (that are either a lump sum or percentage of construction costs), multipliers or markups, the time to challenge and negotiate those percentages is at the time the parties execute the Agreement and not during the Project or after it has been completed. Accordingly, Design Consultant can at any time audit these percentages only to confirm that such percentage has been properly charged and not to challenge the composition of such percentage.
7.1	Design Consultant's Right to Terminate for Convenience	Design Consultant shall only have the right to terminate Design Sub-Consultant without cause if Design-Builder elects to terminate Design Consultant for any reason.

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Section	Title	Instruction
Article 8	Representatives of the Parties	Enter the name, title, address and telephone number of Design Consultant's Senior Representative and Design Consultant's Representative at Sections 8.1.1 and 8.1.2, respectively. Enter the name, title, address and telephone number of Design Sub-Consultant's Senior Representative and Design Sub-Consultant's Representative at Sections 8.2.1 and 8.2.2, respectively.
9.1.1	Design Sub-Consultant's Insurance Requirements	Attach an Insurance Exhibit setting forth in detail the insurance coverages Design Sub-Consultant is required to provide for the Project. Parties are advised to consult their insurance advisors.
9.1.2	Design Sub-Consultant's Insurance Requirements	Design Sub-Consultant is obligated to require its Lower Tier Design Sub-Consultants to provide the insurance coverage set forth in the Insurance Exhibit to the Agreement. Parties are advised to consult their insurance advisors.
9.1.3	Exclusions to Design-Build	Parties are advised that standard liability insurance policies may contain exclusions for the design-build delivery method. This Section 9.1.3 requires that any such exclusions be deleted from the policy.
9.1.4	Errors and Omissions Insurance	Should Design Consultant, after its analysis of the risk factors involved, require this insurance, the coverage required shall be as set forth in the Insurance Exhibit.
11.3	Disputes Involving Owner or Design-Builder	Disputes for which Owner or Design-Builder is responsible will be resolved in accordance with the dispute resolution clause in the Design-Build Agreement or Design Consultant Agreement.
11.4	Disputes Not Involving Owner or Design-Builder	DBIA endorses the use of partnering, negotiation, mediation and arbitration for the prevention and resolution of disputes. The Agreement provides for the parties' Representatives and Senior Representatives to attempt to negotiate the dispute or disagreement. If this attempt fails, the dispute shall be submitted to mandatory, non-binding mediation. Any dispute that cannot be resolved by mediation shall then be submitted to binding arbitration pursuant to Section 11.5 unless the parties elect the option in Section 15.1 of the Agreement to submit their dispute to a court of competent jurisdiction.
11.5.4	Arbitration	The prevailing party in any arbitration shall receive reasonable attorneys' fees from the other party. DBIA supports this "loser pays" provision to encourage parties to negotiate or mediate their differences and to minimize the number of frivolous disputes.
11.6	Duty to Continue Performance	Pending the resolution of any dispute or disagreement, both Design Consultant and Design Sub-Consultant shall continue to perform their respective duties under the Contract Documents, unless the parties provide otherwise in the Contract Documents.
11.7	Consequential Damages	If the Design Consultant Agreement waives Consequential Damages, DBIA believes that it is inappropriate for either Design Consultant or Design Sub-Consultant to be responsible to the other for consequential damages arising from the Project. This limitation on consequential damages in no way restricts, however, Design Consultant's entitlement to recover against Design Sub-Consultant liquidated damages assessed by Design-Builder against Design Consultant which are attributable to Design Sub-Consultant, and which may include damages that might otherwise be deemed consequential.

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Section	Title	Instruction
Article 13	Electronic Data	Design-Builder will determine, after consultation with Design Consultant, the software and format for the transmission of Electronic Data. Ownership of Work Product in electronic form is governed by Article 4 of the Agreement. The transmitting party disclaims all warranties with respect to the media transmitting the Electronic Data, but nothing in this Article is intended to negate duties with respect to the standard of care in creating the Electronic Data. In the event the Design Consultant Agreement contains a conflicting provision governing Electronic Data, the provision in the Design Consultant Agreement takes precedence.
Article 15	Other Provisions	Insert any other provisions. For example, the parties may elect to have disputes resolved through litigation rather than arbitration, in which case the optional language in this Section should be included. Also, the parties may want to incorporate specific optional provisions from the Design Consultant Agreement, in which case those provisions should be expressly incorporated in Article 15.

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Standard Form of Agreement Between Design Consultant and Design Sub-Consultant

This document has important legal consequences. Consultation with an attorney is recommended with respect to its completion or modification.

This **AGREEMENT** is made as of the _____ day of _____ in the year of 20_____, by and between the following parties:

DESIGN CONSULTANT:
(Name and address)

DESIGN SUB-CONSULTANT
(Name and address)

for services in connection with the Project identified below:
DESIGN-BUILDER:
(Name and address)

PROJECT:
(Include Project name and location as it will appear in the Contract Documents)

OWNER:
(Name and address)

In consideration of the mutual covenants and obligations contained herein, Design Consultant and Design Sub-Consultant agree as set forth herein.

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Article 1
General

1.1 Basic Purpose

1.1.1 Design-Builder has contracted with Owner to provide the services of a licensed design professional to perform all necessary design services for the Project as set forth in the Design-Build Agreement between Owner and Design-Builder. Design Consultant, through itself and its design sub-consultants, has agreed in the Design Consultant Agreement to provide such architectural, engineering and other services required by this Agreement and the other Contract Documents. Design Consultant and Design Sub-Consultant hereby agree to provide the professional services outlined in Exhibit _____ ("Scope of Services") in accordance with the Design-Build Agreement and the Design Consultant Agreement. Design Consultant and Design Sub-Consultant further agree that to the extent applicable to the performance of the Services hereunder, Design Sub-Consultant shall have the same rights, responsibilities and obligations as to Design Consultant as Design Consultant by the Design Consultant Agreement has against and to Design-Builder, except as may be modified herein. Notwithstanding the foregoing, if Design-Builder and Owner have checked boxes indicating the selection of optional provisions from the Design-Build Agreement and Design-Builder and Design Consultant have passed through those provisions in the Design Consultant Agreement, those optional provisions are only passed through to Design Sub-Consultant to the extent those provisions have been expressly set forth in Article 15.

1.2 Basic Definitions

1.2.1 Terms used in this Agreement shall have the meanings set forth in the Design-Build Agreement between Owner and Design-Builder and in the Design Consultant Agreement unless otherwise provided herein, with the following specific terms defined as follows:

1.2.1.1 *Additional Services* are those services identified in Section 2.8 hereof.

1.2.1.2 *Agreement* refers to this executed contract between Design Consultant and Design Sub-Consultant under DBIA Document 575, *Standard Form of Agreement Between Design Consultant and Design Sub-Consultant* (2022 Edition).

1.2.1.3 *Basis of Design Documents* are as follows: For DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee With an Option for a Guaranteed Maximum Price* (2022 Edition), and for DBIA Document No. 544, *Standard Form of Progressive Design-Build Agreement* (2022 Edition), and Document No. 545, *Standard Form Progressive Design-Build Agreement for Water and Wastewater Projects* (2022 Edition), the Basis of Design Documents are those documents specifically listed in, as applicable, the GMP Exhibit or GMP Proposal as being the "Basis of Design Documents." For DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum* (2022 Edition), the Basis of Design Documents are Owner's Project Criteria, Design-Builder's Proposal and the Deviation List, if any.

1.2.1.4 *Construction Documents* are the documents, consisting of Drawings and Specifications, to be prepared or assembled by Design Consultant and Design Sub-Consultants consistent with the Basis of Design Documents, unless a deviation from the Basis of Design Documents is specifically set forth in a Change Order.

1.2.1.5 *Construction Phase Services* refers to those services identified in Section 2.7 hereof.

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1.2.1.6 *Day* or *Days* shall mean calendar days unless otherwise specifically noted in the Contract Documents.

1.2.1.7 *Design-Build Agreement* refers to the contract between Design-Builder and Owner for the design and construction of the Project under either DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum* (2022 Edition), DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2022 Edition), DBIA Document No. 544, *Standard Form of Progressive Design-Build Agreement* (2022 Edition), or Document No. 545, *Standard Form Progressive Design-Build Agreement for Water and Wastewater Projects* (2022 Edition), including the DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2022 Edition), and all exhibits, attachments and other Contract Documents enumerated and incorporated therein.

1.2.1.8 *Design Consultant Agreement* refers to the contract between Design-Builder and Design Consultant for the design of the Project under DBIA Document No. 540, *Standard Form of Agreement Between Design-Builder and Design Consultant*, and all exhibits, attachments, and other Contract Documents enumerated and incorporated therein.

1.2.1.9 *Design Phase Services* refers to those services set forth in Sections 2.5 and 2.6 hereof.

1.2.1.10 *Design Schedule* refers to the schedule setting forth the dates by which Design Consultant and Design Sub-Consultant must perform the various Services required herein, consistent with the Project Schedule.

1.2.1.11 *Design Sub-Consultant's Fee* shall refer to the compensation due Design Sub-Consultant for the performance of the Services as set forth herein.

1.2.1.12 *Design Submission* means any and all documents, shop drawings, electronic information, including computer programs and computer generated materials, data, plans, drawings, sketches, illustrations, specifications, descriptions, models and other information developed, prepared, furnished, delivered or required to be delivered by, or for, Design-Builder, Design Consultant or Design Sub-Consultant.

1.2.1.13 *Final Completion* is the date on which all Work is complete in accordance with the Contract Documents, including but not limited to any items identified in the punch list prepared under Section 6.6.1 of the General Conditions of the Design-Build Agreement and the submission of all documents set forth in Section 6.7.2 of the General Conditions of the Design-Build Agreement.

1.2.1.14 *Hazardous Conditions* are any materials, wastes, substances and chemicals deemed to be hazardous under applicable Legal Requirements, or the handling, storage, remediation or disposal of which are regulated by applicable Legal Requirements.

1.2.1.15 *Legal Requirements* are all applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the parties, the Project or Site, the practices involved in the Project or Site, or any Services.

1.2.1.16 *Lower Tier Design Sub-Consultant* is a qualified, licensed design professional who is not an employee of Design Sub-Consultant, but is retained by Design Sub-

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Consultant or employed or retained by anyone under contract with Design Sub-Consultant, to furnish design services required under the Contract Documents.

1.2.1.17 *Owner's Project Criteria* are developed by or for Owner to describe Owner's program requirements and objectives for the Project, including use, space, price, time, site and expandability requirements, as well as submittal requirements and other requirements governing Design-Builder's performance of the Work. Owner's Project Criteria may include conceptual documents, design criteria, design performance specifications, design specifications and LEED® or other sustainable design criteria and other Project-specific technical materials and requirements.

1.2.1.18 *Project Schedule* refers to the schedule setting forth the dates by which the various stages of both the design and construction of the Project must be performed so as to satisfy Design-Builder's obligations to Owner.

1.2.1.19 *Scope of Services* shall include all Design Phase Services, Construction Phase Services and Additional Services required by Exhibit _____ or as may be authorized in writing by Design Consultant except for those design services provided by others under Section 1.5.3 or by Owner's design consultants.

1.2.1.20 *Site* is the land or premises on which the Project is located.

1.2.1.21 *Subcontractor* is any person or entity retained by Design-Builder as an independent contractor to perform a portion of the construction work for the Project and shall include materialmen and suppliers.

1.2.1.22 *Sub-Subcontractor* is any person or entity retained by a Subcontractor as an independent contractor to perform any portion of the Subcontractor's work and shall include materialmen and suppliers.

1.2.1.23 *Substantial Completion* or *Substantially Complete* is the date on which the Project, or an agreed upon portion of the Project, is sufficiently complete so that Owner can occupy and use the Project or a portion thereof for its intended purposes.

1.3 Contract Documents

1.3.1 The Contract Documents are comprised of the following:

1.3.1.1 All written modifications, amendments, minor changes and Change Orders to this Agreement;

1.3.1.2 The Basis of Design Documents;

1.3.1.3 This Agreement, including all exhibits and attachments, executed by Design Consultant and Design Sub-Consultant;

1.3.1.4 The Design Consultant Agreement (excluding the Basis of Design Documents), but only to the extent the Design Consultant Agreement relates to the Services and the terms and conditions under which the Services in this Agreement shall be performed;

1.3.1.5 The Design-Build Agreement (excluding the Basis of Design Documents), but only to the extent the Design-Build Agreement relates to the Services and the terms and conditions under which the Services in this Agreement shall be performed; and

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1.3.1.6 Construction Documents prepared and approved in accordance with Section 2.4 of the General Conditions of the Design-Build Agreement.

1.4 Interpretation and Intent

1.4.1 Design Consultant and Design Sub-Consultant, prior to execution of the Agreement, shall carefully review all the Contract Documents, including the various documents comprising the Basis of Design Documents relating to the Scope of Services, for any conflicts or ambiguities. Design Consultant and Design Sub-Consultant will discuss and resolve any identified conflicts or ambiguities prior to execution of the Agreement.

1.4.2 The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict with words and phrases interpreted consistent with construction and design industry standards. In the event inconsistencies, conflicts or ambiguities between or among the Contract Documents are discovered after execution of the Agreement, the parties shall attempt to resolve such ambiguities, conflicts or inconsistencies informally, recognizing that the Contract Documents shall take precedence in the order in which they are listed in Section 1.3 hereof.

1.4.3 If Owner's Project Criteria contain design specifications, Design Sub-Consultant shall be entitled to reasonably rely on the accuracy of the information represented in such design specifications and their compatibility with other information set forth in Owner's Project Criteria, including any performance specifications, to the same extent as Design-Builder and Design Consultant are entitled to so rely on the Design-Build Agreement and the Design Consultant Agreement. If Design Sub-Consultant contends that its costs and/or time of performance have been adversely impacted by such inaccurate design specifications, then it shall proceed in accordance with Section 11.3.

1.5 Mutual Obligations and Acknowledgments

1.5.1 Design Consultant and Design Sub-Consultant commit at all times to cooperate fully with each other, and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents. Design Consultant and Design Sub-Consultant shall perform their respective responsibilities, obligations and services in a timely manner to facilitate the other's timely and efficient performance and so as not to delay or interfere with the other's performance of its obligations under the Contract Documents.

1.5.2 Design Consultant and Design Sub-Consultant acknowledge the following:

[Check appropriate box.]

☐ They have cooperated with each other in the procurement of the Design-Build Agreement and that Design Consultant and Design Sub-Consultant have met to review, discuss and familiarize themselves with the Design-Build Agreement and the Design Consultant Agreement, including Owner's Project Criteria and the Basis of Design Documents that relate to the Scope of Services.

☐ Design-Builder and Design Consultant have met to review, discuss and familiarize themselves with the Design-Build Agreement and the Design Consultant Agreement, including Owner's Project Criteria and the Basis of Design Documents that relate to the Scope of Services.

1.5.3 Design-Builder or Design Consultant may choose to have portions of the overall design (e.g., structural and MEP) undertaken by design professionals directly employed by or contracting with Design-Builder or Design Consultant. Design Consultant and Design Sub-Consultant

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acknowledge the importance of integrating all of the designs into the Project's overall design concept. The parties commit to working with each other and with any other design professionals working on the Project with Design-Builder and Design Consultant to facilitate the coordination and integration of other Design Consultants and Design Sub-Consultant's Services with the Project's overall design concept. Design-Builder is responsible for the services performed by design professionals under contract with Design-Builder. Design Consultant is responsible for the services performed by design professionals under contract with Design Consultant, but nothing herein is intended to relieve Design Sub-Consultant of its obligation to coordinate its Services with the services performed by other design professionals and Lower Tier Design Sub-Consultants.

1.5.4 Design Consultant and Design Sub-Consultant mutually agree that time is of the essence with respect to the dates and times set forth in the Design Schedule, Project Schedule and Contract Documents. Each party agrees to provide the other party with information in a timely fashion and in the form and manner as reasonably required.

1.6 Entire Agreement

1.6.1 Subject to the limitations in Section 1.3.1, the Contract Documents, all of which are incorporated by reference into this Agreement, form the entire agreement between Design Consultant and Design Sub-Consultant and are as fully binding on the parties as if repeated herein. No oral representations or other agreements have been made by the parties except as specifically stated in the Contract Documents.

Article 2
Design Sub-Consultant's Services and Responsibilities

2.1 General

2.1.1 Design Sub-Consultant shall, consistent with applicable state licensing laws, provide the Services, including architectural, engineering and other professional services, required by the Scope of Services. Design Sub-Consultant agrees that such Services shall be provided through qualified, licensed professionals who are either (i) employed by Design Sub-Consultant or (ii) procured by Design Sub-Consultant from qualified, licensed Lower Tier Design Sub-Consultants.

2.1.2 Design Sub-Consultant shall not engage the services of any Lower Tier Design Sub-Consultant without first obtaining the approval of Design Consultant and Design-Builder, which approval shall not be unreasonably withheld. Design Sub-Consultant agrees that each Lower Tier Design Sub-Consultant shall be fully bound to Design Sub-Consultant in the same manner as Design Sub-Consultant is bound to Design Consultant for all the requirements of the Contract Documents to the extent applicable to the Lower Tier Design Sub-Consultant's scope of services. Design Sub-Consultant shall at all times be responsible for the services performed by its Lower Tier Design Sub-Consultants, and shall coordinate the services of its Lower Tier Design Sub-Consultants to satisfy Design Sub-Consultant's obligations under the Contract Documents. Nothing in this Agreement shall relieve Design Sub-Consultant from responsibility for the services performed by its Lower Tier Design Sub-Consultants, or create any legal or contractual relationship between Design Consultant and any Lower Tier Design Sub-Consultant. Design Sub-Consultant may not substitute approved Lower Tier Design Sub-Consultants without Design-Consultant's written consent, such consent shall not be unreasonably withheld. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Design Consultant and any Lower Tier Design Sub-Consultant, including but not limited to any third-party beneficiary rights.

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2.1.3 If Design Consultant, Design-Builder or Owner performs other work on the Project with separate design professionals under Design Consultant's, Design-Builder's or Owner's control, Design Sub-Consultant agrees to reasonably cooperate and coordinate its activities with those of such separate design professionals so that the Project can be completed in an orderly and coordinated manner and without disruption.

2.1.4 Design Sub-Consultant shall only communicate with Design-Builder, Owner, Subcontractors or Sub-Subcontractors through Design Consultant unless the parties agree otherwise. Notwithstanding the preceding sentence, Design Sub-Consultant may communicate directly with Owner and Design-Builder (with written copy to Design Consultant) on matters of public health, safety and welfare when required by applicable Legal Requirements or professional codes of ethics.

2.1.5 Within seven (7) days after execution of this Agreement, Design Consultant and Design Sub-Consultant will meet to discuss issues affecting the administration of the Services and to implement the necessary procedures, including but not limited to those relating to the schedule for the Services, schedule updates, review of submittals and payment, to facilitate the ability of the parties to perform their obligations under the Contract Documents and allow Design Consultant to meet its obligations to design the Project consistent with the Contract Documents, without compromising any professional obligations of Design Sub-Consultant. This meeting may take place in connection with the meeting described in Section 2.1.5 of the Design Consultant Agreement or in Section 2.1.4 of the General Conditions of the Design-Build Agreement.

2.2 Standard of Care

2.2.1 The standard of care for all professional services performed by Design Sub-Consultant and its Lower Tier Design Sub-Consultants pursuant to this Agreement shall be the care and skill ordinarily used by members of the applicable profession practicing under similar conditions at the same time and locality of the Project.

2.3 Legal Requirement

2.3.1 Design Sub-Consultant agrees to perform the Services in accordance with all applicable Legal Requirements.

2.3.2 Design Sub-Consultant's Fee and/or the Design Schedule shall be adjusted to compensate Design Sub-Consultant for the effects, if any, of any changes in the Legal Requirements enacted after the date of the Agreement affecting the performance of the Services. Such effects may include, without limitation, revisions Design Sub-Consultant is required to make to the Construction Documents because of changes in Legal Requirements.

2.4 Design Sub-Consultant's Personnel

2.4.1 Design Sub-Consultant agrees that the primary personnel assigned to perform the Services shall be as listed in Exhibit _____. Design Sub-Consultant shall not change such personnel without Design Consultant's prior written approval.

2.4.2 Design Sub-Consultant's Representative shall be reasonably available to Design Consultant and Design-Builder and shall have the necessary expertise and experience required to supervise the Services. Design Sub-Consultant's Representative shall communicate regularly with Design Consultant and shall be vested with the authority to act on behalf of Design Sub-Consultant. Design Sub-Consultant shall replace its Representative upon the reasonable request of Design Consultant.

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2.5 Government Approvals and Permits

2.5.1 Design Sub-Consultant shall obtain and pay for the permits, approvals and licenses, if any, set forth in Exhibit _____.

2.5.2 Design Sub-Consultant shall provide reasonable assistance to Design Consultant, Design-Builder and Owner in obtaining any permits, approvals and licenses which are not Design Sub-Consultant's obligation to obtain, but which are required for the construction of the Project.

2.5.3 Design Sub-Consultant shall make any revisions to the Construction Documents necessary to secure permits, approvals and licenses, including those which have been denied for failure of the Construction Documents to meet Legal Requirements. If such revisions are necessary for reasons beyond the control of Design Sub-Consultant or its Lower Tier Design Sub-Consultants, Design Sub-Consultant shall be compensated for such revisions as a change to this Agreement.

2.6 Design Development Services

2.6.1 In accordance with the times set forth in the Design Schedule, Design Sub-Consultant shall submit to Design Consultant all interim Design Submissions and revisions as required by the Contract Documents. Interim Design Submissions shall be consistent with Owner's Project Criteria and the Basis of Design Documents, as the Basis of Design Documents may have been modified in accordance with the Contract Documents. Such interim Design Submissions shall be in the form and quantity called for in the Contract Documents and may include design criteria, drawings, diagrams and specifications setting forth the Project requirements. Design Consultant and Design Sub-Consultant agree that prior to the scheduled date for submitting all interim Design Submissions to Design-Builder, Design Consultant and Design Sub-Consultant will hold meetings for the purpose of discussing and monitoring the design for consistency with the requirements of the Contract Documents.

2.6.2 In accordance with the Contract Documents and with the times set forth in the Design Schedule, Design Sub-Consultant shall submit to Design Consultant Construction Documents setting forth in detail drawings and specifications describing the requirements for construction of the Work. Design Sub-Consultant shall provide the Construction Documents in the form and quantity required by the Design Consultant. Design Sub-Consultant shall perform agreed upon revisions and submit revised Construction Documents to Design Consultant for approval by the Design Consultant, Design-Builder and Owner.

2.6.3 Design Sub-Consultant shall attend and participate in such meetings as are held between Design Consultant, Owner and Design-Builder to discuss interim Design Submissions and the Construction Documents as requested by Design Consultant. To the extent relevant to Design Sub-Consultant's Scope of Services, Design Sub-Consultant shall identify to Design Consultant during each such meeting, among other things, the evolution of the design and any changes or deviations from the Contract Documents, including the Basis of Design Documents, Owner's comments on the Design Submissions or, if applicable, previously submitted Design Submissions. If incorporation of the Owner's comments results in a design that is inconsistent with or otherwise gives rise to a change in Owner's Project Criteria, the Basis of Design Documents, the Contract Price established in the Design-Build Agreement and/or the Contract Time established in the Design-Build Agreement, Design Sub-Consultant shall provide written notice thereof to Design-Consultant in sufficient time for Design Consultant to provide timely notice to Design-Builder pursuant to the Design Consultant Agreement. To the extent that Design Sub-Consultant fails to identify such changes or fails to produce Construction Documents consistent with the Basis of Design Documents and identified and approved changes and Design Consultant incurs additional uncompensated costs as a result, Design Sub-Consultant shall be responsible for such costs. Minutes of these meetings, including a full listing of all changes, will be maintained by Design-

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Builder and provided to all attendees for review. Design Sub-Consultant shall review such minutes and provide notice to Design Consultant and Design-Builder of any objections thereto. The Construction Documents shall be consistent with the latest set of interim Design Submissions, as such submissions may have been modified in a design review meeting and recorded in the meetings minutes.

2.6.4 In addition to the interim Design Submissions and Construction Documents, Design Sub-Consultant shall, if requested by Design Consultant, prepare (i) those design documents necessary for the establishment of a GMP Exhibit or GMP Proposal and (ii) interim Design Submissions and Construction Documents required to permit commencement of construction on a portion of the Project before the entire Construction Documents for the Project are completed.

2.6.5 Design Consultant's, Design-Builder's and Owner's review and/or approval of interim Design Submissions and the Construction Documents are for the purpose of mutually establishing a conformed set of Construction Documents compatible with the requirements of the Contract Documents. The review and/or approval by Design Consultant, Design-Builder or Owner of any interim Design Submission or the Construction Documents shall not be deemed to transfer any design liability from Design Sub-Consultant to Design Consultant, Design-Builder or Owner.

2.6.6 Design Sub-Consultant will, at its own cost, revise any interim Design Submission or the Construction Documents drafted by Design Sub-Consultant to correct any of its errors, mistakes or omissions. Such revisions shall be performed timely and so as not to jeopardize the Design Schedule and/or the Project Schedule.

2.6.7 Design Sub-Consultant shall be responsible for paying all royalties and licensing fees for patented or copyrighted materials, methods or systems specified by Design Sub-Consultant and incorporated into the Project.

2.7 Construction Phase Services

2.7.1 Design Sub-Consultant shall assist Design Consultant and Design-Builder in preparing bidding documents for specified portions of the Project's construction and clarifying and responding to questions involving the bidding documents.

2.7.2 Design Sub-Consultant shall timely provide requested clarifications and interpretations of the Construction Documents, which shall be consistent with the intent of, and reasonably inferable from, the Contract Documents. Design Sub-Consultant shall make all revisions to the Construction Documents necessary for the proper construction of the Project.

2.7.3 Design Sub-Consultant shall review and recommend approval or rejection of such submittals, including shop drawings, product data and samples, as they relate to Design Sub-Consultant's Scope of Services and as may be required by Design Consultant. Design Sub-Consultant shall expeditiously inform Design Consultant of any revisions that are necessary as a condition to Design Sub-Consultant's approval of submittals. The time within which Design Sub-Consultant shall review and respond to submittals will be as established at the meeting required by Section 2.1.5 hereof. Design Sub-Consultant's review and approval shall not relieve Design-Builder or Subcontractors of responsibility for construction means and methods or safety precautions.

2.7.4 If requested, Design Sub-Consultant shall review, and if acceptable approve, any substitutions for materials or equipment proposed by Design-Builder.

2.7.5 Design Sub-Consultant shall, if requested by Design Consultant, review any inspection reports or tests involving the construction of the Project and provide its comments to Design

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Consultant and Design-Builder. Design Sub-Consultant is not responsible for the accuracy or completeness of the tests or inspections performed by others.

2.7.6 Unless otherwise provided, Design Sub-Consultant is not providing full-time resident services. Nevertheless, Design Sub-Consultant shall at appropriate intervals visit the Site to determine if the construction is proceeding in accordance with the Construction Documents. If Design Consultant and Design Sub-Consultant have agreed to a specific frequency of Design Sub-Consultant's Site visits, such frequency shall be set forth as an exhibit to this Agreement. Design Sub-Consultant shall promptly notify Design-Builder and Design Consultant of any defects, deficiencies, deviations, omissions or violations observed by Design Sub-Consultant in the construction of the Project and make recommendations to Design Consultant and Design-Builder on how to proceed.

2.7.7 At the request of Design Consultant or Design-Builder, Design Sub-Consultant shall attend meetings with Design Consultant, Design-Builder and/or Owner and/or Subcontractor(s) and Sub-Subcontractors to discuss design issues which may arise during construction.

2.7.8 Design Sub-Consultant shall, if requested by Design-Builder or Design Consultant, provide such certifications as may be necessary relative to Substantial Completion, and if required by the Design-Build Agreement, Final Completion, with the understanding that such certification shall be reasonably consistent with Design Consultant's scope of services.

2.7.9 Design Sub-Consultant's provision of the Construction Phase Services shall not be construed to make Design Sub-Consultant responsible for (i) the acts or omissions of Design Consultant, Design-Builder, any Sub-Consultants, Subcontractors or any Sub-Subcontractors; (ii) the means, methods, sequences and techniques of construction of the Project; or (iii) safety precautions and programs in connection with the construction of the Project. Nothing in this Agreement shall create any legal or contractual relationship between Design Sub-Consultant and any other Design Sub-Consultant, Subcontractor or Sub-Subcontractor.

2.8 Additional Services

2.8.1 Additional Services, if any, agreed upon by the parties shall be set forth in Exhibit _____ and may include by way of example only, site visits in excess of those agreed upon by the parties, evaluating changes, including the preparation or revision of the Construction Documents, providing record drawings and providing consultation concerning replacement of Work damaged by fire or other causes during construction.

Article 3
Design Consultant's Services and Responsibilities

3.1 Timely Reviews, Approvals and Submittals

3.1.1 Design Consultant shall provide timely reviews and approvals of all interim Design Submissions and Construction Documents consistent with the turnaround times set forth in the Design Schedule, or as agreed to by the parties at the meeting required under Section 2.1.5 hereof.

3.1.2 Design Consultant shall timely submit to Design Sub-Consultant all submittals, including shop drawings, product data and samples, for Design Sub-Consultant's review and approval consistent with the Project Schedule, or as agreed to by the parties at the meeting required under Section 2.1.5 hereof.

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3.1.3 Design Consultant shall provide timely notice to Design Sub-Consultant of any delays to the Project caused by Design Sub-Consultant.

3.2 Design Consultant's Representative

3.2.1 Design Consultant's Representative shall be responsible for providing Design Consultant-supplied information and approvals in a timely manner to permit Design Sub-Consultant to fulfill its obligations under the Contract Documents.

3.3 Furnishing of Services and Information

3.3.1 Unless expressly stated to the contrary in the Contract Documents, and to the extent Design Consultant has received such items from Design-Builder, Design Consultant shall provide for Design Sub-Consultant's information the items listed below, to the extent that such items relate to Design Sub-Consultant's Scope of Services. Design Consultant does not warrant the accuracy or completeness of such items, provided, however, that Design Sub-Consultant is entitled to rely upon such items to the same extent Design Consultant is entitled to rely upon such items in the Design Consultant Agreement:

3.3.1.1 Surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;

3.3.1.2 Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;

3.3.1.3 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper design and construction of the Project and enable Design Sub-Consultant to perform the Services;

3.3.1.4 A legal description of the Site;

3.3.1.5 Record drawings of any existing structures at the Site;

3.3.1.6 Environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, in existence at the Site;

3.3.1.7 Owner's Project Criteria;

3.3.1.8 All permits, approvals and licenses set forth in the Owner's Permit List attached as an exhibit to the Design-Build Agreement; and

3.3.1.9 Test and inspection reports.

3.3.2 Design Consultant shall provide Design Sub-Consultant with a copy of the Design-Build Agreement and the Design-Build Consultant Agreement, including all exhibits, attachments and other Contract Documents enumerated and incorporated therein.

3.3.3 Design Consultant shall provide to Design Sub-Consultant information regarding any cost estimating and scheduling services provided by Design-Builder and related to the construction of the Project; however, Design Consultant shall not be responsible for mistakes or miscalculations of market conditions that result in construction costs that are contrary to Design-Builder's or Design Consultant's budget and pricing assumptions. Nothing herein shall relieve Design Sub-Consultant from its obligation to prepare a design for the Project that is consistent with the Contract Documents.

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3.3.4 Upon Design Sub-Consultant's reasonable request, Design Consultant shall provide Design Sub-Consultant with information it receives from Design-Builder regarding Owner's financial ability to pay for the Services set forth in this Agreement.

3.3.5 Design Consultant shall provide Design Sub-Consultant with the Project Schedule and appropriate updates thereto that it receives from Design-Builder.

3.3.6 Design Consultant shall use reasonable efforts to grant Design Sub-Consultant reasonable access to the Project and the Site, upon written request.

3.4 Notification of Errors

3.4.1 Design-Builder or Design Consultant shall notify Design Sub-Consultant of any errors, inconsistencies or omissions Design-Builder or Design Consultant discover in the Services, including any interim Design Submissions, Construction Documents or other Services. Notwithstanding anything to the contrary in this Agreement, nothing in this Agreement shall relieve Design Sub-Consultant of responsibility for errors, inconsistencies or omissions in the Services.

3.5 Attendance at Design Meetings

3.5.1 Design Consultant shall afford Design Sub-Consultant and its Lower Tier Design Sub-Consultants the opportunity to attend all necessary design meetings with Owner, Subcontractors and/or Sub-Subcontractors.

Article 4
Ownership of Work Product

4.1 Work Product

4.1.1 All drawings, specifications and other documents and electronic data furnished by Design Sub-Consultant to Design Consultant or Design-Builder under this Agreement ("Work Product") are deemed to be instruments of service and Design Sub-Consultant shall retain ownership and property interests therein provided, however, that Design Sub-Consultant hereby grants Design Consultant and Design-Builder (for the purpose of allowing Design-Builder to grant to Owner), upon Design Consultant's payment to Design Sub-Consultant of amounts properly due under this Agreement, a limited license to use the Work Product in connection with completing this Project. Notwithstanding the preceding sentence, if the Design-Build Agreement or the Design Consultant Agreement grants ownership and/or property rights to Owner and/or Design-Builder that conflict with the above, then Design Sub-Consultant hereby grants such rights to Design Consultant and Design-Builder (for the purpose of allowing Design-Builder to grant to Owner) under the same terms and conditions that Design Consultant and Design-Builder grant such rights to Owner.

4.2 Agreement to Grant Rights to Owner

4.2.1 Design Sub-Consultant has reviewed the Design Consultant and Design-Build Agreements and is fully aware of the ownership and property rights to use the Work Product which may be granted to Design-Builder and/or Owner therein. Design Sub-Consultant accepts and agrees to Design-Builder's and/or Owner's ownership and property rights with respect to the Work Product contained in the Design Consultant and Design-Build Agreements.

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4.3 Indemnification for Use of Work Product

4.3.1 If either Design Consultant or Design Sub-Consultant uses the Work Product on any other project, such party agrees that it shall do so at its sole risk and without liability or legal exposure to the other party, Design-Builder, Owner or anyone working through them. Such party further agrees that it shall defend, indemnify and hold harmless the other party, Design-Builder and Owner from and against any and all claims, damages, liabilities, losses and expenses, including attorneys' fees, arising out of or resulting from such use of the Work Product on another project.

4.4 Use of Work Product on Termination or Default

4.4.1 If Design Consultant terminates this Agreement for its convenience as set forth in Section 7.1 hereof, or if Design Sub-Consultant elects to terminate this Agreement in accordance with Section 7.4 of this Agreement, Design Sub-Consultant, upon Design Consultant's payment in full of the amounts due Design Sub-Consultant under the Contract Documents, grants Design Consultant, Design-Builder and Owner the same rights as set forth in Section 4.1.1 above to use the Work Product to complete the Project and subsequently occupy the Project, conditioned on the following:

4.4.1.1 Use of the Work Product is at Design-Builder's and Design Consultant's sole risk and without liability or legal exposure to Design Sub-Consultant or anyone working by or through Design Sub-Consultant, and on the indemnity set forth in Section 4.3 herein, and

4.4.1.2 Design Consultant agrees to pay Design Sub-Consultant the additional sum of _____ dollars ($ _____) as compensation for the right to use the Work Product to complete the Project and subsequently use the Work Product in accordance with Section 4.1.1 if Design-Builder or Design Consultant resumes the Project through its employees, agents or third parties.

4.4.2 If this Agreement is terminated due to Design Sub-Consultant's default pursuant to Section 7.2 of this Agreement, then Design-Builder and Design Consultant shall have the same rights as set forth in Section 4.1.1 above to use the Work Product to complete the Project and subsequently occupy the Project, and Design Consultant, Design-Builder and Owner shall thereafter have the same rights and obligations as set forth in Section 4.1.1 above. Notwithstanding the preceding sentence, if it is ultimately determined that Design Sub-Consultant was not in default, Design Consultant shall be deemed to have terminated the Agreement for convenience, and Design Sub-Consultant shall be entitled to the rights and remedies set forth in Section 4.4.1 above.

Article 5
Time of Performance

5.1 Date of Commencement

5.1.1 The Services shall commence five (5) days after Design Sub-Consultant's receipt of Design Consultant's Notice to Proceed ("Date of Commencement") unless the parties mutually agree otherwise in writing.

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5.2 Design Schedule

5.2.1 Unless a schedule for the execution of the Work has been attached to the Agreement as an exhibit at the time this Agreement is executed, Design Sub-Consultant shall coordinate with Design Consultant to prepare a schedule for the Design Phase Services. If requested by Design Consultant, Design Sub-Consultant shall prepare a schedule for Design Sub-Consultant's Scope of Services that meet Design-Builder's requirements and the requirements in the Design Consultant Agreement. Design Consultant will review Design Sub-Consultant's schedule to determine whether it permits Design Consultant to satisfy its obligations under the Project Schedule and the Design Consultant Agreement. The accepted schedule (the "Design Schedule") shall be revised as required by conditions and progress of the Project, but such revisions shall not relieve Design Sub-Consultant of its obligations to perform the Services in accordance with the Contract Documents, subject to its rights under this Agreement.

5.3 Status Reports

5.3.1 Design Sub-Consultant shall provide Design Consultant on a regular basis a status report detailing the progress of Design Sub-Consultant's Scope of Services, including whether (i) the Services are proceeding according to the Design Schedule, and (ii) items exist which require resolution so as not to jeopardize Design Sub-Consultant's ability to meet the dates set forth in the Design Schedule and Design-Builder's and Design Consultant's ability to meet the Project Schedule. The frequency of the status reports shall be established at the meeting required by Section 2.1.5 hereof.

5.4 Delays

5.4.1 If Design Sub-Consultant's performance of the Services are delayed for any reason so as to impact the Design Schedule or the Project Schedule, Design Sub-Consultant shall promptly notify Design Consultant in writing of the cause(s) of such delay within sufficient time to permit Design Consultant to provide timely notice to Design-Builder in accordance with the Design Consultant Agreement. If the delay is due to any act, neglect or omission on the part of Design Sub-Consultant, its Lower Tier Design Sub-Consultants or anyone for whom they are responsible, Design Sub-Consultant shall, subject to any limitations contained herein, compensate and indemnify Design Consultant and Design-Builder for all costs, damages and expenses arising from such delay. If the delay is caused by Design Consultant, Design Sub-Consultant's Fee and the Design Schedule shall be adjusted to compensate Design Sub-Consultant for the effects, if any, of the delay, subject to any limitations contained herein.

5.4.2 Notwithstanding any other provision to the contrary, any delays and resulting damages that arise out of, or relate to, problems caused by Design-Builder or Owner or for which Design-Builder or Owner is responsible shall be resolved pursuant to Section 11.3 hereof.

Article 6
Design Sub-Consultant's Compensation

6.1 Design Sub-Consultant's Fee

6.1.1 Design Sub-Consultant's Fee shall be the compensation due Design Sub-Consultant for the performance of the Scope of Services, including all Design Phase Services, Construction Phase Services and Additional Services, and for Reimbursable Costs, all as set forth in this Agreement.

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Unless otherwise provided in the Contract Documents, the Design Sub-Consultant's Fee is deemed to include all sales, use, consumer and other taxes mandated by applicable Legal Requirements.

6.1.2 Design Sub-Consultant will be compensated for the Design Phase Services, Construction Phase Services, Additional Services, if any, and Reimbursable Costs as set forth in Exhibit _____. *(Provide for a fixed lump sum amount, hourly rates, percentage fees or some other basis of compensation for the Services.)*

6.2 Applications for Payment

6.2.1 Beginning with the first month after the Date of Commencement, Design Sub-Consultant shall submit on the _____ (_____) day of each month for Design Consultant's review and approval, Design Sub-Consultant's certified Application for Payment requesting payment for all Services performed as of the date of the Application for Payment. The Application for Payment shall be accompanied by all supporting documentation required by the Contract Documents and/or established at the meeting required by Section 2.1.5 hereof. Once approved, Design Consultant will submit Design Sub-Consultant's Application for Payment to Design-Builder with Design Consultant's application.

6.2.2 The Application for Payment shall constitute Design Sub-Consultant's representation that (i) the Services have been performed consistent with the Contract Documents; (ii) the Services have progressed to the point indicated in the Application for Payment; (iii) Lower Tier Design Sub-Consultants have been paid all amounts previously received by Design Sub-Consultant on account of their services; and (iv) there are no claims, obligations or liens outstanding or unsatisfied for labor, services, taxes or other items performed, furnished or incurred for or in connection with the Scope of Services.

6.2.3 Design Consultant shall make payment on Design Sub-Consultant's properly submitted and accurate Application for Payment within three (3) days after Design Consultant's receipt of payment from Design-Builder on account of Design Sub-Consultant's monthly Application for Payment, but in each case less the total of payments previously made, and less amounts properly withheld hereunder.

6.3 Retainage on Applications for Payment

6.3.1 Design Consultant will not retain any funds from Design Sub-Consultant's Applications for Payment unless Design-Builder is retaining funds from Design Consultant's progress payments for the Services, and then only in the same amount or percentage retained from Design Consultant's progress payments as set forth in the Design Consultant Agreement. Unless mutually agreed otherwise between the parties, retainage (if applicable) will be released to Design Sub-Consultant within three (3) days after Design Consultant's receipt of such retained amounts from Design-Builder.

6.4 Withholding of Payment

6.4.1 If Design Consultant determines that Design Sub-Consultant is not entitled to all or part of an Application for Payment, it will notify Design Sub-Consultant in writing at least five (5) days prior to the date payment is due. The notice shall indicate the specific amounts Design Consultant intends to withhold, the reasons and contractual basis for the withholding and the specific measures Design Sub-Consultant must take to rectify Design Consultant's concerns. Design Consultant and Design Sub-Consultant will attempt to resolve Design Consultant's concerns prior to the date payment is due. If the parties cannot resolve such concerns, Design Consultant shall pay Design Sub-Consultant the uncontested amount of the Application for Payment, and Design Sub-Consultant may pursue its rights under this Agreement, including those under Article 11 hereof.

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6.5 Final Payment

6.5.1 At the time Design Sub-Consultant submits its final Application for Payment to Design Consultant, Design Sub-Consultant shall provide (i) all deliverables required by the Contract Documents; (ii) an affidavit that there are no claims, obligations or liens outstanding or unsatisfied for or in connection with the Services which will in any way affect Design Consultant's, Design-Builder's or Owner's interests; (iii) a general release executed by Design Sub-Consultant waiving, upon receipt of final payment by Design Sub-Consultant, all claims, except those claims previously made in writing to Design Consultant and remaining unsettled at the time of final payment; and (iv) certificates of insurance confirming that required coverages will remain in effect consistent with the requirements of the Contract Documents. Design Consultant shall make payment on Design Sub-Consultant's properly submitted and accurate final Application for Payment within ten (10) days after Design Consultant's receipt of final payment from Design-Builder on account of Design Sub-Consultant's final Application for Payment, provided also that Design Sub-Consultant has satisfied the requirements for final payment set forth herein.

6.6 Pay When Paid

6.6.1 Design Sub-Consultant agrees that all payments to Design Sub-Consultant hereunder, whether progress or final payment, or for changes or delays to the Services, shall not be due until after Design Consultant actually receives payment on account of same from Design-Builder. Notwithstanding the preceding sentence, Design Consultant shall pay Design Sub-Consultant within a reasonable time if it has not been paid by the Design-Builder unless the Design-Builder's failure to pay the Design Consultant is caused by the Design Sub-Consultant's failure to perform in accordance with this Agreement.

6.7 Interest

6.7.1 Payments due and unpaid under this Agreement shall bear interest commencing five (5) days after payment is due at the rate of _____ percent (_____%) per annum.

6.8 Design Sub-Consultant's Payment Obligations

6.8.1 Design Sub-Consultant will pay Lower Tier Design Sub-Consultants, in accordance with its contractual obligations to such parties, all the amounts Design Sub-Consultant has received from Design Consultant on account of their services. Design Sub-Consultant will impose similar requirements on Lower Tier Design Sub-Consultants to pay those parties with whom they have contracted. Design Sub-Consultant will indemnify and defend Design Consultant, Owner and Design-Builder against any claims for payment and mechanic's liens, provided Design Consultant is not in breach of its contractual obligations to make payments to Design Sub-Consultant for its Services.

6.9 Record Keeping and Finance Controls

6.9.1 Design Sub-Consultant shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management, using accounting and control systems in accordance with generally accepted accounting principles and as may be provided in the Contract Documents. During the performance of the Services and for a period of three (3) years after final payment of the Services or such longer period as set forth in the Design Consultant Agreement for the review of Design Consultant's records, Design-Builder, Design Consultant and their accountants shall be afforded access to and the right to audit from time to time, upon reasonable notice, Design Sub-Consultant's records, books, correspondence, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to the cost of performing the Services,

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including changes in the Services, and reimbursable expenses all of which Design Sub-Consultant shall preserve for a period of three (3) years after final payment. Such inspection shall take place at Design Sub-Consultant's offices during normal business hours unless another location and time is agreed by the parties. Any fee (that is either a lump sum or percentage of construction cost), multipliers or markups agreed to by the Design Consultant and Design Sub-Consultant as part of this Agreement are only subject to audit to confirm that such fee, multiplier or markup has been charged in accordance with this Agreement, with the composition of such fee, multiplier or markup not being subject to audit, unless the Design-Build Agreement grants Owner greater audit rights, in which case Owner's audit rights shall govern.

Article 7
Termination and Design Sub-Consultant's Right to Stop Services

7.1 Design Consultant's Right to Terminate for Convenience

7.1.1 If Design-Builder terminates Design Consultant for any reason, then Design Consultant may terminate this Agreement. In such event, Design Consultant shall pay Design Sub-Consultant only those amounts Design Consultant actually receives from Design-Builder on behalf of Design Sub-Consultant. Notwithstanding the preceding sentence, in the event Design Consultant does not receive any compensation from Design-Builder because Design Consultant was terminated for default, Design Consultant is obligated to pay Design Sub-Consultant for all services properly performed by Design Sub-Consultant prior to receiving notice of the termination, to the extent that Design Consultant's default was not caused by Design Sub-Consultant's failure to perform in accordance with its obligations.

7.2 Design Consultant's Right to Terminate for Cause

7.2.1 If Design Sub-Consultant persistently fails to (i) comply with applicable Legal Requirements, (ii) timely pay, without cause, its Lower Tier Design Sub-Consultants, (iii) prosecute the Services with promptness and diligence so that the Scope of Services is completed by the times set forth in the Design Schedule or the Project Schedule, (iv) provide qualified, licensed design professionals, or (v) perform material obligations under the Contract Documents, then Design Consultant shall have the rights, in addition to any other rights and remedies provided in the Contract Documents or by law, set forth in Sections 7.2.2 and 7.2.3 below.

7.2.2 Upon the occurrence of an event set forth in Section 7.2.1 above, Design Consultant may provide written notice to Design Sub-Consultant that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Design Sub-Consultant's receipt of such notice. If Design Sub-Consultant fails to cure, or reasonably commence to cure, such problem, then Design Consultant may give a second written notice to Design Sub-Consultant of its intent to terminate within an additional seven (7) day period. If Design Sub-Consultant, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Design Consultant may declare the Agreement terminated for default by providing written notice to Design Sub-Consultant of such declaration.

7.2.3 Upon declaring the Agreement terminated pursuant to Section 7.2.2 above, Design Consultant may complete the Services in whatever fashion it deems most efficient, and shall have the right to use the existing Work Product for purposes of completing the Project, subject to Section 4.4 above. To the extent Design Consultant has been adversely impacted by Design Sub-Consultant's default and termination, Design Consultant shall be entitled to recover against Design Sub-Consultant all of Design Consultant's costs. Such costs and expense shall include not only the

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cost of completing the Services, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by Design Consultant in connection with the reprocurement and defense of claims arising from Design Sub-Consultant's default, subject to the waiver of consequential damages set forth in Section 11.7 hereof.

7.3 Design Sub-Consultant's Right to Stop Services

7.3.1 If (i) Design-Builder fails to pay undisputed amounts due Design Consultant under the Design Consultant Agreement for Services performed by Design Sub-Consultant, and such failure is not due to the fault of Design Sub-Consultant, and Design Sub-Consultant has not been paid such amounts due, or (ii) Design Consultant fails to pay any undisputed amounts due Design Sub-Consultant under this Agreement, Design Sub-Consultant may, in addition to any other rights afforded under the Contract Documents or at law, stop work in accordance with Section 7.3.2 below.

7.3.2 Should either of the events set forth in Section 7.3.1 above occur, Design Sub-Consultant has the right to provide Design Consultant with written notice that Design Sub-Consultant will stop work unless said failure to pay is cured within seven (7) days from Design Consultant's receipt of Design Sub-Consultant's notice. Design Sub-Consultant shall not stop work unless it provides such written notice and the Design Consultant has failed to cure the reason for default within the seven (7) day cure period. If Design Consultant does not cure the problem within such seven (7) day period, Design Sub-Consultant may stop work. In such case, Design Sub-Consultant shall be entitled to make a claim for adjustment to Design Sub-Consultant's Fee and the Design Schedule to the extent it has been adversely impacted by such stoppage. To the extent Design Consultant's failure to pay is related to a dispute between the parties, the dispute will be resolved in accordance with Article 11, and the parties will continue performance in accordance with Section 11.6.

7.4 Design Sub-Consultant's Right to Terminate for Cause

7.4.1 Design Sub-Consultant, in addition to any other rights and remedies afforded under the Contract Documents or at law, may terminate the Agreement for cause in accordance with Section 7.4.2 if Design Consultant has failed to cure the problems set forth in Section 7.3.2 within thirty (30) days after Design Sub-Consultant has stopped work.

7.4.2 Upon the occurrence of the event set forth in Section 7.4.1 above, Design Sub-Consultant may provide written notice to Design Consultant that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Design Consultant's receipt of such notice. If Design Consultant fails to cure, or reasonably commence to cure, such problem, then Design Sub-Consultant may give a second written notice to Design Consultant of its intent to terminate within an additional seven (7) day period. If Design Consultant, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Design Sub-Consultant may declare the Agreement terminated for default by providing written notice to Design Consultant of such declaration.

7.5 Bankruptcy of Design Consultant or Design Sub-Consultant

7.5.1 If either Design Consultant or Design Sub-Consultant institutes or has instituted against it a case under the United States Bankruptcy Code (such party being referred to as the "Bankrupt Party"), such event may impair or frustrate the Bankrupt Party's ability to perform its obligations under the Contract Documents. Accordingly, should such event occur:

7.5.1.1 The Bankrupt Party, its trustee or other successor, shall furnish, upon request of the non-Bankrupt Party, adequate assurance of the ability of the Bankrupt Party to perform

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all future material obligations under the Contract Documents, which assurances shall be provided within ten (10) days after receiving notice of the request; and

7.5.1.2 The Bankrupt Party shall file an appropriate action within the bankruptcy court to seek assumption or rejection of the Agreement within sixty (60) days of the institution of the bankruptcy filing and shall diligently prosecute such action.

If the Bankrupt Party fails to comply with its foregoing obligations, the non-Bankrupt Party shall be entitled to request the bankruptcy court to reject the Agreement, declare the Agreement terminated and pursue any other recourse available to the non-Bankrupt Party under this Article 7.

7.5.2 The rights and remedies under Section 7.5.1 above shall not be deemed to limit the ability of the non-Bankrupt Party to seek any other rights and remedies provided by the Contract Documents or by law, including its ability to seek relief from any automatic stays under the United States Bankruptcy Code.

Article 8
Representatives of the Parties

8.1 Design Consultant's Representatives.

8.1.1 Design Consultant designates the individual listed below as its Senior Representative ("Design-Consultant's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 11.4 hereof: *(Identify individual's name, title, address and telephone numbers.)*

8.1.2 Design Consultant designates the individual listed below as its Design Consultant's Representative, which individual has the authority and responsibility set forth in Section 3.2 hereof: *(Identify individual's name, title, address and telephone numbers.)*

8.2 Design Sub-Consultant's Representatives.

8.2.1 Design Sub-Consultant designates the individual listed below as its Senior Representative ("Design Sub-Consultant's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 11.4 hereof: *(Identify individual's name, title, address and telephone numbers.)*

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8.2.2 Design Sub-Consultant designates the individual listed below as its Design Sub-Consultant's Representative, which individual has the authority and responsibility set forth in Section 2.4.2 hereof: *(Identify individual's name, title, address and telephone numbers.)*

Article 9
Insurance

9.1 Design Sub-Consultant's Insurance Requirements

9.1.1 Design Sub-Consultant is responsible for procuring and maintaining, from insurance companies authorized to do business in the state in which the Project is located, the insurance coverages set forth in the Insurance Exhibit, with the minimum ratings set forth in said exhibit, for certain claims which may arise from or out of the performance of this Agreement and the obligations under the Contract Documents.

9.1.2 Design Sub-Consultant shall require its Lower Tier Design Sub-Consultants to procure and maintain, from insurance companies authorized to do business in the state in which the Project is located, the insurance coverages set forth in the Insurance Exhibit.

9.1.3 Design Sub-Consultant's and its Lower Tier Design Sub-Consultants' insurance coverage set forth in the Insurance Exhibit shall specifically delete any design-build or similar exclusions that could compromise coverages because of the design-build delivery of the Project.

9.1.4 To the extent Design Consultant requires Design Sub-Consultant to provide professional liability insurance for claims arising from the negligent performance of design services by Design Sub-Consultant or Lower Tier Design Sub-Consultants, the coverage limits, duration and other specifics of such insurance shall be set forth in the Insurance Exhibit. Such policies shall be provided prior to the commencement of any design services hereunder.

9.1.5 Prior to commencing any services hereunder, Design Sub-Consultant shall provide Design Consultant with certificates evidencing that (i) all insurance obligations required by the Contract Documents are in full force and in effect and will remain in effect for the duration required by the Contract Documents and (ii) no insurance coverage will be canceled, renewal refused or materially changed unless at least thirty (30) days' prior written notice is given to Design Consultant.

9.1.6 Except as otherwise stated in the Insurance Exhibit, the insurance policies required herein shall list Design-Builder, Design Consultant and all other entities required by the Contract Documents, if any, as an additional insured.

9.1.7 If any of the foregoing insurance coverages are required to remain in force after final payment, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment.

9.2 Waiver of Subrogation

9.2.1 Design Consultant and Design Sub-Consultant waive against each other and Owner, Owner's separate contractors, Subcontractors, Sub-Subcontractors, Design-Builder and Design Consultant's separate Sub-Consultants, agents and employees of each and all of them, all damages covered by property insurance provided in the Contract Documents, except such rights as they may have to the proceeds of such insurance. Design Consultant and Design Sub-

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Consultant shall, where appropriate, require similar waivers of subrogation from Lower Tier Design Sub-Consultants and Subcontractors and shall require each of them to include similar waivers in their contracts. These waivers of subrogation shall not contain any restriction or limitation that will impair the full and complete extent of its applicability to any person or entity unless agreed to in writing prior to the execution of this Agreement.

Article 10
Indemnification

10.1 Patent and Copyright Infringement

10.1.1 Design Sub-Consultant shall defend any action or proceeding brought against Design Consultant, Owner or Design-Builder based on any claim that the portion of the Project included in Design Sub-Consultant's Scope of Services, or any part thereof, or the operation or use of that portion of the Project or any part thereof, constitutes infringement of any United States patent or copyright, now or hereafter issued. Design Consultant shall give prompt written notice to Design Sub-Consultant of any such action or proceeding and will reasonably provide authority, information and assistance in the defense of same. Design Sub-Consultant shall indemnify and hold harmless Design Consultant, Owner and Design-Builder from and against all damages and costs, including but not limited to attorneys' fees and expenses awarded against Design Consultant, Owner or Design-Builder in any such action or proceeding. Design Sub-Consultant agrees to keep Design-Builder and Design Consultant informed of all developments in the defense of such actions.

10.1.2 If Owner is enjoined from the operation or use of the Project, or any part thereof, as the result of any patent or copyright suit, claim or proceeding that arises from Design Sub-Consultant's Scope of Services, Design Sub-Consultant shall at its sole expense take reasonable steps to procure the right to operate or use the Project, or applicable part thereof. If Design Sub-Consultant cannot so procure such right within a reasonable time, Design Sub-Consultant shall promptly, at Design Sub-Consultant's option and at Design Sub-Consultant's expense, (i) modify the Project, or applicable part thereof, so as to avoid infringement of any patents or copyrights, or (ii) replace said work with work that does not infringe or violate any such patent or copyright, and is consistent with the Contract Documents.

10.1.3 Sections 10.1.1 and 10.1.2 above shall not be applicable to any suit, claim or proceeding based on infringement or violation of a patent or copyright (i) relating solely to a particular process or product of a particular manufacturer specified by Design Consultant, Owner or Design-Builder and not offered or recommended by Design Sub-Consultant to Design Consultant, Owner or Design-Builder; or (ii) arising from modifications to the Project by Design Consultant, Owner or Design-Builder after acceptance of the Project.

10.1.4 The obligations set forth in this Section 10.1 shall constitute the sole agreement between the parties relating to liability for infringement or violation of any patent or copyright.

10.2 Design Sub-Consultant's General Indemnification

10.2.1 Design Sub-Consultant, to the fullest extent permitted by law, shall indemnify and hold harmless Design Consultant, Owner, Design-Builder and their officers, directors, employees and agents from and against claims, losses and damages, including attorneys' fees and expenses, for non-party bodily injury, sickness or death, and non-party property damage or destruction (other than to the Work itself) but only to the extent resulting from the negligent acts or omissions of

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Design Sub-Consultant, any Lower Tier Design Sub-Consultants and anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

10.2.2 If an employee of Design Sub-Consultant, anyone employed directly or indirectly by Design Sub-Consultant or anyone for whose acts any of them may be liable has a claim against any party indemnified pursuant to Section 10.2.1 above, Design Sub-Consultant's indemnity obligation set forth in Section 10.2.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Design Sub-Consultant, or other entity under any employee benefit acts, including workers' compensation or disability acts.

10.3 Design Consultant's General Indemnification

10.3.1 Design Consultant, to the fullest extent permitted by law, shall indemnify and hold harmless Design Sub-Consultant and its officers, directors, employees and agents from and against losses and damages, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) to the extent resulting from the negligent acts or omissions of Design Consultant, anyone employed directly or indirectly by Design Consultant or anyone for whose acts Design Consultant may be liable.

10.3.2 If an employee of Design Consultant, anyone employed directly or indirectly by Design Consultant or anyone for whose acts Design Consultant may be liable has a claim against any party indemnified pursuant to Section 10.3.1 above, Design Consultant's indemnity obligation set forth in Section 10.3.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Design Consultant or other entity under any employee benefit acts, including workers' compensation or disability acts.

10.4 Limited Recourse

10.4.1 None of the obligations set forth in this Agreement (on behalf of any Party) constitute personal obligations of any natural persons who are the officers, shareholders, members, partners, employees or agents of any Party unless the natural person is expressly identified as a contracting party. All Parties to this Agreement shall not seek recourse against any natural person described herein. This provision, however, shall not protect such natural persons from liability for willful misconduct, illegal acts or intentional violation of any duty of corporate loyalty.

Article 11
Contract Adjustments and Disputes

11.1 Requests for Contract Adjustments and Relief

11.1.1 If either Design Sub-Consultant or Design Consultant believes that it is entitled to relief against the other for any event arising out of or related to the Services or the Project, such party shall provide written notice to the other party of the basis for its claim for relief. Such notice shall be in accordance with specific notice requirements contained in applicable sections of the Contract Documents and, if possible, be made prior to incurring any cost or expense. Design Sub-Consultant shall provide Design Consultant written notice of claims for which Owner or Design-Builder may be responsible, including but not limited to changes in the Basis of Design Documents, in sufficient time for Design Consultant to meet its notice requirements to Design-Builder set forth in the Contract Documents. In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed ten (10) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition

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giving rise to the request, whichever is later. The claimant shall provide more complete information with respect to the claim within ten (10) days of the initial notice. The more complete information shall be in accordance with the Contract Documents and shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request. Design Sub-Consultant shall comply with all documentation requirements set forth in the Design Consultant Agreement when submitting its claim to Design Consultant.

11.2 Dispute Avoidance and Resolution

11.2.1 The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, Design Sub-Consultant and Design Consultant each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Services.

11.3 Disputes Involving Owner or Design-Builder

11.3.1 To the extent a claim, dispute or controversy arises out of, or relates to, problems caused by Owner or for which Owner is responsible ("Owner Disputes") or by Design-Builder or for which Design-Builder is responsible ("Design-Builder Disputes"), such Owner and/or Design-Builder Disputes shall be resolved pursuant to the dispute resolution clause set forth in the Design-Build Agreement with respect to Owner Disputes and the Design Consultant Agreement with respect to Design-Builder Disputes. Both Design Consultant and Design Sub-Consultant agree to cooperate in the presentation and prosecution or defense of Owner or Design-Builder Disputes. If, after a request for an extension of time or additional compensation from Design Sub-Consultant, Design Consultant believes that the event causing the delay or additional compensation is the responsibility of Design-Builder or Owner, then Design Consultant will cooperate with and assist Design Sub-Consultant in presenting a request for an extension of time or additional compensation to Owner. Notwithstanding the above, Design Consultant reserves the right not to submit a claim to Owner or Design-Builder. In such cases, the claim shall be resolved pursuant to Section 11.4.

11.3.2 Notwithstanding any other provisions herein to the contrary, Design Consultant and Design Sub-Consultant each agree to accept the relief as to a time extension or additional compensation obtained from Design-Builder and/or Owner, if any, as well as all other aspects of the final decision following appeal or the expiration of the time for appeal, as full and final resolution of any Design-Builder and/or Owner Dispute.

11.3.3 If Design Consultant asserts a claim against Design-Builder or Owner involving Design Sub-Consultant, each party shall bear its own costs for outside counsel and third-party consultants retained to prosecute claims against Design-Builder and/or Owner and for any other litigation costs. Each party shall present its portion of the claim to Design-Builder and/or Owner.

11.3.4 If Owner or Design-Builder contends that the Contract Documents have been breached, or otherwise asserts a claim or set-off against Design Consultant, the party determined to be responsible for the breach either by settlement or by the trier of fact shall be responsible for all costs occasioned by the breach, including counsel and litigation costs. If the trier of fact fails to determine the relative degrees of fault of Design Consultant and Design Sub-Consultant in connection with any claim by Design-Builder or Owner, then Design Consultant and Design Sub-Consultant agree that the allocation of fault shall be determined pursuant to Section 11.4.

11.4 Disputes Not Involving Owner or Design-Builder

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11.4.1 For any claim, dispute or controversy not arising out of, or relating to, problems (i) caused by Owner or Design-Builder, or (ii) for which Owner or Design-Builder is responsible, Design Consultant and Design Sub-Consultant will first attempt to resolve such claim, dispute or controversy at the field level through discussions between Design Consultant's Representative and Design Sub-Consultant's Representative.

11.4.2 If a claim, dispute or controversy cannot be resolved through Section 11.4.1, Design Consultant's Senior Representative and Design Sub-Consultant's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than thirty (30) days after such a request is made, to attempt to resolve such claim, dispute or controversy. Five (5) days prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving the claim, dispute or controversy.

11.4.3 If after meeting, the Senior Representatives determine that the claim, dispute or controversy cannot be resolved on terms satisfactory to both parties, the parties shall submit within thirty (30) days of the conclusion of the meeting by Senior Representatives the claim, dispute or controversy to non-binding mediation. The mediation shall be conducted by a mutually agreeable impartial mediator, or if the parties cannot so agree, a mediator designated by the American Arbitration Association ("AAA") pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the parties cannot so agree, by procedures established by the mediator. Unless otherwise mutually agreed by Design Consultant and Design Sub-Consultant and consistent with the mediator's schedule, the mediation shall commence within ninety (90) days of the submission of the dispute for mediation. Representatives of the parties with authority to resolve the dispute shall be present at the mediation.

11.5 Arbitration

11.5.1 Any claims, disputes or controversies between the parties arising out of or relating to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures set forth in Section 11.4 above, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the AAA then in effect, unless the parties mutually agree otherwise.

11.5.2 The award of the arbitrator(s) shall be final and binding upon the parties without the right of appeal to the courts. Judgment may be entered upon it in accordance with applicable law by any court having jurisdiction thereof.

11.5.3 Design Sub-Consultant and Design Consultant expressly agree that any arbitration pursuant to this Section 11.5 may be joined or consolidated with any arbitration involving any other person or entity (i) necessary to resolve the claim, dispute or controversy, or (ii) substantially involved in or affected by such claim, dispute or controversy. Both Design Consultant and Design Sub-Consultant will include appropriate provisions in all contracts they execute with other parties in connection with the Project to require such joinder or consolidation.

11.5.4 The prevailing party in any arbitration, or any other final, binding dispute proceeding upon which the parties may agree, shall be entitled to recover from the other party reasonable attorneys' fees and expenses incurred by the prevailing party. The prevailing party, if any, shall be determined by the applicable binding dispute tribunal.

11.6 Duty to Continue Performance

11.6.1 Unless provided to the contrary in the Contract Documents, Design Sub-Consultant shall continue to perform the Services and Design Consultant shall continue to satisfy its payment

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obligations for undisputed amounts to Design Sub-Consultant, pending the final resolution of any dispute or disagreement between Design Consultant and Design Sub-Consultant.

11.7 CONSEQUENTIAL DAMAGES

11.7.1 NOTWITHSTANDING ANYTHING HEREIN TO THE CONTRARY (EXCEPT AS SET FORTH IN SECTION 11.7.2 BELOW) AND TO THE EXTENT THAT SUCH DAMAGES ARE WAIVED IN THE DESIGN CONSULTANT AGREEMENT, NEITHER DESIGN CONSULTANT NOR DESIGN SUB-CONSULTANT SHALL BE LIABLE TO THE OTHER FOR ANY CONSEQUENTIAL LOSSES OR DAMAGES, WHETHER ARISING IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, INCLUDING BUT NOT LIMITED TO LOSSES OF USE, PROFITS, BUSINESS, REPUTATION OR FINANCING.

11.7.2 Notwithstanding Section 11.7.1 above, Design Consultant shall be entitled to recover against Design Sub-Consultant (i) any liquidated damages that Design-Builder may assess against Design Consultant to the extent they are attributable to Design Sub-Consultant, even though both parties recognize that such liquidated damages may include some damages that might otherwise be deemed to be consequential, and (ii) consequential damages that may be imposed upon Design Consultant by the Design Consultant Agreement to the extent they are attributable to Design Sub-Consultant.

Article 12
Miscellaneous

12.1 Assignment

12.1.1 Neither Design Sub-Consultant nor Design Consultant shall, without the written consent of the other, assign, transfer or sublet any portion or part of the Services or the obligations required by the Contract Documents.

12.2 Successorship

12.2.1 Design Consultant and Design Sub-Consultant intend that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.

12.3 Governing Law

12.3.1 The Agreement and all Contract Documents shall be governed by the laws that govern the Design Consultant Agreement, without giving effect to its conflict of law principles.

12.4 Severability

12.4.1 If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal or otherwise unenforceable pursuant to any applicable Legal Requirements or court order, such determination shall not impair or otherwise affect the validity, legality or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

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12.5 No Waiver

12.5.1 The failure of either Design Consultant or Design Sub-Consultant to insist, in any one or more instances, on the performance of any of the obligations required by the other under the Contract Documents shall not be construed as a waiver or relinquishment of such obligation or right with respect to future performance.

12.6 Headings

12.6.1 The headings used in this Agreement, or any other Contract Document, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

12.7 Notice

12.7.1 Whenever the Contract Documents require that notice be provided to the other party, notice will be deemed to have been validly given (i) if delivered in person to the individual intended to receive such notice, (ii) four (4) days after being sent by registered or certified mail, postage prepaid to the address indicated in the Agreement, (iii) if transmitted by facsimile or electronic mail, by the time stated in a machine generated confirmation that notice was received at the number of the intended recipient, or (iv) by electronic mail, by the time frame stated in the email generated confirmation that notice was received by the email of the intended recipient.

12.8 Amendments

12.8.1 The Contract Documents may not be changed, altered or amended in any way except in writing signed by a duly authorized representative of each party.

12.9 Survival

12.9.1 Design Sub-Consultant's obligations under this Agreement shall not be released, and shall specifically survive, the completion of all Services hereunder, final payment to Design Sub-Consultant, and the termination of this Agreement for any reason.

Article 13
Electronic Data

13.1 Electronic Data

13.1.1 The parties recognize that Contract Documents, including drawings, specifications and three-dimensional modeling (such as Building Information Models) and other Work Product may be transmitted among Design-Builder, Design Consultant, Design Sub-Consultant and others in electronic media as an alternative to paper hard copies (collectively "Electronic Data").

13.2 Transmission of Electronic Data

13.2.1 Design-Builder shall determine, after consultation with Design Consultant, the software and the format for the transmission of Electronic Data. Each party shall be responsible for securing the legal rights to access the agreed-upon format, including, if necessary, obtaining appropriately licensed copies of the applicable software or electronic program to display, interpret and/or generate the Electronic Data.

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13.2.2 Neither party makes any representations or warranties to the other with respect to the functionality of the software or computer program associated with the electronic transmission of Work Product. Unless specifically set forth in this Agreement, ownership of the Electronic Data does not include ownership of the software or computer program with which it is associated, transmitted, generated or interpreted.

13.2.3 By transmitting Work Product in electronic form, the transmitting party does not transfer or assign its rights in the Work Product. The rights in the Electronic Data shall be as set forth in Article 4 above. Under no circumstances shall the transfer of ownership of Electronic Data be deemed to be a sale by the transmitting party of tangible goods.

13.3 Electronic Data Protocol

13.3.1 The parties acknowledge that Electronic Data may be altered or corrupted, intentionally or otherwise, due to occurrences beyond their reasonable control or knowledge, including but not limited to compatibility issues with user software, manipulation by the recipient, errors in transcription or transmission, machine error, environmental factors and operator error. Consequently, the parties understand that there is some level of increased risk in the use of Electronic Data for the communication of design and construction information and, in consideration of this, agree, and shall require their independent contractors, Subcontractors and Lower Tier Design Sub-Consultants to agree, to the following protocols, terms and conditions set forth in this Section 13.3.

13.3.2 Electronic Data will be transmitted in the format determined in Section 13.2.1 above, including file conventions and document properties, unless prior arrangements are made in advance in writing.

13.3.3 The Electronic Data represents the information at a particular point in time and is subject to change. Therefore, the parties shall agree upon protocols for notification by the author to the recipient of any changes which may thereafter be made to the Electronic Data, which protocol shall also address the duty, if any, to update such information if such information changes prior to Final Completion of the Project.

13.3.4 The transmitting party specifically disclaims all warranties, expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with respect to the media transmitting the Electronic Data. However, transmission of the Electronic Data via electronic means shall not invalidate or negate any duties pursuant to the applicable standard of care with respect to the creation of the Electronic Data, unless such data is materially changed or altered after it is transmitted to the receiving party, and the transmitting party did not participate in such change or alteration.

13.4 In the event the Design-Build Agreement contains a provision governing Electronic Data, and there is a conflict between the provision in the Design-Build Agreement and this Article 13, the provision in the Design-Build Agreement takes precedence notwithstanding the order of precedence set forth in Section 1.4.2.

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Article 14
Confidential Information

14.1 Confidential and/or Proprietary Information

14.1.1 Confidential Information is defined as information which is determined by the transmitting party to be of a confidential or proprietary nature and: (i) the transmitting party identifies as either confidential or proprietary; (ii) the transmitting party takes steps to maintain the confidential or proprietary nature of the information; and (iii) the document is not otherwise available in or considered to be in the public domain. The receiving party agrees to maintain the confidentiality of the Confidential Information and agrees to use the Confidential Information solely in connection with the Project.

14.1.2 Design Sub-Consultant may receive information from Design-Builder or Design Consultant that is either confidential or proprietary to either Design-Builder, Design Consultant or to Owner. Such information shall be labeled as confidential and/or proprietary. Design Sub-Consultant agrees to maintain the confidential nature of such information and to execute any such additional agreements as may be required by Design, Consultant, Owner or Design-Builder with respect to such information.

14.1.3 In the event the Design-Build Agreement or the Design Consultant Agreement contains a provision governing Confidential Information, and there is a conflict between either of those agreements and this Article 14, the provision in the Design-Build Agreement takes precedence notwithstanding the order of precedence set forth in Section 1.4.2.

Article 15
Other Provisions

15.1 Other provisions, if any, are as follows:
(Insert any additional provisions such as incentives or other provisions from the Design-Build Agreement that the parties believe are appropriate to be passed through to Design Consultant.)

(In lieu of Sections 11.5.1 through 11.5.3 of the Agreement, the parties may want to delete such sections and include the following alternative dispute resolution clause.)

☐ Any claims, disputes or controversies between the parties arising out of or related to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures set forth in Section 11.4 herein shall be resolved in a court of competent jurisdiction in the state in which the Project is located.

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In executing this Agreement, Design Consultant and Design Sub-Consultant each individually represents that it has the necessary financial resources to fulfill its obligations under this Agreement, and each has the necessary corporate approvals to execute this Agreement and perform the Services described herein.

DESIGN CONSULTANT	**DESIGN SUB-CONSULTANT**
_____	_____
(Name of Design Consultant)	*(Name of Design Sub-Consultant)*
_____	_____
(Signature)	*(Signature)*
_____	_____
(Printed Name)	*(Printed Name)*
_____	_____
(Title)	*(Title)*
Date: _____	Date: _____

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Performance Bond for Design-Build Projects

Document No. 620
First Edition, 2015

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Washington, D.C.

Design-Build Institute of America – Contract Documents
LICENSE AGREEMENT

By using the DBIA Contract Documents, you agree to and are bound by the terms of this License Agreement.

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2. **User Responsibility.** You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results and for the installation, use, and results obtained from the DBIA Contract Documents. You acknowledge that you understand that the text of the DBIA Contract Documents has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You will not represent that any of the contract documents you generate from DBIA Contract Documents are DBIA documents unless (a) the document text is used without alteration or (b) all additions and changes to, and deletions from, the text are clearly shown.
3. **Copies.** You may not use, copy, modify, or transfer DBIA Contract Documents, or any copy, modification, or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification, or portion merged into another document or program.
4. **Transfers.** You may not transfer possession of any copy, modification, or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.
5. **Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.
6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.
7. **Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings, or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.
8. **Acknowledgement.** You acknowledge that you have read this agreement, understand it, and agree to be bound by its terms and conditions, and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

PERFORMANCE BOND FOR DESIGN-BUILD PROJECTS

This bond form has been endorsed by The National Association of Surety Bond Producers and The Surety & Fidelity Association of America

DESIGN-BUILDER/PRINCIPAL: *(Name and address)*	**SURETY:** *(Name and contact information)*
OWNER/OBLIGEE: *(Name and address)*	**PROJECT:** *(Name and location)*
DESIGN-BUILD AGREEMENT: Dated: Amount:	**BOND DATE:** *(Not earlier than date of Design-Build Agreement)* **BOND AMOUNT:**

MODIFICATIONS TO THIS BOND:
(List modifications to this Bond below. If none, write "None")

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BOND TERMS AND CONDITIONS

1 Binding Effect. The Design-Builder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Design-Build Agreement, which is incorporated herein by reference.

2 Intent of Bond. If the Design-Builder performs its obligations under the Design-Build Agreement, then the Surety's obligations under this Bond are null and void, except to participate in meetings as provided in Section 4.

3 Waiver of Notice. The Surety hereby waives notice of changes to the Design-Build Agreement, including changes within the general scope, or of time or price, or to related subcontracts or purchase orders.

4 Owner's Obligations. If there is no default in Owner's obligations under the Design-Build Agreement, then the Surety's obligation under this Bond shall arise after the following steps have been taken by Owner, as a condition precedent to a Bond claim:

4.1 The Owner has first provided written notice to the Design-Builder and Surety at the addresses listed on page 1 of this Bond, that Owner is considering declaring the Design-Builder in default and has requested and attempted to arrange a meeting with the Design-Builder and Surety, to be held not later than fourteen (14) days after receipt of Owner's notice, to discuss methods of performing the Design-Builder's obligations under the Design-Build Agreement. If the Owner, Design-Builder and Surety agree, the Design-Builder shall be allowed a reasonable time to perform its obligations under the Design-Build Agreement, but such an agreement shall not waive the Owner's right, if any, subsequently to declare the Design-Builder in default;

4.2 The Owner declares the Design-Builder to be in default, terminates the Design-Build Agreement and notifies the Surety in writing; and

4.3 The Owner has agreed to pay the balance remaining under the Design-Build Agreement (i.e., the total amount payable by the Owner to the Design-Builder thereunder less amounts properly paid by the Owner to the Design-Builder, the "Contract Balance") to:

.1 The Surety, in accordance with the terms of the Design-Build Agreement; or
.2 Another design-builder selected pursuant to Section 5.3 to perform the remaining obligations under the Design-Build Agreement.

5 Surety's Obligations. When Owner has satisfied the conditions of Section 4, the Surety shall promptly take one of the following actions, at the Surety's expense:

5.1 Arrange for the Design-Builder to perform and complete the remaining obligations under the Design-Build Agreement, with consent of Owner;

5.2 Undertake to perform and complete the remaining obligations under the Design-Build Agreement itself, through its agents or through independent contractors;

5.3 Obtain bids or negotiated proposals from qualified design-builders acceptable to Owner for a contract for performance and completion of the Design-Build Agreement, arrange for a contract to be prepared for execution by Owner and a design-builder selected with Owner's concurrence, to be secured by performance and payment bonds equivalent to those for the Design-Build Agreement, issued by a qualified surety. The Surety shall: a. make available as Work progresses sufficient funds to pay the cost of completion of the Design-Build Agreement; and, b. pay to Owner the amount of damages as described in Section 7;

5.4 Waive its right to complete the Work under Sections 5.2 or 5.3, and reimburse the Owner the amount of its reasonable costs to complete the Work; or

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5.5 Deny liability, in whole or in part, and notify the Owner in writing, citing reasons therefor.

6 Owner's Rights. If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven (7) days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond and stating that the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment, or the Surety has denied liability, in whole or in part, under Section 5.5, the Owner shall be entitled without further notice to enforce any remedy available to it.

7 Damages Covered. In any event, the Surety's obligations to the Owner, and the Owner's obligations to the Surety, shall not be greater than those of the Owner and Design-Builder to each other, respectively, under the Design-Build Agreement. Subject to commitment by Owner to payment of the Contract Balance, the Surety is obligated without duplication for:

7.1 The responsibilities of Design-Builder for correction of defective Work and completion of the Project;
7.2 Additional legal, design professional and delay costs resulting from Design-Builder's default, and resulting from the actions or failure to act of Surety under Section 5; and
7.3 Liquidated damages, or if no liquidated damages are specified in the Design-Build Agreement, actual damages caused by delayed performance or non-performance of Design-Builder.

8 Bond Liability. If the Surety elects to act under Sections 5.1, 5.3 or 5.4, the Surety's total liability shall not exceed the Bond Amount.

8.1 The Surety shall not be liable to the Owner or others for obligations of the Design-Builder that are unrelated to the Design-Build Agreement, and the Contract Balance shall not be reduced or set off on account of any such unrelated obligations.

9 Beneficiaries. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors, unless some other party is named in this Bond as a dual obligee.

10 Dispute Resolution. All disputes related to this Bond shall be instituted in any court of competent jurisdiction in the location in which the Project is located and shall be commenced within two (2) years after: a. the Owner declares the Design-Builder in default under Section 4.2; or, b. Substantial Completion of the Project, whichever occurs first. If the provisions of this Section 10 are prohibited by law, the minimum period of limitation available to sureties in the jurisdiction in which the Project is located shall be applicable.

10.1 In the event of bankruptcy of the Design-Builder, the Surety agrees that the Design-Builder is not a necessary or indispensable party to any legal action by Owner against Surety to enforce the Surety's obligations under this Bond.

11 Notice. Unless otherwise noted below, written notice under this Bond to Surety, Owner or Design-Builder shall be mailed or delivered electronically or by hard mail to the contact information shown on page 1.
(List any alternate contact information below for notice to the Surety of any claim on this Bond. If none, then use the contact information on page 1)

For Claims on this Bond:
(check appropriate box)
□ Use the contact information shown on page 1; or
□ Use the following alternate contact information:
(fill in Surety claims administrator contact information below)

12 Statutory Compliance. If this Bond has been furnished to comply with a statutory requirement in the location where the Project is located, then any provision herein that conflicts with a statutory

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requirement shall be deemed deleted and replaced by provisions conforming to such statutory requirement. The intent is that this Bond shall be construed as a statutory bond conforming to the applicable statutes.

13 Warranty Obligation. The Surety's obligations to the Owner for warranties of the Design-Builder shall be the same as those required of the Design-Builder under the Design-Build Agreement, subject to the time limitation in Section 10. Unless otherwise stated below, the Surety's obligation for such warranties excludes: a) products, materials or equipment covered by a manufacturer's separate warranty; and b) claims by the Owner first noticed to Surety in writing more than one year after the effective date of such warranty as specified under the Design-Build Agreement.
(List below any exceptions to the above limitations on Surety's warranty obligation, if any)

14 Authorization. The Surety represents that it is admitted to act as an authorized corporate surety in the state in which the Project is located. Surety and Design-Builder, intending to be legally bound hereby, subject to the terms set out above, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

DESIGN-BUILDER (AS PRINCIPAL) Company:	**SURETY** Company:
Signature:	Signature:
Name and Title:	Name and Title:
	Corporate Seal
	(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest:

Signature and Title

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Payment Bond for Design-Build Projects

Document No. 625
First Edition, 2015

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Washington, D.C.

Design-Build Institute of America – Contract Documents
LICENSE AGREEMENT

By using the DBIA Contract Documents, you agree to and are bound by the terms of this License Agreement.

1. **License.** The Design-Build Institute of America ("DBIA") provides DBIA Contract Documents and licenses their use worldwide. You acknowledge that DBIA Contract Documents are protected by the copyright laws of the United States. You have a limited nonexclusive license to: (a) Use DBIA Contract Documents on any number of machines owned, leased, or rented by your company or organization; (b) Use DBIA Contract Documents in printed form for bona fide contract purposes; and (c) Copy DBIA Contract Documents into any machine-readable or printed form for backup or modification purposes in support of your permitted use.
2. **User Responsibility.** You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results and for the installation, use, and results obtained from the DBIA Contract Documents. You acknowledge that you understand that the text of the DBIA Contract Documents has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You will not represent that any of the contract documents you generate from DBIA Contract Documents are DBIA documents unless (a) the document text is used without alteration or (b) all additions and changes to, and deletions from, the text are clearly shown.
3. **Copies.** You may not use, copy, modify, or transfer DBIA Contract Documents, or any copy, modification, or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification, or portion merged into another document or program.
4. **Transfers.** You may not transfer possession of any copy, modification, or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.
5. **Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.
6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.
7. **Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings, or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.
8. **Acknowledgement.** You acknowledge that you have read this agreement, understand it, and agree to be bound by its terms and conditions, and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

PAYMENT BOND FOR DESIGN-BUILD PROJECTS

This bond form has been endorsed by The National Association of Surety Bond Producers and The Surety & Fidelity Association of America

DESIGN-BUILDER/PRINCIPAL: *(Name and address)*	**SURETY:** *(Name and address)*
OWNER/OBLIGEE: *(Name and address)*	**PROJECT:** *(Name and location)*
DESIGN-BUILD AGREEMENT: Dated: Amount:	**BOND DATE:** *(Not earlier than date of Design-Build Agreement)* **BOND AMOUNT:**

MODIFICATIONS TO THIS BOND:
(List modifications to this Bond below. If none, write "None")

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BOND TERMS AND CONDITIONS

1 Binding Effect. The Design-Builder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay for labor, services, materials and equipment furnished by Claimants for use in the performance of the Design-Build Agreement, which is incorporated herein by reference.

2 Intent of Bond. If the Design-Builder promptly makes payment of all sums for all labor, services, materials, and equipment furnished for use in the performance of the Design-Build Agreement, then the Surety's obligations under this Bond are null and void. Otherwise the Surety's obligations shall remain in full force and effect.

3 Notice of Claim. Every Claimant who has not been paid in full before the expiration of a period of ninety (90) days after such Claimant provided or performed the last of the work, services or labor, or furnished the last of the materials or equipment for which said claim is made, may have a right of action on this Bond.

3.1 Claimants shall provide written notice to the Surety and send a copy, or notice thereof, to Owner and Design-Builder, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim, and the last date such work, services or labor were performed, or the last materials or equipment were furnished in furtherance of the Design-Build Agreement.

3.2 If Claimant does not have a direct contract with Design-Builder, the notice shall identify the person or entity with whom Claimant contracted and who has not made payment to Claimant.

4 Surety's Obligations. When a Claimant has satisfied the conditions of Section 3, the Surety shall promptly take the following actions at the Surety's expense:

4.1 Send an answer to that Claimant, with a copy to the Owner and Design-Builder, within sixty (60) days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any disputed portions or amounts.

4.2 Pay or arrange for payment of any undisputed amounts.

5 Bond Liability. The Surety's total obligation shall not exceed the Bond Amount, plus the amount of reasonable attorney's fees provided for herein.

5.1 If the Surety fails to discharge its obligations under Sections 4.1 or 4.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to successfully recover any sums found to be due and owing to the Claimant. If Claimant does not recover the entire amount claimed in its notice under Section 3, then such attorney's fees shall be reduced in proportion to the amount actually recovered.

5.2 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Design-Builder that are unrelated to the Design-Build Agreement, and the Contract Balance shall not be reduced or set off on account of any such unrelated obligations.

6 Waiver of Notice. The Surety hereby waives notice of changes to the Design-Build Agreement, including changes within the general scope, or of time or price, or to related subcontracts or purchase orders.

7 Dispute Resolution. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the State in which the Project is located. Such suit or action must be filed within one (1) year from the date: a) on which the Claimant sent a claim to the Surety pursuant to Section 3.1; or, b) on which the Claimant last performed labor or services or furnished materials or equipment on the Project, whichever occurs first. If the provisions of this Section 7 are prohibited by law, the minimum period of limitation available to sureties in the jurisdiction in which the

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Project is located shall be applicable.

7.1 In the event of bankruptcy of the Design-Builder, the Surety agrees that the Design-Builder is not a necessary or indispensable party to any legal action by any party against the Surety to enforce the Surety's obligations under this Bond.

8 Statutory Compliance. If this Bond has been furnished to comply with a statutory requirement in the location where the Project is located, then any provision herein that conflicts with a statutory requirement shall be deemed deleted and replaced by provisions conforming to such statutory requirement. The intent is that this Bond shall be construed as a statutory bond conforming to the applicable statutes.

9 Copy To Be Furnished. Upon written request of any person or entity appearing to be a potential Claimant on this Bond, Design-Builder shall promptly furnish a copy of this Bond or shall permit a copy to be made.

10 Claimant Defined. A Claimant is any individual or entity having a direct contract with the Design-Builder or having a contract with a subcontractor that has a direct contract with the Design-Builder to furnish services, labor, materials or equipment for use in the performance of the Design-Build Agreement.

10.1 A Claimant may include amounts owed by the Design-Builder for design and other professional services furnished or performed by Claimant regardless of whether such services might form the basis for a mechanic's lien under applicable State law.

11 Notice. Unless otherwise noted below, written notice under this Bond to Surety, Owner or Design-Builder shall be mailed or delivered electronically or by hard mail to the contact information shown on page 1.
(List any alternate contact information below for notice to the Surety of any claim on this Bond. If none, then use the contact information on page 1)

For Claims on this Bond:
(check appropriate box)
□ Use the contact information shown on page 1; or
□ Use the following alternate contact information:
(fill in Surety claims administrator contact information below)

12 Subcontractor Bonds. If this Bond is issued for an agreement between the Design-Builder and a subcontractor, the term Design-Builder in this Bond shall be deemed to be the bonded subcontractor and the term Owner shall be deemed to be Design-Builder.

13 Authorization. The Surety represents that it is admitted to act as an authorized corporate surety in the state in which the Project is located. Surety and Design-Builder, intending to be legally bound hereby, subject to the terms set out above, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

DESIGN-BUILDER (AS PRINCIPAL) Company:	**SURETY** Company:
Signature:	Signature:
Name and Title:	Name and Title:
	Corporate Seal

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	(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest:

Signature and Title

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Building Information Modeling Exhibit

Document No. E-BIMWD
Second Edition, 2010

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Washington, D.C.

Design-Build Institute of America – Contract Documents
LICENSE AGREEMENT

By using the DBIA Contract Documents, you agree to and are bound by the terms of this License Agreement.

1. **License.** The Design-Build Institute of America ("DBIA") provides DBIA Contract Documents and licenses their use worldwide. You acknowledge that DBIA Contract Documents are protected by the copyright laws of the United States. You have a limited nonexclusive license to: (a) Use DBIA Contract Documents on any number of machines owned, leased, or rented by your company or organization; (b) Use DBIA Contract Documents in printed form for bona fide contract purposes; and (c) Copy DBIA Contract Documents into any machine-readable or printed form for backup or modification purposes in support of your permitted use.
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3. **Copies.** You may not use, copy, modify, or transfer DBIA Contract Documents, or any copy, modification, or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification, or portion merged into another document or program.
4. **Transfers.** You may not transfer possession of any copy, modification, or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.
5. **Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.
6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.
7. **Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings, or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.
8. **Acknowledgement.** You acknowledge that you have read this agreement, understand it, and agree to be bound by its terms and conditions, and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

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Building Information Modeling Exhibit

This document has important legal consequences. Consultation with an attorney is recommended with respect to its completion or modification and its relation to the other Contract Documents set forth in DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder - Lump Sum* (2010 Edition) or DBIA Document No. 530, *Standard Form of Agreement BetweenOwner and Design-Builder - Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2010 Edition).

This Exhibit is attached to and made a part of the Underlying Contract between the following parties:

PARTIES TO THIS EXHIBIT *(list parties)***:**

_____

_____

with respect to the Project noted below:

PROJECT:
(Include Project name and location as it will appear in the Contract Documents)

DESIGN-BUILDER:
(Hereinafter "Design-Builder")

OWNER:
(Hereinafter "Owner")

DATE:
(Insert the effective date of this Exhibit)

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Article 1

Definitions

1.1 *BIM* or *BIM Process* means the Building Information Modeling system that is described in this Exhibit and that has been agreed to between Owner and Design-Builder.

1.2 *Deliverable* means a document, either in hard copy or electronic form that contains designs, drawings, calculations, information or other data that is utilized in the BIM Process. A Deliverable may be in the form of a submission from a Participant to the BIM Process or a document generated through the BIM Process.

1.3 *Design-Build Agreement* means the Agreement identified below between the Design-Builder and Owner for the design and construction of the Project. Definitions in this Exhibit shall be the same as the definitions set forth in DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2010 Edition). The Design-Build Agreement is based on the following:

(check one box below)

☐ DBIA Document No. 525*, Standard Form of Agreement Between Owner and Design-Builder - Lump Sum* (2010 Edition) ("DBIA 525").

☐ DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee with an Option for a Guaranteed Maximum Price ("GMP")* (2010 Edition) ("DBIA 530").

1.4 *General Conditions of Contract* means the General Conditions of Contract attached to the Design-Build Agreement and is based on the DBIA Document No. 535 *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2010 Edition).

1.5 *Information* means any information, data, drawings, concepts, designs, submittals, models, calculations, or any other information in any media whatsoever, submitted by a Participant to the Design-Builder or Information Manager for use in the BIM Process.

1.6 *Information Manager* means the entity or individual designated in Section 3.2 of this Addendum.

1.7 *Intellectual Property Rights* means the copyrights, patents, licenses and other rights associated with the use and/or modification of any Information or Deliverables.

1.8 *Participant* means an entity who is a party to the Design-Build Agreement, Subcontract, Design Consultant Agreement, or a contract of a lower tier, who has or will provide either Information or a Deliverable to the BIM Process.

1.9 *Project* means the Project described and set forth above.

1.10 *Subcontractor* or *Design Consultant* and their lower tier *Sub-Subcontractors* and *Design Sub-Consultants* shall have the meanings set forth in the General Conditions of Contract.

1.11 *Subcontract* or *Design Consultant Agreement* shall mean an agreement between the Design-Builder, and a Subcontractor or a Design Consultant to perform a portion of the Work set forth in the Design-Build Agreement.

1.12 *Underlying Contract* means the contract under which the Participant is obligated to provide Information, Deliverables and/or design and/or construction services to the Project. Underlying Contracts include the Design-Build Agreement, Subcontracts, Design Consultant Agreements, and contracts of a lower tier.

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Article 2

Purpose

2.1 The Participants have agreed to utilize BIM to assist with the design and/or planning of the Project set forth above. The purpose of this Exhibit is to establish the procedures associated with the use of BIM for the Project.

2.2 The Participants will, in connection with the meeting set forth in Section 2.1.4 of the General Conditions of Contract ("Initial Conference"), determine the following:

2.2.1 The desired use and outcome of BIM for the Project, including but not limited to the Deliverables to be developed from the use of BIM;

2.2.2 The Information and Deliverables to be submitted by the Participants, including but not limited to the format for the Information and/or Deliverable;

2.2.3 The identities of the Participants to the BIM Process;

2.2.4 The roles and responsibilities of the Participants to the BIM Process; and

2.2.5 Establish submission schedules for Information and Deliverables.

2.3 All Participants will incorporate this Exhibit into their respective Subcontracts, Design Consultant Agreements, and lower tier contracts with Participants.

Article 3

Information Management

3.1 Design-Builder will identify the software program(s) that the Participants are required to utilize in the BIM Process. The cost of the software is:

(check one box below)

☐ A Cost of The Work pursuant to Section 6.3 of DBIA 530;

☐ Included in the lump sum set forth in Section 6.1 of DBIA 525;

☐ Paid by Owner outside the Contract Price;

☐ Obtained, provided, and paid for by each Participant;

☐ Included in the cost of the Underlying Contract; or

☐ Other: _____

3.2 Design-Builder will designate an Information Manager who will be responsible for the following:

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3.2.1 Establishment of submission standards for Information and Deliverables and other data to be submitted through the BIM Process;

3.2.2 Control of access to the BIM Process, including but not limited to, control over access to the submissions contained therein. Such control shall include establishment of passwords and security for Participants; assigning and maintaining user accounts; applying controls so that only authorized Participants may access and/or modify files; and recording information regarding the data entry by each Participant;

3.2.3 Receipt and organization of the Information submitted through the BIM Process;

3.2.4 Maintenance and updating of the software and electronic files associated with the BIM Process, including but not limited to, regularly backing up the programs and data associated with BIM and/or restoring such data and programs, if necessary; and

3.2.5 Serving as the central communications point for all Participants with respect to questions and problems associated with BIM, including but not limited to, questions regarding software, access to BIM, and troubleshooting.

3.3 The Owner will provide such Information as agreed to in the Initial Conference. The Participants may rely on the Owner's Information and Owner shall remain responsible for such Information in the same manner as set forth in Section 3.2.1 of the General Conditions of Contract.

Article 4

Responsibility for Information and Deliverables

4.1 Each Participant to the BIM Process shall be responsible for complying with their respective Underlying Contracts with regard to Information and Deliverables.

4.2 Each Participant shall review and coordinate the Information and/or Deliverable submitted by its Subcontractors, Design Consultants or others as the case may be and shall remain fully responsible for the Information and Deliverables so provided.

4.3 If a Participant modifies the Information and/or Deliverable of another Participant without the professional involvement of the non-modifying Participant, the modifying Participant shall be responsible to the extent of the modification and shall indemnify, defend and hold harmless the non-modifying Participant from and against any claims, suits, damages, losses, liabilities, costs and expenses (including reasonable attorney's fee) to the extent caused by such modification(s).

4.4 Information and Deliverables provided by each Participant are represented as suitable for incorporation into the BIM Process for this Project only, and are not represented as appropriate or suitable for any other project, nor for adaptation of this Project design to another location. Any further use of the Participant's Information and Deliverables for another project or location is strictly prohibited without the written consent and professional involvement of the Participant.

4.5 Participants are not responsible for errors in their Information and Deliverables caused by software or hardware compatibility with the BIM software specified by the Information Manager. However, upon notice from the Information Manager of such incompatibility, the Participant shall work in good faith to resolve such compatibility issues, including errors in transmission, at no added cost to any Participant.

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Article 5

Participant's Responsibilities

5.1 Participants shall carefully review the Information and Deliverables submitted to and developed by the Participant through the BIM Process to determine whether the Information and/or Deliverable that the Participant provides is adequately and accurately reflected in the Deliverable and that such Information and/or Deliverable is consistent with the overall Project and the Basis of Design Documents. If a Participant identifies any error, omission or inconsistency in any Information or Deliverable submitted to or developed through the BIM Process, the Participant shall immediately notify Design-Builder and the Information Manager of such error, omission or inconsistency, regardless of Participant's responsibility for the error, omission or inconsistency.

5.2 Each Participant is responsible for maintaining a record of the Information and Deliverables that the Participant submits to the BIM Process.

Article 6

Intellectual Property Rights

6.1 Each Participant represents that it has the appropriate Intellectual Property Rights to submit its Information or Deliverable to the BIM Process and that it has obtained such rights from any of its Subcontractors and Design-Consultants and lower tier parties whose Information or Deliverable the Participant furnishes. Such Intellectual Property Rights shall comply with Article 4 of DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum* (2010 Edition) or DBIA Document No. 530, *Standard Form of Agreement BetweenOwner and Design-Builder - Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2010 Edition), and each Participant represents that it will provide such licenses and/or ownership rights in the Work Product as is required in Article 4 of the Design-Build Agreement.

Article 7

Miscellaneous

7.1 This Exhibit shall not modify or alter any Underlying Contract, except as expressly set forth in this Addendum.

7.2 Resolution of any disputes arising out of this Exhibit shall be pursuant to the Participants' Underlying Contracts.

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DBIA Contract Document #E-DEI

Diversity, Equity & Inclusion Example Provisions

Document No. E-DEI
First Edition, 2023

© Design-Build Institute of America
Washington, D.C.



Design-Build Institute of America - Contract Documents

LICENSE AGREEMENT

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1. **License.** The Design-Build Institute of America ("DBIA") provides DBIA Contract Documents and licenses their use worldwide. You acknowledge that DBIA Contract Documents are protected by the copyright laws of the United States. You have a limited nonexclusive license to: (a) Use DBIA Contract Documents on any number of machines owned, leased or rented by your company or organization; (b) Use DBIA Contract Documents in printed form for bona fide contract purposes; and (c) Copy DBIA Contract Documents into any machine-readable or printed form for backup or modification purposes in support of your permitted use.
2. **User Responsibility.** You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results, and for the installation, use, and results obtained from the DBIA Contract Documents. You acknowledge that you understand that the text of the DBIA Contract Documents has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You will not represent that any of the contract documents you generate from DBIA Contract Documents are DBIA documents unless (a) the document text is used without alteration or (b) all additions and changes to, and deletions from, the text are clearly shown.
3. **Copies.** You may not use, copy, modify, or transfer DBIA Contract Documents, or any copy, modification or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification, or portion merged into another document or program.
4. **Transfers.** You may not transfer possession of any copy, modification or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.
5. **Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.
6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.
7. **Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.
8. **Acknowledgement.** You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.



The Design-Build Institute of America provides these example contract provisions and guidance as part of our commitment to promoting diversity, equity and inclusion in the A/E/C space. This commitment is based on our core values of mutual respect for and appreciation of diverse perspectives and ideas, as well as our commitment to professionalism, fairness and the highest level of ethical behavior. Therefore, to build bridges that eradicate racial and gender bias: when undertaking a design-build project, owners and practitioners should intentionally involve and engage historically under-represented companies and individuals, prioritizing fair treatment without any racism or bias. This document is designed to assist in achieving those goals.

INSTRUCTIONS

For DBIA Document No. E-DEI, DIVERSITY, EQUITY & INCLUSION EXAMPLE PROVISIONS
(2023 Edition)

General Instructions

No.	Subject	Instruction
1.	Standard Forms	Standard form contracts have long served an important function in the United States and international construction markets. The common purpose of these forms is to provide an economical and convenient way for parties to contract for design and construction services. As standard forms gain acceptance and are used with increased frequency, parties are able to enter into contracts with greater certainty as to their rights and responsibilities.
2.	DBIA Standard Form Contract Documents	Since its formation in 1993, the Design-Build Institute of America ("DBIA") has regularly evaluated the needs of owners, design-builders, and other parties to the design-build process in preparation for developing its own contract forms. Consistent with DBIA's mission of promulgating best design-build practices, DBIA believes that the design-build contract should reflect a balanced approach to risk that considers the legitimate interests of all parties to the design-build process. DBIA's Standard Form Contract Documents reflect a modern risk allocation approach, allocating each risk to the party best equipped to manage and minimize that risk, with the goal of promoting best design-build practices.
3.	Use of Non-DBIA Documents	To avoid inconsistencies among documents used for the same project, DBIA's Standard Form Contract Documents should not be used in conjunction with non-DBIA documents unless the non-DBIA documents are appropriately modified on the advice of legal counsel. Moreover, care should also be taken when using different editions of the DBIA Standard Form Documents on the same project to ensure consistency.
4.	Legal Consequences	DBIA Standard Form Contract Documents are legally binding contracts with important legal consequences. Contracting parties are advised and encouraged to seek legal counsel in completing or modifying these Documents.
5.	Reproduction	DBIA hereby grants to purchasers a limited license to reproduce its Documents consistent with the License Agreement accompanying these Documents. At least two original versions of the Agreement should be signed by the parties. Any other reproduction of DBIA Documents is strictly prohibited.
6.	Modifications	Effective contracting is accomplished when the parties give specific thought to their contracting goals and then tailor the contract to meet the unique needs of the project and the design-build team. For that reason, these Documents may require modification for various purposes including, for example, to comply with local codes and laws, or to add special terms. DBIA's latest revisions to its Documents provide the parties an opportunity to customize their contractual relationship by selecting various optional contract clauses that may better reflect the unique needs and risks associated with the project. At no time should a document be re-typed in its entirety. Re-creating the document violates copyright laws and destroys one of the advantages of standard forms – familiarity with the terms.
7.	Execution	It is good practice to execute two original copies of the Agreement. Only persons authorized to sign for the contracting parties may execute the Agreement.

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Specific Instructions

Section	Title	Instruction
General	Purpose of This Agreement	DBIA Document No. E-DEI includes sample language for two different types of provisions. Part 1 is sample non-discrimination language. Part 2 is an Exhibit for inclusion of Underutilized Businesses that can be attached to DBIA Document No. 410, Standard Form of Request for Proposals.
General Note	Labor Inclusion	Owners interested in increasing workforce participation amongst workers local to or affected by the project, or who are identified as "Targeted Workers," sometimes use "Community Workforce Agreements" ("CWAs") that set out requirements for outreach and hiring of qualified members of certain groups on the part of both the design-builder, its subcontractors and applicable unions. These workforce participation requirements can be in the contract specifications or part of a Community Workforce Agreement or project labor agreement. Geographical hiring preferences can be defined by city, county or state boundaries, zip codes and census tracts, and the selection of the areas can be based on economic factors such as per capita income levels, poverty rates and unemployment rates. Targeted workers can include members of groups such as veterans, women interested in joining the trades, persons with criminal records, persons receiving public assistance, persons emancipated from the foster care system, persons of certain income levels in the prior year or any of a number of other groups Owner has an interest in encouraging involvement in the Project. Targeted Workers must have the requisite skills and qualifications for the work. To facilitate this, the design-builder, subcontractor or unions, as appropriate, should be required to work with community-based job placement organizations to obtain referrals for Targeted Workers. Owners can also require that a certain percentage of apprentices be Targeted Workers. It is important that any owner considering a CWA review the legal and regulatory requirements applicable to the Project as they may place limitations on, or forbid, certain CWA features. For instance, previously, federal law prohibited the use of local hiring preferences on federal aid transit and highway projects. The Bipartisan Infrastructure Law ("BIL"), enacted as the Infrastructure Investment and Jobs Act (Pub. L. 117-58, November 15, 2021) removed that limitation. See Section 25019(a).
General Note	Federal Small Business Definitions	As a standard form document, the purpose is to provide a document that can be used in most states and for most projects. Using Federal Small Business definitions for guidance in this document is consistent with such purpose. Owners should check with the legal requirements applicable to their procurement and seek legal counsel to evaluate specific federal and state guidelines.
Part 1	Non-Discrimination	This section contains sample language Owners can insert into Article 11, Section 11.1 "Other Provisions" of any of the DBIA Agreement forms. Owners should check the applicable state law to determine whether the listed protected classifications are relevant for their state.
Part 2	Underutilized Business Goals	State and local laws vary widely with respect to the extent to which public owners can require Offerors to achieve Underutilized Business Goals. Owners should check with the legal requirements applicable to their procurement.

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Section	Title	Instruction
	Use with DBIA Document No. 405	If Part 2 is included, changes must be made to DBIA Document No. 405, Standard Form of Request for Qualifications, to include the Underutilized Business Enterprise ("UBE") Goals in the Evaluation Criteria in Section 3.3.4 and to the submission requirements in the Standard Form RFP.
1.1	Checkbox 1: Certifying Agency	For Owners who want to require all UBEs to be certified by a specific agency, the first checkbox next to Section 1.1 should be checked, and Owner should designate the relevant agency. Sample language is provided in the Exhibit.
1.1	Checkbox 2: Self-Certification	For Owners who will allow self-certification, the second checkbox next to Section 1.1 should be checked, and Owner should specify the requirements of self-certification.
1.1.1 – 1.1.5	Business Categories	The Exhibit provides a sample list of types of UBEs and definitions for each. Owners should determine those businesses that it would like to include in Offeror's Inclusion Plan and list those businesses here.
Article 2	UBE Inclusion Plan	The Inclusion Plan is intended to be a separate attachment of Offeror's Proposal.
Article 3	UBE Goals	This Article has two options: Goals pre-established by Owner and goals proposed by Offeror. Only one of these checkboxes should be checked.
3.1	Owner-Established Goals	Goals set by Owner should be reasonably calculated such that they reflect realities in the marketplace for the specific scope and types of work presented by the project. This typically entails reviewing the scope of work and performing due diligence on the availability of UBEs to perform the type of work necessary to complete the project. For example, if a significant portion of the scope of the project is (or could be) expected to be prefabricated off-site, such as for a pedestrian bridge project over a busy roadway, Owner should investigate the availability of UBEs with the skill, experience and credentials necessary to fabricate necessary components and the general capacity of the UBE marketplace. Owners should be aware that mandates with respect to subcontract awards to UBE may not be enforceable or may even be prohibited in some jurisdictions. In certain circumstances, no amount of reasonable efforts will produce the desired results, such as where the mandatory goal exceeds the capacity of the UBE marketplace in the applicable jurisdiction. However, an obligation to make good faith efforts and to provide such reporting and analysis to Owner is more likely to be enforceable. These efforts and reporting requirements may be considered part of the scope of work of the project. Consideration should also be given to the certification requirements in determining whether a UBE qualifies against the goals. Owner's use of local certification regulators, national certification regulators or self-certification process may increase or decrease the market availability of potential UBE. However, use of self-certification processes may result in inaccurate certifications, UBEs not performing a commercially useful function or may result in Owner legal risk under applicable UBE regulations.
3.2	Offeror-Proposed Goals	This box should be checked if Owner wants Offeror to propose goals rather having Owner set the goals.
Table	UBE Percentages	The table is intended to be used for either Owner-provided or Offeror-proposed goals. In calculating the proposed goals, Owners and Offerors will need to clarify the calculation basis of the percentage. The DBIA recommends that the Owner identify separate goals for UBE percentages for design and construction services.
Article 4	Evaluation of Inclusion Plan	This section describes how the Inclusion Plan will be evaluated by Owner.

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Section	Title	Instruction
4.2	Timing and Evaluation of Inclusion Plan	This section should be filled out by Owner to detail the timing associated with Offeror's reporting requirements for the Inclusion Plan goals and the timing of Owner's evaluation of the Plan and goals. Consideration should be given to the burden of requesting submitted reports and evaluation thereof. Monthly reporting and evaluations are recommended.

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Part 1: Non-Discrimination Language

11.1 During the performance of Agreement, Design-Builder agrees as follows:

11.1.1 Design-Builder shall not discriminate against any employee or applicant for employment relating to this Project because of race, color, religious creed, sex, national origin, ancestry, age, physical or mental disability, sexual orientation, gender or gender identity unless related to a bona fide occupational qualification. Design-Builder shall take action to ensure that applicants are employed, and employees are treated during employment, without regard to their race, color, religion, sex, age, national origin, physical or mental disability, sexual orientation, gender or gender identity. Such action shall include but not be limited to the following: employment, upgrading, demotions or transfers; recruitment or recruitment advertising; layoffs or terminations; rates of pay or other forms of compensation; and selection for training including apprenticeship.

11.1.2 Design-Builder shall, in all solicitations or advertising for employees placed by or on behalf of Design-Builder relating to this Project, state that all qualified applicants shall receive consideration for employment without regard to race, color, religious creed, sex, national origin, ancestry, age, physical or mental disability, sexual orientation, gender or gender identity.

11.1.3 Design-Builder shall send to each labor union or representative of the workers with which it has a collective bargaining agreement, or other contract or understanding, whereby it is furnished with labor for the performance of the Work, a notice advising the said labor union or workers' representative of Design-Builder's commitment under this section.

11.1.4 Design-Builder shall cause the foregoing provisions to be inserted in any subcontract for any work covered by the Contract Documents so that such provisions shall be binding upon each Subcontractor and Design Consultant, with such modification of language as may be necessary to make them binding on such entity, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

11.1.5 This Agreement may be forthwith canceled, terminated or suspended, in whole or in part, by Owner upon a finding that Design-Builder has violated any provision in this Article.

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Part 2: UNDERUTILIZED BUSINESS ENTERPRISE PARTICIPATION REQUIREMENTS EXHIBIT

ARTICLE 1 DEFINITIONS

Owner is committed to encouraging the participation of Underutilized Business Enterprises (UBE) in its contracts. The following definitions apply to this Project:

1.1 A UBE includes any of the following businesses:
[Check the relevant box below.]:

☐ ***[Check this box if Owner will require UBEs to be certified by an agency such as the "Small Business Administration" or the "Office of Minority and Women Owned Enterprises." For example, "businesses that are certified by the Small Business Administration as small, disadvantaged, minority, women, or veteran owned." "businesses that are certified by the state Office of Minority and Women Owned Enterprises as minority, women, veteran, small, or disadvantaged businesses."]***

☐ ***[Check this box if Owner will accept self-certified businesses to achieve the UBE goals set forth in Article 3]*** Owner will evaluate and allow the Underutilized Business to self-certify that they comply with the definition of such a business under this Section 1 provided, however, Owner at its sole discretion may disallow such self-certification upon facts that present that the Underutilized Business does not actually qualify as such.

1.1.1 A Disabled Person Owned Business is one that is at least 51% owned by a Disabled Person.

1.1.2 A Minority Owned Business is one that is at least 51% minority owned.

1.1.3 A Woman Owned Business is one that is at least 51% woman owned.

1.1.4 A Veteran Owned Business is one that is at least 51% veteran owned.

1.1.5 A Small Business is one that qualifies under the federal Small Business Association standard for the relevant NAICS category.

1.2 A Commercially Useful Function means a function performed by a business enterprise that is responsible for the execution of a distinct element of the work and carrying out its responsibilities by performing, managing and supervising the work with its own resources and employees. Acting as a conduit to transfer funds to another business performing, managing or supervising the work does not typically constitute a Commercially Useful Function. Whether a business has performed a Commercially Useful Function is determined by many factors, including but not limited to the following:

i. The amount of work subcontracted to the Underutilized Business is consistent with normal industry practice;

ii. The amount paid to the Underutilized Business is commensurate with the work it is actually performing;

iii. Whether the Underutilized Business is merely a pass-through entity in order to obtain the appearance of participation;

iv. Whether the Underutilized Business manages its own work, owns or leases its own equipment, manages its own work force for installation, is responsible for supplying its own materials and supplies, and maintains responsibility for the performance of the Work;

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v. In the context of an Underutilized Business being a partner within a joint venture, that the Underutilized Business is providing resources and staff consistent with the stated percentage of the Underutilized Business's interest in such joint venture; and

vi. For materials and supplies, whether the Underutilized Business is responsible for negotiating the price, determining quality and quantity, ordering the materials and paying for the material itself.

ARTICLE 2 UBE INCLUSION PLAN

2.1 As a separate attachment, submit Offeror's UBE Inclusion Plan for this Project. The Inclusion Plan should reflect a thoughtful and relevant commitment to include UBEs in the design and construction for this Project. Work performed by an UBE must have a Commercially Useful Function. The Inclusion Plan should include the following elements and be detailed and specific to the Project.

i. Outreach strategies to identify UBEs capable of performing the work in the geographic region of the Project;

ii. Contracting strategies to remove barriers that allow UBEs to be able to subcontract for the Project, such as the use of joint ventures in partnering with non-UBEs;

iii. Business strategies to support UBEs in being successful on the project such as introductions to banks and/or bonding companies, design-build training and retainage;

iv. Training opportunities in supporting the successful performance of the work by the UBE;

v. Challenges and opportunities that Offeror will face in achieving its UBE Goals for the Project; and

vi. A description of Offeror's successful utilization of UBEs in previous projects. As part of this section, identify whether Offeror has been given a Deficiency Rating by Owner in a previous project with respect to UBE Goals.

2.2 Lower tier subcontractors and/or subconsultants may be used to satisfy Offeror's UBE Inclusion Goals.

ARTICLE 3 UBE INCLUSION GOALS

3.1 ☐ ***[For goals established by Owner:]*** Owner has established the following UBE Inclusion Goals. The Goals must be pursued in good faith, and Offeror must provide an Inclusion Plan that demonstrates achievable, reasonable efforts. UBEs may only be used once to satisfy a UBE Inclusion Goal and may not be listed in multiple categories.

3.2 ☐ ***[For goals proposed by Offerors:]*** As part of the UBE Inclusion Plan, please identify Offeror's aspirational UBE Inclusion Goals for the following categories. The Goals must be developed in good faith and must be achievable by reasonable efforts. UBEs may only be used once to satisfy a UBE Inclusion Goal and may not be listed in multiple categories.

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[The following is an example. Include those businesses that are listed in Article 1.]

	Design Professional Services	Construction Work
Estimated percentage of the base contract work to Disabled Person Owned Businesses	%	%
Estimated percentage of the base contract work to Minority Owned Businesses	%	%
Estimated percentage of the base contract work to Woman Owned Businesses	%	%
Estimated percentage of the base contract work to Veteran Owned Businesses	%	%
Estimated percentage of the base contract work to Small Businesses	%	%
Total estimated base contract work to UBEs	%	%

ARTICLE 4 Evaluation of UBE Inclusion Plan

4.1 The UBE Inclusion Plan will be evaluated on the basis of the reasonableness of the Goals, the extent of the good faith efforts for outreach, the viability of the contracting and business strategies, and the realistic evaluation of the challenges and opportunities presented by the UBE Inclusion Goals.

4.2 The successful Offeror will provide a written report to Owner detailing Offeror's success in meeting the UBE Inclusion Plan and Goals. Offeror will submit the report and updates to the report to Owner [*monthly, quarterly, specific date*]. Owner will evaluate the report and progress in meeting the UBE Inclusion Plan Goals [*monthly, quarterly*], but in no event later than the Date of Substantial Completion.

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Sustainable Project Goals Exhibit

Document No. E-SUSWD
Second Edition, 2010

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Washington, D.C.



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2. **User Responsibility.** You assume sole responsibility for the selection of specific documents or portions thereof to achieve your intended results and for the installation, use, and results obtained from the DBIA Contract Documents. You acknowledge that you understand that the text of the DBIA Contract Documents has important legal consequences and that consultation with an attorney is recommended with respect to use or modification of the text. You will not represent that any of the contract documents you generate from DBIA Contract Documents are DBIA documents unless (a) the document text is used without alteration or (b) all additions and changes to, and deletions from, the text are clearly shown.
3. **Copies.** You may not use, copy, modify, or transfer DBIA Contract Documents, or any copy, modification, or merged portion, in whole or in part, except as expressly provided for in this license. Reproduction of DBIA Contract Documents in printed or machine-readable format for resale or educational purposes is expressly prohibited. You will reproduce and include DBIA's copyright notice on any printed or machine-readable copy, modification, or portion merged into another document or program.
4. **Transfers.** You may not transfer possession of any copy, modification, or merged portion of DBIA Contract Documents to another party, except that a party with whom you are contracting may receive and use such transferred material solely for purposes of its contract with you. You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement, and any attempt to do so is void.
5. **Term.** The license is effective for one year from the date of purchase. DBIA may elect to terminate it earlier, by written notice to you, if you fail to comply with any term or condition of this Agreement.
6. **Limited Warranty.** DBIA warrants the electronic files or other media by which DBIA Contract Documents are furnished to be free from defects in materials and workmanship under normal use during the Term. There is no other warranty of any kind, expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DBIA does not warrant that the DBIA Contract Documents will meet your requirements or that the operation of DBIA Contract Documents will be uninterrupted or error free.
7. **Limitations of Remedies.** DBIA's entire liability and your exclusive remedy shall be: the replacement of any document not meeting DBIA's "Limited Warranty" which is returned to DBIA with a copy of your receipt, or at DBIA's election, your money will be refunded. In no event will DBIA be liable to you for any damages, including any lost profits, lost savings, or other incidental or consequential damages arising out of the use or inability to use DBIA Contract Documents even if DBIA has been advised of the possibility of such damages, or for any claim by any other party. Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.
8. **Acknowledgement.** You acknowledge that you have read this agreement, understand it, and agree to be bound by its terms and conditions, and that it will be governed by the laws of the District of Columbia. You further agree that it is the complete and exclusive statement of your agreement with DBIA which supersedes any proposal or prior agreement, oral or written, and any other communications between the parties relating to the subject matter of this agreement.

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Sustainable Project Goals Exhibit

This document has important legal consequences. Consultation with an attorney is recommended with respect to its completion or modification and its relation to the other Contract Documents set forth in DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder Lump - Sum* (2010 Edition) or DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder - Cost Plus Fee with an Option for a Guaranteed Maximum Price* (2010 Edition).

PROJECT:
(Include Project name and location as it will appear in the Contract Documents)

Article 1

Project Goals

1.1 The Parties shall discuss prior to execution of the Design-Build Agreement the extent to which they will incorporate sustainable design elements, including whether LEED® Certification will be required, under the guidelines of the U.S. Green Building Council's (USGBC) LEED® Rating Systems. The Parties can either select one or both of the boxes below as they deem appropriate.

☐ It is the shared goal of the Parties to design and construct a Project that imposes a minimal negative impact on the environment while maximizing the health and comfort of the Project's users and occupants by exploring commercially available sustainable design products, technologies, and practices that can be incorporated into the Project. Accordingly, Design-Builder and Owner shall discuss with the Design Consultant, during the design phase, and incorporate into the Project, design and construction methods, materials and systems for an environmentally beneficial, cost effective, and resource efficient Project. This may include sustainable practices that impact the Project site, energy and water use, materials, indoor air quality, and maintenance, provided that the sustainable design elements and construction practices are consistent with the Contract Price and Project Schedule. In the event said sustainable design elements and practices are not included in the Basis of the Design Documents or the Contract Price and Project Schedule, Design-Builder will be entitled to a Change Order.

and/or

☐ Owner and Design-Builder agree that a shared goal is that the Project will achieve (1) the following sustainable rating system _____, or (2) the following level of LEED® certification under version _____ of the USGBC's

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_____ [E.g., New Construction & Major Renovations, Core and Shell, Commercial Interiors, etc.] Rating System.

☐ Certified ☐ Gold

☐ Silver ☐ Platinum

1.2 The requisite credits to achieve the applicable LEED® certification will be set forth in the Basis of Design Documents if feasible. If it is not feasible to ascertain the achievable LEED® credits as part of the Basis of Design Documents, the Design-Builder and Owner will work together as part of the design development process described in Section 2.4 of the DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2010 Edition) ("General Conditions of Contract") to identify the achievable LEED® credits. In the event said LEED® credits are not included in the Basis of Design Documents or the Contract Price and Project Schedule, Design-Builder will be entitled to a Change Order.

Article 2

Project Commissioning

2.1 The Parties agree that if LEED® certification is required, that an independent Commissioning Authority (CxA) shall be retained to lead, review, and oversee the completion of all commissioning process activities, including monitoring compliance with the Contract Documents and completing all necessary documentation for commissioning credits. The CxA shall be a LEED® Accredited Professional (LEED® AP) and meet the credit requirements of the applicable LEED® rating system. The CxA shall report results, findings and recommendations directly to the Owner, with a copy to the Design-Builder.

2.2 The CxA shall conduct, consistent with the review requirements of the LEED® rating system, the necessary commissioning design reviews of the Basis of Design Documents and design documents prior to completion of the Construction Documents, and back-check the review comments in subsequent design submissions. The CxA shall also review Design-Builder's submittals applicable to systems being commissioned for compliance with the Basis of Design Documents. This review shall be concurrent with Design Consultant's reviews and submitted to the Design-Builder and the Owner.

2.3 The CxA shall be retained by:

☐ Design-Builder, as part of the Contract Price;

☐ The Owner, as an independent consultant.

2.4 The CxA shall provide the following level of service:

☐ Fundamental Building Systems Commissioning

☐ Enhanced Commissioning

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Article 3

Legal Requirements

3.1 The parties will discuss whether LEED® certification or other sustainable standards are required by law (Legal Requirements). The Owner shall be responsible to identify any such requirements applicable to the Project and the Design-Builder is entitled to rely on the Owner's representations without any independent verification.

3.2 The Design-Builder shall not be liable for any costs or delay due to changes in the law after establishment of the agreed Contract Price which increases the cost or time for completion of the Project due to sustainable requirements.

3.3 The Owner has identified the following Legal Requirements for the Project that relate to sustainable design:

(Insert here any ordinance, statute, executive order or other Legal Requirement; if nothing is inserted here, it is presumed that there are no applicable requirements.)

3.4 The Design-Builder acknowledges that as a matter of law the Project is obligated to satisfy or achieve the level of LEED® certification or other sustainable standards identified in the above-cited Legal Requirements. Owner recognizes that the ultimate decision to certify the Project under a LEED® Rating System and/or the satisfaction of other sustainable standards is dependent on a variety of circumstances, including the subjective determination of the USGBC and/or other interested organizations or entities. Therefore, Owner and Design-Builder pledge to each other to use best efforts to satisfy or achieve the level of LEED® certification or to satisfy the other sustainable standards indicated in the Basis of Design Documents or mandated by Legal Requirements.

Article 4

Remedies

4.1 In the event that the Project fails to satisfy or obtain such level of LEED® certification or other sustainable standards as identified or as required by the Legal Requirements, the parties agree to file a timely appeal to the USGBC, or other appropriate entity, of such action. The costs of such appeal shall be paid for by the Owner.

4.2 In the event that, after a timely appeal to the USGBC or other certifying organization, the Project fails to satisfy or obtain such level of LEED® certification or other sustainable standards as are identified in, or as required by the Legal Requirements, the parties agree as follows:

(check the appropriate box below)

☐ **Waiver.** In no event shall the failure of the Project to satisfy or obtain such level of LEED® certification or other sustainable standards be deemed a breach of contract, or otherwise actionable by the Owner, and any claims for failure of Design-Builder to satisfy or achieve LEED®

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certification at any level or other sustainable standards are hereby waived by the Owner against Design-Builder.

or

☐ **Liquidated Damages.** Design-Builder has a contractual obligation to satisfy or achieve the level of LEED® certification indicated above and/or to satisfy or achieve other sustainable standards as are identified, or as required by the Legal Requirements, provided the Owner has fully satisfied its obligations in relation thereto. In the event such level of LEED® certification or other sustainable standards are not satisfied or achieved, subject to a timely filed appeal, and provided the Owner has fully performed its obligations in relation thereto, Design-Builder agrees to pay the Owner the following amount not by way of penalty, but as liquidated damages, the sum of _____ Dollars ($_____). Design-Builder shall not be liable for any other related damages including, but not limited to consequential damages as identified in the General Conditions of Contract.

or

☐ **Limited Obligation to Cure.** Design-Builder has an obligation to cure the situation through the addition, replacement or correction of materials, configurations, systems or equipments in order to obtain the level of LEED® certification indicated above and/or to satisfy or achieve other sustainable standards as are identified, or as required by the Legal Requirements, provided the Owner has fully satisfied its obligations in relation thereto. However, Design-Builder's obligation is limited to:

☐ Design-Builder's remaining contingency (if a GMP contract);

☐ Design-Builder's share of the savings (if a GMP contract); or,

☐ The sum of _____ Dollars ($_____).

Article 5

Experimental Products, Design or Systems

5.1 In order to achieve the desired LEED® level of certification or other similar rating, the Design-Builder or its Design Consultant has recommended the use of the products, materials or building systems (hereafter "Sustainable Product") identified on the attached **Exhibit 1**. The Design-Builder has disclosed to the Owner that it has limited or no prior professional experience with such Sustainable Product in actual construction. However, the Design-Builder and its Design Consultant have reviewed technical literature on the Sustainable Product and, if the Sustainable Product performs as represented by the manufacturer, the Design-Builder believes that it will meet the Owner's requirements and help achieve the desired LEED® certification or other similar rating.

5.2 The Design-Builder has advised the Owner of the risks and benefits of such Sustainable Product, and that the proposed use of such Sustainable Product is untested with this Design-Builder and, therefore, experimental. The Design-Builder and Owner have discussed alternative methods, products, materials or building systems, and the Owner desires, nonetheless, to use the Sustainable Product identified in **Exhibit 1**.

5.3 Given all this information, and with full knowledge of the risks and rewards, the Owner consents to the Design-Builder's inclusion of the Sustainable Product identified in **Exhibit 1** in the Project design. The Owner understands that the Design-Builder does not warrant the performance of the Sustainable

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Product and, in the event the Owner is not satisfied with the performance of the same, the Owner shall look solely to the manufacturer, supplier or installer of the same, and waives any claim against the Design-Builder and its Design Consultant that result from the Owner's selection of the Sustainable Product for use on this Project.

Article 6

Miscellaneous

6.1 The registration, certification, credit interpretation ruling and any other fees charged by the USGBC, The Green Building Certification Institute or other similar organizations shall be paid by the Owner, directly to such organizations, and shall not be an obligation of the Design-Builder, nor included in the Contract Price unless otherwise agreed in writing.

6.2 In no event shall the dates of Substantial Completion or Final Completion be contingent on any certification of the Project to meet any level of the USGBC's LEED® rating system or other similar system.

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I HAVE READ THIS CONSENT FORM AND UNDERSTAND THAT BY SIGNING BELOW I SIGN THIS CONSENT AS MY OWN FREE ACT, WITH KNOWLEDGE OF THE RISKS INVOLVED AND SIGN THIS UNDER NO COERCION OR DURESS.

OWNER:	**DESIGN-BUILDER:**
_____	_____
(Name of Owner)	*(Name of Design-Builder)*
_____	_____
(Signature)	*(Signature)*
_____	_____
(Printed Name)	*(Printed Name)*
_____	_____
(Title)	*(Title)*
Date: _____	Date: _____

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Attachment 7: HUD GENERAL PROVISIONS AND OTHER FEDERAL STATUES, REGULATIONS, AND PRDOH REQUIREMENTS OF HEALTHCARE STRENGTHENING SET-ASIDE

These terms and conditions must be included in their entirety by the CONTRACTOR and SUBCONTRACTOR in all purchase orders or subcontracts that are directly related to the contract, even though some of the terms and conditions might not apply to a particular kind of purchase order or subcontract.

PROVISIONS REQUIRED BY LAW DEEMED INSERTED

If, by mistake or for any other reason, any of the provisions are not included, or are not included correctly, then, at the request of either party, the contract will be amended immediately to make such inclusion or correction.

STATUTORY AND REGULATORY COMPLIANCE

The CONTRACTOR shall comply with all laws and regulations applicable to the Community Development Block Grant-Disaster Recovery funds appropriated by the Supplemental Appropriations for Disaster Relief Requirements, 2017 (Pub. L. 115-56), approved September 8, 2017 (Appropriations Act), as amended, including but not limited to the applicable Office of Management and Budget Circulars, which may impact the administration of funds and/or set forth certain cost principles, including if certain expenses are allowed.

BREACH OF CONTRACTOR AGREEMENT TERMS

The Puerto Rico Medical Services (ASEM) and/or Puerto Rico Department of Housing (PRDOH) reserves its right to all administrative, contractual, or legal remedies, including but not limited to suspension or termination of the contract, in instances where the CONTRACTOR or any of its subcontractors violate or breach any contract term. If the CONTRACTOR or any of its subcontractors violate or breach any contract term, they shall be subject to such sanctions and penalties as may be appropriate. The duties and obligations imposed by the contract documents, and the rights and remedies available thereunder, shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

Attachment 7: HUD GENERAL PROVISIONS AND OTHER FEDERAL STATUES, REGULATIONS, AND PRDOH REQUIREMENTS OF HEALTHCARE STRENGTHENING SET-ASIDE

SMALL AND MINORITY FIRMS, WOMEN'S BUSINESS ENTERPRISES, VETERNAN'S BUSINESS ENTERPRISES, AND LABOR SURPLUS AREA FIRMS

The CONTRACTOR will take necessary affirmative steps to assure that minority firms, women's business enterprises, veteran's business enterprises, and labor surplus area firms are used in subcontracting when possible. Steps include, but are not limited to:

- Placing qualified small and minority businesses, women's business enterprises, and veteran's business enterprises on solicitation lists;

- Assuring that small and minority businesses, women's business enterprises, and veteran's business enterprises are solicited whenever they are potential sources;

- Dividing total requirements. when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, women's business enterprises, and veteran's business enterprises;

- Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, women's business enterprises; and veteran's business enterprises; and

- Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce.

Additionally, for contracts of $10,000 or more, the CONTRACTOR shall file Form HUD 2516 (Contract and Subcontract Activity) with the ASEM and/or PRDOH on a quarterly basis.

RIGHTS TO INVENTIONS MADE UNDER A CONTRACT OR AGREEMENT

Contracts or agreements for the performance of experimental, developmental, or research work shall provide for the rights of the Federal Government and the recipient in any resulting invention in accordance with 37 C.F.R. Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms under Government Grants, Contracts and Cooperative Agreements", and any implementing regulations issued by HUD.

DEBARMENT, SUSPENSION, AND INELIGIBILITY

The CONTRACTOR represents and warrants that it and its subcontractors are not debarred or suspended or otherwise excluded from or ineligible for participation in Federal assistance programs subject to 2 C.F.R. Part 2424.

Attachment 7: HUD GENERAL PROVISIONS AND OTHER FEDERAL STATUES, REGULATIONS, AND PRDOH REQUIREMENTS OF HEALTHCARE STRENGTHENING SET-ASIDE

REPORTING REQUIREMENTS

The CONTRACTOR shall complete and submit all reports, in such form and according to such schedule, as may be required by the ASEM and/or PRDOH and/or the Government of Puerto Rico. The CONTRACTOR shall cooperate with all the ASEM and/or PRDOH and/or the Government of Puerto Rico efforts to comply with HUD requirements and regulations pertaining to reporting, including but not limited to 2 C.F.R. § 200.328 and 24 C.F.R. § 570.507, when applicable.

CONFLICTS OF INTEREST

The CONTRACTOR shall notify the ASEM and/or PRDOH as soon as possible if the contract or any aspect related to the anticipated work under the contract raises an actual or potential conflict of interest, if applicable. The CONTRACTOR shall explain the actual or potential conflict in writing in sufficient detail so that the ASEM and/or PRDOH are able to assess such actual or potential conflict. The CONTRACTOR shall provide the ASEM and/or PRDOH any additional information necessary to fully assess and address such actual or potential conflict of interest. The CONTRACTOR shall accept any reasonable conflict mitigation strategy employed by the ASEM and/or PRDOH, including but not limited to the use of an independent subcontractor(s) to perform the portion of work that gives rise to the actual or potential conflict.

SUBCONTRACTING

When subcontracting, the CONTRACTOR shall solicit for and contract with such subcontractors in a manner providing for fair competition. Some of the situations considered to be restrictive to competition include, but are not limited to:
Placing unreasonable requirements on firms for them to qualify to do business:

- Requiring unnecessary experience and excessive bonding;
- Noncompetitive pricing practices between firms or between affiliated Companies;
- Noncompetitive awards to consultants that are on retainer contracts,
- Organizational conflicts of interest;
- Specifying only a brand name product instead of allowing an equal product to be offered and describing the performance of other relevant requirements of the procurement; and
- Any arbitrary action in the procurement process.

Attachment 7: HUD GENERAL PROVISIONS AND OTHER FEDERAL STATUES, REGULATIONS, AND PRDOH REQUIREMENTS OF HEALTHCARE STRENGTHENING SET-ASIDE

The CONTRACTOR represents to the ASEM and/or PRDOH that all work shall be performed by personnel experienced in the appropriate and applicable profession and areas of expertise, considering the nature of the work to be performed under the contract.

The CONTRACTOR will include these HUD General Provisions in every subcontract issued by it, so that such provisions will be binding upon each of its subcontractors as well as the requirement to flow down such terms to all lower-tiered subcontractors.

ASSIGNABILITY

The CONTRACTOR shall not assign any interest in the contract and shall not transfer any interest in the same (whether by assignment or novation) without prior written approval of the ASEM and/or PRDOH.

COPELAND "ANTI-KICKBACK" ACT

(Applicable to all construction or repair contracts)

Salaries of personnel performing work under the contract shall be paid unconditionally and not less often than once a month without payroll deduction or rebate on any account except only such payroll deductions as are mandatory by law or permitted by the applicable regulations issued by the Secretary of Labor pursuant to the Copeland "Anti-Kickback Act" of 1934, 48 Stat. 948; (codified at 18 U.S.C. § 874; and 40 U.S.C. § 3145). The CONTRACTOR shall comply with all applicable "Anti-Kickback" regulations and shall insert appropriate provisions in all subcontracts covering work under the contract to ensure compliance by subcontractors with such regulations and shall be responsible for the submission of affidavits required of subcontractors thereunder except as the Secretary of Labor may specifically provide for variations of or exemptions from the requirements thereof.

CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

(Applicable to construction contracts exceeding $2,000 and contracts exceeding $2,500 that involves the employment of mechanics or laborers.)

The CONTRACTOR shall comply with Sections 103 and 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. §§ 3701-3708) as supplemented by Department of Labor regulations (29 C.F.R. Part 5).

All laborers and mechanics employed by CONTRACTOR or subcontractors shall receive overtime compensation in accordance with and subject to the provisions of the CWHSSA, and the CONTRACTOR and subcontractors shall comply with all regulations issued pursuant to that act and with other applicable Federal laws and regulations pertaining to labor standards.

Attachment 7: HUD GENERAL PROVISIONS AND OTHER FEDERAL STATUES, REGULATIONS, AND PRDOH REQUIREMENTS OF HEALTHCARE STRENGTHENING SET-ASIDE

DAVIS-BACON ACT

(Applicable to construction contracts exceeding $2,000 when required by Federal program legislation.)

The CONTRACTOR shall comply with the Davis Bacon Act (40 U.S.C. § 3141 et seq.) as supplemented by Department of Labor regulations (29 C.F.R. Part 5).

All laborers and mechanics employed by CONTRACTOR or subcontractors, including employees of other governments, on construction work assisted under the contract and subject to the provisions of the federal acts and regulations listed in this paragraph, shall be paid wages at rates not less than those prevailing on similar construction in the locality as determined by the Secretary of Labor in accordance with the Davis Bacon Act.

On a semi-annual basis, the CONTRACTOR shall submit Form HUD 4710 (Semi-Annual labor Standards Enforcement Report) to ASEM and/or PRDOH.

TERMINATION FOR CAUSE

(Applicable to contracts exceeding $10,000)

If, through any cause, the CONTRACTOR shall fail to fulfill in a timely and proper manner his or her obligations under the contract or if the CONTRACTOR shall violate any of the covenants, agreements, or stipulations of the contract, the ASEM and/or PRDOH shall thereupon have the right to terminate the contract by giving written notice to the CONTRACTOR of such termination and specifying the effective date thereof, at least five (5) days before the effective date of such termination. In such event, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs, and reports prepared by the CONTRACTOR under the contract shall, at the option of the ASEM and/or PRDOH, become the ASEM and/or PRDOH property and the CONTRACTOR shall be entitled to receive just and equitable compensation for any work satisfactorily completed hereunder. Notwithstanding the above, the CONTRACTOR shall not be relieved of liability to the Government of Puerto Rico, PRDOH, and ASEM for damages sustained by the Government of Puerto Rico and/or PRDOH and/or ASEM by virtue of any breach of the contract by the CONTRACTOR, and the Government of Puerto Rico and/or PRDOH and/or ASEM may withhold any payments to the CONTRACTOR for the purpose of set-off until such time as the exact amount of damages due to the Government of Puerto Rico and/or PRDOH and/or ASEM from the CONTRACTOR is determined.

Attachment 7: HUD GENERAL PROVISIONS AND OTHER FEDERAL STATUES, REGULATIONS, AND PRDOH REQUIREMENTS OF HEALTHCARE STRENGTHENING SET-ASIDE

TERMINATION FOR CONVENIENCE

(Applicable to contracts exceeding $10,000)

The ASEM and/or PRDOH may terminate the contract at any time by giving at least a ten (10) days' notice in writing to the CONTRACTOR, If the contract is terminated by the ASEM and/or PRDOH as provided herein, the CONTRACTOR will be paid for the time provided and expenses incurred up to the termination date.

SECTION 503 OF THE REHABILITATION ACT OF 1973

(Applicable to contracts exceeding $10,000)

The CONTRACTOR shall comply with Section 503 of the Rehabilitation Act of 1973 (29 U.S.C. § 793), as amended, and any applicable regulations, Equal Opportunity for Workers with Disabilities:

- The CONTRACTOR will not discriminate against any employee or applicant for employment because of physical or mental disability regarding any position for which the employee or applicant for employment is qualified. The CONTRACTOR agrees to take affirmative action to employ, advance in employment and otherwise treat qualified individuals with disabilities without discrimination based on their physical or mental disability in all employment practices, including the following:

    - Recruitment, advertising, and job application procedures;
    - Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff and rehiring;
    - Rates of pay or any other form of compensation and changes in compensation;
    - Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;
    - Leaves of absence, sick leave, or any other leave;
    - Fringe benefits available by virtue of employment, whether or not administered by the CONTRACTOR;
    - Selection and financial support for training, including apprenticeship, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;
    - Activities sponsored by the CONTRACTOR, including social or recreational programs; and
    - Any other term, condition, or privilege of employment.

- The CONTRACTOR agrees to comply with the rules, regulations, and relevant

orders of the Secretary of Labor issued pursuant to the Act.

- In the event of the CONTRACTOR 's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

- The CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Deputy Assistant Secretary for Federal Contract Compliance Programs, provided by or through the contracting officer. Such notices state the rights of applicants and employees as well as the CONTRACTOR 's obligation under the law to take affirmative action to employ and advance in employment qualified employees and applicants with disabilities. The CONTRACTOR must ensure that applicants and employees with disabilities are informed of the contents of the notice (e.g., the CONTRACTOR may have the notice read to a visually disabled individual or may lower the posted notice so that it might be read by a person in a wheelchair).

- The CONTRACTOR will notify each labor organization or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the CONTRACTOR is bound by the terms of Section 503 of the Rehabilitation Act of 1973, as amended, and is committed to take affirmative action to employ and advance in employment individuals with physical or mental disabilities.

- The CONTRACTOR will include the provisions of this clause in every subcontract or purchase order in excess of $10,000, unless exempted by the rules, regulations, or orders of the Secretary issued pursuant to Section 503 of the Rehabilitation Act of 1973, as amended, as amended, so that such provisions will be binding upon each subcontractor or vendor. The CONTRACTOR will take such action with respect to any subcontract or purchase order as the Deputy Assistant Secretary for Federal Contract Compliance Programs may direct to enforce such provisions, including action for noncompliance.

EQUAL EMPLOYMENT OPPORTUNITY
(Applicable to construction contracts and subcontracts exceeding $10,000)
The CONTRACTOR shall comply with Executive Order 11246 of September 24, 1965, entitled "Equal Employment Opportunity," as amended by Executive Order 11375 of

October 13, 1967, and as supplemented by Department of Labor regulations [41 C.F.R. Subpt. B, Ch. 60).

During the performance of the contract, the CONTRACTOR agrees as follows:

- The CONTRACTOR shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The CONTRACTOR shall take affirmative action to ensure that applicants for employment are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

- The CONTRACTOR shall post in conspicuous places available to employees and applicants for employment, notices to be provided by Contracting Officer setting forth the provisions of this non-discrimination clause. The CONTRACTOR shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

- The CONTRACTOR will, in all solicitations or advertisements for employees placed by or on behalf of the CONTRACTOR, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.

The CONTRACTOR will send to each labor union or representative of workers with which he or she has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers representative of the CONTRACTOR's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The CONTRACTOR will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.

The CONTRACTOR will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to books, records and accounts by the

contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

In the event of the CONTRACTOR 's non-compliance with the non-discrimination clause of the contract or with any of such rules, regulations or orders, the contract may be cancelled, terminated or suspended in whole or in part and the CONTRACTOR may be declared ineligible for further government contracts in accordance with procedures authorized in Executive Order 11246 and such other sanctions as may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation or order of the Secretary of Labor, or as otherwise provided by law.

The CONTRACTOR shall incorporate the provisions above in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor so that such provisions shall be binding on such subcontractors. The CONTRACTOR will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for non-compliance, provided, however, that in the event the CONTRACTOR becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the CONTRACTOR may request the United States to enter into such litigation to protect the interests of the United States.

CERTIFICATION OF NONSEGREGATED FACILITIES

(Applicable to construction contracts exceeding $10,000)

The CONTRACTOR certifies that it does not maintain or provide for its establishments, and that it does not permit employees to perform their services at any location under its control, where segregated facilities are maintained. It certifies further that it will not maintain or provide for employees any segregated facilities at any of its establishments, and it will not permit employees to perform their services at any location under its control where segregated facilities are maintained. The CONTRACTOR agrees that a breach of this certification is a violation of the equal opportunity clause of the contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employees which are segregated by explicit directive or are, in fact, segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason.

The CONTRACTOR further agrees that (except where it has obtained for specific time periods) it will obtain identical certification from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the equal opportunity clause; that it will retain such certifications in its files; and that it will forward the preceding notice to such proposed subcontractors (except where proposed subcontractors hove submitted identical certifications for specific time periods).

CERTIFICATION OF COMPLIANCE WITH CLEAN AIR AND WATER ACTS
(Applicable to contracts exceeding $100,000)
The CONTRACTOR and all subcontractors shall comply with the requirements of the Cleon Air Act, as amended, 42 U.S.C. § 7401 et seq., the Federal Water Pollution Control Act, as amended, 33 U.S.C. § 1251 et seq., and the regulations of the Environmental Protection Agency with respect thereto, at 40 C.F.R. Ch. I, Subch. C, Pt. 60, Subpt. B and Ch. I, Subch. C, Pt. 93, Subpt. B, as amended, Section 508 of the Federal Water Pollution Control Act (33 U.S.C. § 1368) and Executive Order 11738 of September 10, 1973.

In addition to the foregoing requirements, all nonexempt contractors and subcontractors shall furnish to the owner, the following:

A stipulation by the CONTRACTOR or subcontractors, that any facility to be utilized in the performance of any nonexempt contract or subcontract, is not listed on the Excluded Porty Listing System pursuant to Ch. I, Subch. C, PL 93, Subpt, B or on the List of Violating Facilities issued by the Environmental Protection Agency (EPA) pursuant to 40 CFR. Ch. I, Subch. C, PL 60, Subpt, B, as amended.

Contract by the CONTRACTOR to comply with all the requirements of Section 114 of the Cleon Air Act, as amended, (42 USC§ 7414) and Section 308 of the Federal Water Pollution Control Act, as amended, (33 U.S.C § 1318) relating to inspection, monitoring, entry, reports and information, as well as all other requirements specified in said Section 114 and Section 308, and all regulations and guidelines issued thereunder.

A stipulation that as a condition for the award of the contract, prompt notice will be given of any notification received from the Director, Office of Federal Activities, EPA, indicating that a facility utilized, or to be utilized for the Agreement, is under consideration to be listed on the Excluded Party Listing System or the EPA List of Violating Facilities.

Agreement by the CONTRACTOR that he or she will include, or cause to be included, the criteria and requirements of this section in every nonexempt subcontract and requiring

that the CONTRACTOR will take such action as the government may direct as a means of enforcing such provisions.

ANTI-LOBBYING

(Applicable to contracts exceeding $100,000)

By the execution of the contract, the CONTRACTOR certifies, to the best of his or her knowledge and belief, that:

- No Federal appropriated funds have been paid or will be paid, by or on behalf of the CONTRACTOR, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, on officer or employee of Congress, or on employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loon, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loon, or cooperative agreement.

- If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the CONTRACTOR shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions.

- The CONTRACTOR shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, contracts under grants, loans, and cooperative agreements) and that all CONTRACTORs shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a CONTRACTOR Agreement Between the Puerto Rico Medical Services Administration.

For the Infrastructure Mitigation Program - Healthcare Strengthening Set-Aside under CDBG-MIT prerequisite for making or entering this transaction imposed by 31 U.S.C. § 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Attachment 7: HUD GENERAL PROVISIONS AND OTHER FEDERAL STATUES, REGULATIONS, AND PRDOH REQUIREMENTS OF HEALTHCARE STRENGTHENING SET-ASIDE

BONDING REQUIREMENTS
(Applicable to construction and facility improvement contracts exceeding $100,000)

The CONTRACTOR shall comply with 2 C.F.R. § 200.326 minimum bonding requirements: A bid guarantee from each bidder is equivalent to five percent (5%) of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his or her bid, execute such contractual documents as may be required within the time specified.

A performance bond on the part of the CONTRACTOR for one hundred percent (100%) of the Agreement price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the CONTRACTOR's obligations under such contract.

A payment bond on the part of the CONTRACTOR for one hundred percent (100%) of the Agreement price. A "payment bond" is one executed in connection with a contract to ensure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.

SECTION 3 OF THE HOUSING AND URBAN DEVELOPMENT ACT OF 1968
The work to be performed under the contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. § 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by Section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

The CONTRACTOR agree to comply with HUD's regulations in 24 C.F.R. Part 75, which implement Section 3. As evidenced by their execution of the contract, the parties to the contract certify that they are under no contractual or other impediment that would prevent them from complying with the in 24 C.F.R. Part 75 regulations.

The CONTRACTOR agrees to send to each labor organization or representative of workers with which the CONTRACTOR has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the CONTRACTOR 's commitments under this Section 3 clause and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the

Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

The CONTRACTOR agrees to include this Section 3 clause in every subcontract subject to compliance with regulations in 24 C.F.R. Part 75, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 C.F.R. Part 75. The CONTRACTOR will not subcontract with any subcontractor where the CONTRACTOR has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 C.F.R. Part 75.

The CONTRACTOR acknowledges that CONTRACTORs, contractors, and subcontractors are required to meet the employment, training, and contracting requirements of 24 C.F.R. 75.19, regardless of whether Section 3 language is included in recipient or CONTRACTOR agreements, program regulatory agreements. or contracts signed after the contract.

The CONTRACTOR will certify that any vacant employment positions, including training positions, that are filled: (I) after the CONTRACTOR is selected but before the Agreement is executed, and (2) with persons other than those to whom the regulations of 24 C.F.R. Part 75 require employment opportunities to be directed, were not filled to circumvent the CONTRACTOR 's obligations under 24 C.F.R. Part 75.

Noncompliance with HUD's regulations in 24 C.F.R. Part 75 may result in sanctions, termination of the contract for default, and debarment or suspension from future HUD assisted contracts.

With respect to work performed in connection with Section 3 covered Indian housing assistance, Section 7(b) of the Indian Self-Determination and Education Assistance Act (46 U.S.C. § 5307) also applies to the work to be performed under the contract. Section 7(b) requires that to the greatest extent feasible: (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to the contract that are subject to the provisions of Section 3 and Section 7(b) agree to comply with Section 3 to the maximum extent feasible, but not in derogation of compliance with Section 7(b).

Attachment 7: HUD GENERAL PROVISIONS AND OTHER FEDERAL STATUES, REGULATIONS, AND PRDOH REQUIREMENTS OF HEALTHCARE STRENGTHENING SET-ASIDE

The CONTRACTOR agrees to submit, and shall require its subcontractors to submit to them, quarterly reports to the ASEM and/or PRDOH detailing the total number of labor hours worked on the Section 3 Project, the total number of labor hours worked by Section 3 Workers, and the total number of hours worked by Targeted Section 3 Workers, and any affirmative efforts made during the quarter to direct hiring efforts to low- and very low-income persons, particularly persons who are Section 3 Workers and Targeted Section 3 Workers.

UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION POLICIES ACT (URA)

Every project funded in part or in full by Community Development Block Grant - Disaster Recovery (CDBG-DR/MIT) funds, and all activities related to that project, are subject to the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (URA), as amended, 42 U.S.C. § 4601 et seq., and section 104(d) of the Housing and Community Development Act of 1992, as amended (HCDA), 42 U.S.C. § 5304(d), except where waivers or alternative requirements have been provided by the U.S. Department of Housing and Urban Development (HUD).

The implementing regulations for URA are at 49 C.F.R. Part 24, and the regulations for section 104(d) are at 24 C.F.R. Part 42, subpart C. Additionally, HUD has established regulations specific to CDBG-funded housing activities at 24 C.F.R. § 570.606. ASEM and/or PRDOH has also established the Uniform Relocation Assistance Guide & Residential Ant Displacement and Relocation Assistance Plan (URA & ADP Guide) which provides guidance and requirements regarding URA compliance and minimizing displacement that are applicable to all CDBG-DR/MIT programs. The primary purpose of these laws and regulations is to provide uniform. fair, and equitable treatment of persons whose real property is acquired or who are displaced in connection with federally funded projects.

When CDBG-DR/MIT funds are planned, intended, or used for any activity or phase of a project and the phases are interdependent, URA applies to that activity or project. This includes any property acquisition, even if CDBG-DR/MIT funds are not used to fund the purchase, if the contract to acquire property is executed with the intention of seeking CDBG-DR/MIT funds to complete the project or an interdependent phase of the project. ASEM is responsible for ensuring URA compliance throughout the design proposal. and implementation of any project that includes real property acquisition or displacement of residential or business occupants.

Attachment 7: HUD GENERAL PROVISIONS AND OTHER FEDERAL STATUES, REGULATIONS, AND PRDOH REQUIREMENTS OF HEALTHCARE STRENGTHENING SET-ASIDE

FAIR HOUSING ACT

CONTRACTOR shall comply with the provisions of the Fair Housing Act of 1968, as amended. The Act prohibits discrimination in the sale or rental of housing. the financing of housing or the provision of brokerage services against any person on the basis of race, color. religion, sex, national origin, disability, or familial status. The Equal Opportunity in Housing Act prohibits discrimination against individuals on the basis of race. color, religion, sex or national origin in the sale, rental, leasing or other disposition of residential property, or in the use or occupancy of housing assisted with Federal funds.

ENERGY POLICY AND CONSERVATION ACT

CONTRACTOR shall comply with mandatory standards and policies relating to energy efficiency as contained in the Government of Puerto Rico's energy conservation plan, issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6201 et seq).

POLITICAL ACTIVITY

The CONTRACTOR agrees to comply with mandatory standards and policies relating to Hatch Political Activity Act (Hatch Act), 5 U.S.C. §§ 1501-1508, which limits the political activity of employees.

The CONTRACTOR shall comply with the Hatch Act and shall ensure that no funds provided, nor personnel employed under the contract, shall be in any way or to any extent engaged in the conduct of political activities in violation of the Hatch Act, 5 U.S.C. §§ 1501-1508.

The Hatch Act applies to political activities of certain state and local employees. As a CONTRACTOR, you may participate in any of the following activities be a candidate in nonpartisan elections; attend political meetings and conventions: contribute money; campaign in partisan elections; and hold office in political parties.

The CONTRACTOR may not do the following activities be a candidate in partisan elections; use official influence to interfere in elections; coerce political contributions from subordinates in support of political parties or candidates the office of special counsel operates a website that provides guidance concerning hatch act issues.

HEALTH AND SAFETY STANDARDS

All parties participating in this project agree to comply with Sections 3702 and 3704 (a) of the Contract Work Hours and Safety Standards Act (CWHSSA). 40 U.S.C. §§ 3702 and 3704. Section 3704 (a) of the Act is applicable to construction work and provides that no laborer or mechanic shall be required to work in surroundings or under working

conditions, which are unsanitary, hazardous, or dangerous to his or her health and safety as determined under construction, safety, and health standards promulgated by the Secretary of Labor. These requirements do not apply to a contract to acquire a commercial product (as defined in 41 U.S.C. § 103) or a commercial service (as defined in 41 U.S.C. § 103a).

PERSONNEL

The CONTRACTOR represents that it has, or will secure at its own expense, all personnel required in performing the services under the contract. Such personnel shall not be employees of, or have any contractual relationship with, the contracting party. All the services required hereunder will be performed by the CONTRACTOR or under its supervision, and all personnel engaged in the work shall be fully qualified and shall be authorized or permitted under State and local law to perform such services. No person who is serving sentence in a penal or correctional institution shall be employed on work under the contract.

WITHHOLDING OF WAGES

If in the performance of the contract, there is any underpayment of wages by the CONTRACTOR or by any subcontractor thereunder, the ASEM and/or PRDOH may withhold from the CONTRACTOR out of payment due to him or her an amount sufficient to pay to employees underpaid the difference between the wages required thereby to be paid and the wages actually paid such employees for the total number of hours worked. The amounts withheld may be disbursed by the ASEM and/or PRDOH for and on account of the CONTRACTOR or subcontractor to the respective employees to whom they are due.

CLAIMS AND DISPUTES PERTAINING TO WAGE RATES

Claims and disputes pertaining to wage rates or to classifications of professional staff or technicians performing work under the contract shall be promptly reported in writing by the CONTRACTOR to the ASEM and/or PRDOH for the latter's decision, which shall be final with respect thereto.

DISCRIMINATION BECAUSE OF CERTAIN LABOR MATTERS

No person employed on the services covered by the contract shall be discharged or in any way discriminated against because he or she has filed any complaint or instituted or caused to be instituted any proceeding or has testified or/is about to testify in any proceeding under or relating to the labor standards applicable hereunder to his or her employer.

Attachment 7: HUD GENERAL PROVISIONS AND OTHER FEDERAL STATUES, REGULATIONS, AND PRDOH REQUIREMENTS OF HEALTHCARE STRENGTHENING SET-ASIDE

INTEREST OF MEMBERS OF LOCAL PUBLIC AGENCY AND OTHERS

The CONTRACTOR agrees to establish safeguards to prohibit employees from using positions for a purpose that is or gives the appearance of being motivated by a desire for private gain for themselves or others, particularly those with whom they have a family, business, or other tie. The CONTRACTOR will be aware of and avoid any violation of the laws of this State which prohibit municipal officers and employees from having or owning any interest or shore, individually or as agent or employee of any person or corporation, either directly or indirectly, in any contract made or let by the governing authorities of such municipality for the construction or doing of any public work, or for the sale or purchase of any materials, supplies or property of any description, or for any other purpose whatsoever, or in any subcontract arising therefrom or connected therewith, or to receive, either directly or indirectly, any portion or share of any money or other thing paid for the construction or doing of any public work, or for the sale or purchase of any property, or upon any other contract made by the governing authorities of the municipality, or subcontract arising therefore or connected therewith.

The CONTRACTOR will also be aware of and avoid any violation of the laws of this State which prescribe a criminal penalty for any public officer who has an interest in any contract passed by the board of which he or she is a member during the time he or she was a member and for one year thereafter.

INTEREST OF CERTAIN FEDERAL OFFICERS

No member of. or delegate to, the Congress of the United States and no Resident Commissioner shall be admitted any share or part of the contract or to any benefit to arise therefrom.

INTEREST OF CONTRACTOR

The CONTRACTOR agrees that it presently has no interest and shall not acquire any interest, direct or indirect, in the above described project or any parcels therein or any other interest which would conflict in any manner or degree with the performance of the Work hereunder. The CONTRACTOR further agrees that no person having any such interest shall be employed in the performance of the contract.

RELIGIOUS ACTIVITY

The CONTRACTOR, in compliance with 24 C.F.R. 570.2000) and 24 C.F.R. § 5.109 (c), agrees to provide equal participation to faith-based organizations in HUD programs and activities and to abstain from disfavoring any faith-based organization, including by failing to select a faith-based organization, disqualifying an faith-based organization, or

imposing any condition or selection criterion that otherwise disfavors or penalizes an faith-based organizations in the selection process using any funds related to the contract.

FLOOD DISASTER PROTECTION ACT OF 1973

The CONTRACTOR will ensure that procedures and mechanisms are put into place to monitor compliance with all flood insurance requirements as found Section 202(0) of the Flood Disaster Protection Act of 1973, 42 U.S.C. 4106, and the regulations in 44 C.F.R. Parts 59 through 79 and 24 C.F.R. § 570.605.

LEAD BASED PAINT

The CONTRACTOR must comply with the regulations regarding lead-based paint found at 24 C.F.R. Part 35, Subpt. A on LEAD-BASED PAINT POISONING PREVENTION IN CERTAIN RESIDENTIAL STRUCTURES with regards to all housing units assisted using CDBG-DR/MIT funds.

VALUE ENGINEERING

(Applicable to construction contracts exceeding $2,000 when required by Federal Program legislation.)

The CONTRACTOR must comply with the regulations regarding systematic and organized approach to analyze functions of systems, equipment, facilities, services, and materials to ensure they achieve their essential functions at the lowest cost consistent to life cycle in execution, reliability, quality, and safety, in accordance with 2 C.F.R. § 200.318(g).

GENERAL COMPLIANCE

The CONTRACTOR shall comply with all applicable provisions of the Housing and Community Development Act of 1974, as amended, and the regulations at 24 C.F.R. § 570, as modified by the Federal Register notices that govern the use of CDBGDR/MIT funds available under the contract. See Federal Register Notice 83 FR 5844 (February 9, 2018). Notwithstanding the foregoing, (1) the CONTRACTOR does not assume any applicable of the ASEM and/or PRDOH responsibilities for environmental review, decision making, and action, described in 24 C.F.R. Part 58 and [2] the CONTRACTOR does not assume any applicable of the PRDOH's responsibilities for initiating the review process under the provisions of 24 C.F.R. Part 52.

Regulations, and PRDOH Requirements.

The CONTRACTOR shall also comply with all other applicable Federal, state and local laws, regulations, and policies that govern the use of the CDBG-DR/MIT funds in

complying with its obligations under the contract, regardless of whether CDBGDR/MIT funds are made available to the CONTRACTOR on an advance or reimbursement basis. This includes, without limitation, applicable Federal Registers; 2 C.F.R. Part 200 Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards; Community Development Act of 1974; 24 C.F.R. Part 570 Community Development Block Grant; applicable waivers; Fair Housing Act. 24 C.F.R. Part 35. Subpt. A; 24 C.F.R. Part 58; 24 C.F.R. Part 75; National Historic Preservation Act, and any other applicable state laws or regulations, including the requirements related to nondiscrimination, labor standards and the environment; and Action Plan amendments and HUD's guidance on the funds.

Where waivers or alternative requirements are provided for in the applicable Federal Register Notice dated February 9, 2018, at 83 FR 5844 or any future Federal Register Notice published by HUD ("HUD Notices"), such requirements, including any regulations referenced therein, shall apply.

The CONTRACTOR also agrees to comply with all other applicable Federal, State, and local laws, regulations, HUD Notices, policies, and guidelines, whether existing or to be established, provided the same are applied to activities occurring after the date the policy or guideline was established, governing the Grant Funds provided under the contract. In the event a conflict arises between the provisions of the contract and any of the foregoing, the Federal, State, and local laws, regulations. HUD Notices. policies, and guidelines shall control and the contract shall be interpreted in a manner so as to allow for the terms contained herein to remain valid and consistent with such Federal, State, and local laws, regulations, HUD Notices, policies and guidelines.

The CONTRACTOR shall also comply with applicable PRDOH's policies and guidelines as established in Program Guidelines and their amendments, if any, as found in the CDBG-DR Website (https://recuperacion.pr.qov/) which are herein included and made integral part of the contract, as it may be updated from time to time.

DUPLICATION OF BENEFITS

The CONTRACTOR shall not carry out any of the activities under the contract in a manner that results in a prohibited duplication of benefits as defined by Section 312 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. § 5155) and described in Appropriations Act. The CONTRACTOR must comply with HUD's requirements for duplication of benefits, imposed by Federal Register notice on the ASEM and/or PRDOH, which ore published in a separate notices entitled: "Clarification to Duplication of Benefits Requirements Under the Stafford Act for Community Development Block

Grant (CDBG) Disaster Recovery Grantees" (November 16, 2011, 76 FR 71060); "Updates to Duplication of Benefits Requirements Under the Stafford Act for Community Development Block Grant (CDBG) Disaster Recovery Grantees" (June 20, 2019, 84 FR 28836); and "Applicability of Updates to Duplication of Benefits Requirements Under the Stafford Act for Community Development Block Grant (CDBG) Disaster Recovery Grantees," (June 20, 2019, 84 FR 28848). The CONTRACTOR shall carry out the activities under the contract in compliance with PRDOH's procedures to prevent duplication of benefits.

DRUG-FREE WORKPLACE

The CONTRACTOR must comply with drug-free workplace requirements in 2 C.F.R. §§ 182.200 through 182.230 of the Drug-Free Workplace Act of 1988, 41 U.S.C. §§ 81018106.

HOLD HARMLESS

The CONTRACTOR shall and hereby agrees to hold harmless, defend (with counsel acceptable to the ASEM and/or PRDOH) and indemnify the Government of Puerto Rico, PRDOH, ASEM, HUD and each and all of its successors, affiliates, or assigns, and any of their employees, officers, directors, attorneys, consultants, agents, managers, and affiliates, from and against any and all damages, costs, attorneys' fees, claims, expenses, injuries, property damage, causes of action, violations of law, violations of the contract, and losses of any form or nature arising from or related to the conduct of the CONTRACTOR in the performance of the efforts called for in the contract. This indemnity shall expressly include, but is not limited to, the obligation of the CONTRACTOR to indemnify and reimburse the ASEM and/or PRDOH for any and all attorneys' fees and other litigation or dispute resolution costs incurred or to be incurred in the ASEM and/or PRDOH enforcement of the contract or any portion thereof against the CONTRACTOR or otherwise arising in connection with the CONTRACTOR 's breach, violation, or other noncompliance with the contract. This clause shall survive indefinitely the termination of the contract for any reason.

PRDOH RECOGNITION

Unless otherwise directed by the ASEM and/or PRDOH, the CONTRACTOR shall ensure recognition of the role of ASEM, HUD, and PRDOH in providing funding, services, and efforts through the contract. Unless otherwise directed by the ASEM and/or PRDOH, all activities, facilities, and items utilized pursuant to the contract shall be prominently labeled as to role of HUD, ASEM, and PRDOH. In addition, the CONTRACTOR shall include a reference to the support provided herein in all publications made possible with funds made available under the contract. The ASEM and/or PRDOH reserves the right to direct

specific reasonable recognition requirements on a case-by-case basis, including but not limited, to the size and content, waiver, removal or addition of such recognition.

LOGOS CLAUSE

The CONTRACTOR hereto will not use the name of the other party, seals, logos, emblems or any distinctive trademark/ trade name, without the prior written express authorization of the other party.

UNIFORM ADMINISTRATIVE REQUIREMENTS, COST PRINCIPLES, ANDAUDIT REQUIREMENTS FOR FEDERAL AWARDS

The CONTRACTOR shall comply with the applicable provisions in 2 C.F.R. Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 C.F.R. Part 200.

FINANCIAL & PROGRAM MANAGEMENT

The CONTRACTOR shall expend and account for all CDBG-DR/MIT funds received under the contract in accordance with 2 C.F.R. § 200.302 and 2 C.F.R. § 200.303 and agrees to adhere to the accounting principles and procedures required therein, utilize adequate internal controls, and maintain necessary source documentation for all costs incurred.

The CONTRACTOR shall administer its program in conformance with Cost Principles as outlined in 2 C.F.R. § 200.400 through 2 C.F.R. § 200.476, as applicable. These principles shall be applied for all costs incurred whether charged on a direct or indirect basis.

DOCUMENTATION AND RECORD KEEPING

The CONTRACTOR shall maintain all records required by applicable law to be maintained, including but not limited to the Federal regulations specified in (1) 2 C.F.R. Part 200; (2) 24 C.F.R. § 570.506; and (3) the applicable HUD Notices that are pertinent to the activities to be funded under the contract, as well as any additional records required by the PRDOH. Such records should include but not be limited to:

- Records providing a full description of each activity undertaken;
- Records demonstrating that each activity undertaken meets one of the National Objectives of the CDBG-DR/MIT programs, as modified by the HUD Notices;
- Records required to determine the eligibility of activities;
- Records required to document the acquisition, improvement, use, or disposition of real property acquired or improved with CDBG-DR/MIT funds;
- Records documenting compliance with the fair housing and equal opportunity components of the CDBG-DR/MIT program;

- Financial records as required by (1) 24 C.F.R. § 570.502; and (2) 2 C.F.R. Part 200;
- Other records necessary to document compliance with Subpart K of 24 C.F.R. Part 570.

ACCESS TO RECORDS

The ASEM, Government of Puerto Rico, the PRDOH, HUD, the Comptroller General of the United States, or any of their duly authorized representatives, shall have at any time and from time to time during normal business hours, access to any work product, books, documents, papers, and records of the CONTRACTOR which are related to the contract, for the purpose of inspection, audits, examinations, and making excerpts, copies and transcriptions.

RECORD RETENTION AND TRANSMISSION OF RECORDS TO THE ASEM and/or PRDOH

The CONTRACTOR shall retain all official records on programs and individual activities shall be retained for the greater of five (5) years, starting from the closeout of the grant between PRDOH and HUD, or the end of the affordability period for each housing activity, whichever is longer. If any other laws and regulations as described in 24 C.F.R. § 570.490 applies to a project, the record retention period may be extended. All records involved in litigation, claims, audits, negotiations, or other actions, which have started before the expiration date of their retention, will be kept until completion of the action and resolution of all issues or the end of the regular five (5) years period, whichever is longer. (See 2 C.F.R. § 200.334 and 24 C.F.R. § 570.490(d) .)

Records shall be made available to ASEM and/or PRDOH upon request.

CLIENT DATA AND OTHER SENSITIVE INFORMATION

If the CONTRACTOR comes to possess client data and other sensitive information as a result of the contract, then the CONTRACTOR shall maintain client data demonstrating client eligibility for services provided. Such data shall include, but not be limited to, client name, address, income level or other basis for determining eligibility, and description of service provided. Such information should be made available to ASEM and/or PRDOH monitors or their designees for review upon request.

The CONTRACTOR must comply with 2 C.F.R. § 200.303 and shall take reasonable measures to safeguard protected personally identifiable information, as defined in 2 C.F.R. § 200.82, and other information ASEM, HUD or the PRDOH designates as sensitive or the CONTRACTOR considers sensitive consistent with applicable Federal, state, local, and tribal laws regarding privacy and obligations of confidentiality. Additionally, the

CONTRACTOR must comply with the PRDOH CDBG-DR Personally Identifiable Information, Confidentiality, and Nondisclosure Policy, as found in the CDBG-DR Website

https://recuperacion.pr.qov/en/download/personallyidentifiable-informationconfidentiality-and-nondisclosure-policy/) which is herein included and made integral part of the contract, as it may be updated from time to time

The CONTRACTOR shall comply with all State or local requirements concerning the privacy of personal records, consistent with 24 C.F.R. § 570.508 (local governments) and§ 570.490(c) (States).

CLOSE-OUT

The CONTRACTOR 's obligation to ASEM and/or PRDOH shall not end until all close-out requirements are completed. Activities during this close-out period may include, but are not limited to: making final payments, disposing of program assets (including the return of all unused materials, equipment, unspent cash advances, program income balances, and accounts receivable to the ASEM and/or PRDOH, properly addressing Program Income (as that term is defined in Section VI (A)(19) of the HUD Notice 83 FR 5844, 5856 [February 9, 2018, as may be amended by HUD)), balances, and accounts receivable to the PR DOH), determining the custodianship of records, and the CONTRACTOR certification of compliance with the terms of the contract. Notwithstanding the foregoing, the terms of the contract shall remain in effect during any period that the CONTRACTOR has control over CDBG-DR/MIT funds, including Program Income.

Notwithstanding the terms of 2 C.F.R. § 200.343, upon the expiration of the contract, the CONTRACTOR shall transfer to the recipient any CDBG-DR/MIT funds on hand at the time of expiration and any accounts receivable attributable to the use of CDBGDR/MIT funds, further, any real property under the CONTRACTOR 's control that was acquired or improved in whole or in part with CDBG-DR/MIT funds (including CDBGDR/MIT funds provided to the CONTRACTOR in the form of a loan) shall be treated in accordance with 24 C.F.R. § 570.503(b) (7).

AUDITS AND INSPECTIONS

All CONTRACTOR records with respect to any matters covered by the contract shall be made available to the ASEM, PRDOH, HUD, and the Comptroller General of the United States, or any of their authorized representatives, at any time during normal business hours, as often as deemed necessary, to audit, examine, and make excerpts or transcripts of all relevant data. Any deficiencies noted in audit reports must be fully cleared by the CONTRACTOR within thirty (30} days after receipt by the CONTRACTOR.

Failure of the CONTRACTOR to comply with the above audit requirements shall constitute a violation of the contract and may result in the withholding of future payments and/or termination.

SINGLE AUDIT

The CONTRACTOR must be audited as required by 2 C.F.R. Part 200, Subpt. F, when the CONTRACTOR 's Federal awards expended during the respective fiscal year equaled or exceeded the threshold set forth in 2 C.F.R. § 200.501 (Audit requirements). Once said threshold is reached or exceeded, the CONTRACTOR shall notify the ASEM and/or PRDOH and shall report that event in the corresponding monthly progress report, as provided in Part VI, Performance, Monitoring, and Reporting, Subpart B (Reporting) of the contract.

The CONTRACTOR shall procure or otherwise arrange for the audit to be conducted for that year, as required in 2 C.F.R. § 200.501 (a)-(b); moreover, that it is properly performed and submitted when due in accordance with provisions that include but are not limited to those set forth in 2 C.F.R. § 200.512 (Report submission), as stated in 2 C.F.R. § 200.508(a) (Auditee responsibilities).

Among other relevant provisions, the CONTRACTOR shall comply with: (a) the Electronic submission of data and reports to the Federal Audit Clearinghouse (FAC) (2 C.F.R. § 200.512(d)) and; (b) ensuring that reports do not include protected personally identifiable information as set forth in 2 C.F.R. § 200.512(a)(2)).

INSPECTIONS AND MONITORING

The CONTRACTOR shall permit the ASEM and/or PRDOH and auditors to have access to the CONTRACTOR 's records and financial statements as necessary for the ASEM and/or PRDOH to meet the requirements of 2 C.F.R. Part 200.

CORRECTIVE ACTIONS

The ASEM and/or PRDOH may issue management decisions and may consider taking enforcement actions including but not limited to corrective actions in 24 C.F.R. § 570.910 if noncompliance is detected during monitoring and audits. The PRDOH may require the CONTRACTOR to take timely and appropriate action on all deficiencies pertaining to the Federal award provided to the CONTRACTOR from the pass-through entity detected through audits, on-site reviews, and other means. A timely and appropriate action shall be predicated on reasonable standard wherein the CONTRACTOR utilizes all available resources to correct the noted issue or issues. In response to audit deficiencies or other findings of noncompliance with the contract, the ASEM and/or PRDOH may impose

additional conditions on the use of the CDBG-DR/MIT funds to ensure future compliance or provide training and technical assistance as needed to correct noncompliance.

NONDISCRIMINATION

The CONTRACTOR shall comply with 24 C.F.R. Port 6, which implements the provisions of Section 109 of Title I of the Housing and Community Development Act of 1974, 42 U.S.C. § 5309. Section 109 provides that no person in the United States shall, on the ground of race, color, national origin, religion, or sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity funded in whole or in port with Federal financial assistance.

The CONTRACTOR shall adhere to the prohibitions against discrimination on the basis of age under the Age Discrimination Act of 1975, 42 U.S.C. §§ 6101-6107 (Age Discrimination Act) and the prohibitions against discrimination on the basis of disability under Section 504 of the Rehabilitation Act of 1973, 29 U.S.C. § 794 (Section 504). Section 109 of the Housing and Community Development Act of 1974 makes these requirements applicable to programs or activities funded in whole or in port with CDBG-DR/MIT funds. Thus, the CONTRACTOR shall comply with regulations of 24 C.F.R. Port 8, which implement Section 504 for HUD programs, and the regulations of 24 C.F.R. Port 146, which implement the Age Discrimination Act for HUD programs.

The CONTRACTOR shall ensure that all CDBG-DR/MIT activities conducted by itself or its contractors ore consistent with the applicable federal and local legal provisions, regulations, and policies that prohibit discrimination on the basis of race, creed, color, notional origin, religion, sex, disability, familial status, actual or perceived sexual orientation or gender identity, marital status, or age, as established in the CDBG-DR Fair Housing and Equal Opportunity (FHEO) Policy for CDBG-DR Programs.[1]

ARCHITECTURAL BARRIERS ACT AND THE AMERICANS WITH DISABILITIES ACT

The CONTRACTOR shall ensure that its Activities are consistent with requirements of Architectural Barriers Act and the Americans with Disabilities Act.

The Architectural Barriers Act of 1968, 42 U.S.C. §§ 4151-4156, requires certain Federal and Federally funded buildings and other facilities to be designed, constructed, or altered in accordance with standards that ensure accessibility to, and use by, physically

[1] Follow the link for document access to the CDBG-DR Website: https://recuperacion.pr.gov/en/download/fair-housing- and-equal-0pportunity-fheo-policy-for-cdbg-dr-programs/

handicapped people. A building or facility designed, constructed, or altered with funds allocated or reallocated under this part after December 11, 1995, and that meets the definition of "residential structure" as defined in 24 C.F.R. § 40.2 or the description of "facilities" in 41 C.F.R. § 102-76.60 are subject to the requirements of the Architectural Barriers Act of 1968 and shall comply with the Uniform Federal Accessibility Standards (appendix A to 24 C.F.R. Part 40 for residential structures, and 41 C.F.R. Subt. C, Ch. 102, for general type buildings).

The Americans with Disabilities Act of 1990 ("ADA"), 42 U.S.C. § 12101 et seq. {ADA), provides comprehensive civil rights to individuals with disabilities in the areas of employment, public accommodations, State and local government services, and telecommunications. It further provides that discrimination includes a failure to design and construct facilities for first occupancy no later than January 26, 1993, that are readily accessible to and usable by individuals with disabilities. Further, the ADA requires the removal of architectural barriers and communication barriers that are structural in nature in existing facilities, where such removal is readily achievable-that is, easily accomplishable and able to be carried out without much difficulty or expense.

The Follow the link for document access to the CDBG-DR Website: https://recuperacion.pr.gov/en/download/fair-housing- and-equal-0pportunity-fheo-policy-for-cdbg-dr-programs/ agrees to comply with the non-discrimination in employment and contracting opportunities laws, regulations, and executive orders referenced in 24 C.F.R. § 570.607, as revised by Executive Order 13279. The applicable non- discrimination provisions in Section 109 of the HCDA are still applicable.

TITLE VI OF THE CIVIL RIGHTS ACT OF 1964 (24 C.F.R. PART 1)

General Compliance:

The Follow the link for document access ot the CDBG-DR Website: https://recuperacion.pr.gov/en/download/fair-housing- and-equal-opportunity-the-policy-for-cdbg-dr-programs/ shall comply with the requirements of Title VI of the Civil Rights Act of 1964, 42 U.S.C. § 2000d et seq., and 24 C.F.R. § 570.601 and§ 570.602. No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity funded by the contract. The specific nondiscrimination provisions at 24 C.F.R. § 1.4 apply to the use of these funds. The Follow the link for document access of the CDBG-DR Website: https://recuperacion.pr.gov/en/download/fair-housing- and-equal-0pportunity-fheo-policy-for-cdbg-dr-programs/ shall not intimidate, threaten, coerce, or discriminate against any person for the purpose of interfering with any right or privilege secured by

Attachment 7: HUD GENERAL PROVISIONS AND OTHER FEDERAL STATUES, REGULATIONS, AND PRDOH REQUIREMENTS OF HEALTHCARE STRENGTHENING SET-ASIDE

Title VI of the Civil Rights Act of 1964 or 24 C.F.R. Part 1, or because he or she has made a complaint, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing under 24 C.F.R. Part 1. The identity of complainants shall be kept confidential except to the extent necessary to carry out the purposes of 2 C.F.R. Part 1, including the conduct of any investigation, hearing, or judicial proceedings arising thereunder.

Assurances and Real Property Covenants:
As a condition to the approval of the contract and the extension of any Federal financial assistance, the Follow the link for document access of the CDBG-DR Website: https://recuperacion.pr.gov/en/download/fair-housing- and-equal-0pportunity-fheo-policy-for-cdbg-dr-programs/ assures that the program or activities described in the contract shall be conducted and the housing, accommodations, facilities, services, financial aid, or other benefits to be provided shall be operated and administered in compliance with all requirements imposed by or pursuant to this 2 CFR, Part I.

If the Federal financial assistance under the contract is to provide or is in the form of personal property or real property or interest therein or structures thereon, the CONTRACTOR's assurance herein shall obligate the CONTRACTOR or, in the case of a subsequent transfer, the transferee, for the period during which the property is used for a purpose for which the Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits, or for as long as the recipient retains ownership or possession of the property, whichever is longer. In all other cases the assurance shall obligate the CONTRACTOR for the period during which Federal financial assistance is extended pursuant to the contract or application.

This assurance gives the ASEM and/or PRDOH and the United States a right to seek judicial enforcement of the assurance and the requirements on real property.

In the case of real property, structures or improvements thereon, or interests therein, acquired with Federal financial assistance under the contract or acquired with CDBG-DR/MIT funds and provided to the CONTRACTOR under the contract, the instrument effecting any disposition by the CONTRACTOR of such real property, structures or improvements thereon, or interests therein, shall contain a covenant running with the land assuring nondiscrimination for the period during which the real property is used for a purpose for which the Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits.

If the CONTRACTOR receives real property interests or funds or for the acquisition of real property interests under the contract, to the extent that rights to space on, over. or under any such property are included as part of the program receiving such assistance, the nondiscrimination requirements of this part shall extend to any facility located wholly or in part in such space.

Women- and Minority-Owned Businesses (W/MBE)

The CONTRACTOR shall take the affirmative steps listed in 2 C.F.R. § 200.321 (b)(l) through (6) to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible when the CONTRACTOR procures property or services under the contract, as used in the contract, the terms "small business" means a business that meets the criteria set forth in Section 3{a) of the Small Business Act, as amended, 15 U.S.C. § 632 (a). and "minority and women's business enterprise" means a business at least fifty-one (51) percent owned and controlled by minority group members or women. For the purpose of this definition, "minority group members" are Afro-Americans, Spanish-speaking, Spanish surnamed or Spanish heritage Americans, Asian- Americans, and American Indians. The CONTRACTOR may rely on written representations by businesses regarding their status as minority and female business enterprises in lieu of an independent investigation.

In compliance with the CDBG-DR/MIT Minority and Women-Owned Business Enterprise Policy (M/WBE Policy), the CONTRACTOR shall complete a utilization plan to identify how they plan on successfully achieving the contracting goals for MBE and WBE's. CONTRACTOR shall also complete quarterly reporting to provide information on contracting opportunities and payouts provided to WBE or MBE contractors or subcontractors. CONTRACTOR shall also document their efforts and submit those to ASEM and/or PRDOH on a quarterly basis. See the M/WBE Policy, as found in the CDBG-DR Website (https://recuperacion.pr.gov/) which is herein included and made integral part of the contract, as it may be updated from time to time.

Notifications

The CONTRACTOR will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or worker's representative of the CONTRACTOR 's commitments hereunder, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

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Equal Employment Opportunity and Affirmative Action (EEO/AA) Statement
The CONTRACTOR shall, in all solicitations or advertisements for employees placed by or on behalf of the CONTRACTOR, state that it is an Equal Opportunity or Affirmative Action employer.

LABOR STANDARDS
The CONTRACTOR shall comply with the in labor standards in Section 110 of the Housing and Community Development Act of 1974, 42 U.S.C. § 5310, and ensure that all laborers and mechanics employed by contractors or subcontractors in the performance of construction work financed in whole or in part with assistance received under the contract shall be paid wages at rates not less than those prevailing on similar construction in the locality as determined by the Secretary of Labor in accordance with the Davis Bacon Act, as amended (40 U.S.C. § 314l, et seq.), and 29 C.F.R. Parts l, 3, 5, 6, and 7, provided, that this requirement shall apply to the rehabilitation of residential property only if such property contains not less than eight (8) units.

The CONTRACTOR agrees to comply with 18 U.S.C. § 874 and it's implementing regulations of the U.S. Department of Labor at 29 C.F.R. Part 3 and Part 5. The CONTRACTOR shall maintain documentation that demonstrates compliance with applicable hours and wage requirements. Such documentation shall be made available to the ASEM and/or PRDOH for review upon request.

The CONTRACTOR is prohibited from using funds provided herein or personnel employed in the administration of the program for: political activities: inherently religious activities; lobbying; political patronage; or nepotism activities.

CONDUCT

Contracts Monitoring: As applicable, the CONTRACTOR will monitor all contracted services on a regular basis to assure contract compliance. Results of monitoring efforts shall be summarized in written reports and supported with documented evidence of follow-up actions taken to correct areas of noncompliance.

Content: The CONTRACTOR shall cause all of the provisions of this contract in its entirety to be included in and made a part of any contract executed in the performance of the contract, as applicable.

Notification: The CONTRACTOR shall notify and provide a copy of any and all contracts related to the contract and CDBG-DR/MIT funds to the ASEM and Contract

Administration Area of the PRDOH CDBG-DR/MIT Legal Division within three (3) days of its execution.

Conflict of Interest

The CONTRACTOR agrees to abide by the provisions of 2 C.F.R. Part 200, as applicable, and 24 C.F.R. § 570.611, which include (but are not limited to) the following:

- It is presumed that the CONTRACTOR is subject to state and local ethic laws and regulations related to the conduct of its officers, employees or agents engaged in the award and administration of the contract.
- In the event the CONTRACTOR is not, the CONTRACTOR shall maintain written standards of conduct governing the performance of its employees engaged in the award and administration of the contract. No employee, officer, or agent shall participate in the selection, award, or administration of a contract supported by Federal funds if a real or apparent conflict of interest would be involved. Such a conflict would arise when the employee, officer, or agent. any member of his or her immediate family, his or her partner. or an organization which employs or is about to employ any of the Parties indicated herein, has a financial or other interest in the firm selected for an award. The officers, employees, and agents of the recipient shall neither solicit nor accept gratuities. favors, or anything of monetary value from contractors, or Parties to sub Agreements. However, recipients may set standards for situations in which the financial interest is not substantial, or the gift is an unsolicited item of nominal value. The standards of conduct shall provide for disciplinary actions to be applied for violations of such standards by officers, employees, or agents of the recipient.

No covered persons who exercise or have exercised any functions or responsibilities with respect to CDBG-DR/MIT assisted activities, or who are in a position to participate in a decision-making process or gain inside information with regard to such activities. may obtain a financial interest in any contract, or have a financial interest in any contract, subcontract, or Agreement with respect to the CDBG-DR/MIT assisted activity, or with respect to the proceeds from the CDBG-DR/MIT assisted activity, either for themselves or those with whom they have business or immediate family ties, during their tenure or for a period of one {I) year thereafter. For purposes of this paragraph, a "covered person" includes any person who is an employee, agent, consultant, officer. or elected or appointed official of the ASEM, PRDOH, CONTRACTOR, or any designated public agency.

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Clause of Governmental Ethics Certification of Absence of Conflict of Interests

The CONTRACTOR certifies that: (1) No public servant of the ASEM and/or PRDOH has pecuniary interest in this contract. (2) No public servant of the ASEM and/or PRDOH has solicited or accepted, directly or indirectly, for him (her), for any member of his family unit or for any other person, gifts. allowances, favors, services, donations loans or any other thing of monetary value. (3) No public servant of the ASEM and/or PRDOH related to this transaction. asked for or accepted any good of economic value, from any person or organization as payment for the duties and responsibilities of his employment. (4) No public servant of the ASEM and/or PRDOH has solicited. directly or indirectly. for him (her), any member of his family unit, neither for any other person. business or organization. any good of economic value, including gifts, loans, promises, favors or services in exchange for his(her) obligations and performance of said public employment, to influence or favor any organization. (5) No public Regulations, and PRDOH Requirements servant of the ASEM and/or PRDOH has kinship relationship, within the fourth degree of consanguinity and second by affinity, with nobody in public employment that has faculty to influence and to participate in the institutional decisions of the contract.

CITIZEN GRIEVANCES

If the CONTRACTOR receives any complaint or grievance, it shall refer said complaint or grievance immediately to the ASEM and/or PRDOH CDBG-DR/MIT Program so that ASEM and/or PRDOH may respond appropriately.

TECHNICAL ASSISTANCE AND TRAININGS

The CONTRACTOR shall attend any and all technical assistance and/or training that the ASEM and/or PRDOH require from time to time at its discretion. Failure to attend may be considered as cause of termination.

DISASTER RELIEF ACCOUNT

Pursuant to Federal Register Vol. 85, No. 17, 85 FR 4681 (January 27, 2020), PRDOH must comply with an additional requirement imposed by an Order of October 26, 2017, granted by the United States District Court for the District of Puerto Rico, as may be amended from time to time. As required by the Order, grant funds or disaster relief funds received by the Commonwealth of Puerto Rico or other Non-Federal Entities (as defined by 2 C.F.R. § 200.69) shall be deposited solely into a Disaster Relief Account.

As a result thereof, under the terms of the beforementioned Court order and under the conditions of the contract, any and all CDBG-DR/MIT funds subawarded by PRDOH to its CONTRACTORs shall be deposited into a new, separate, non-co-mingled,

unencumbered account held in the name of the CONTRACTOR. The funds shall be used solely for eligible activities. Further, the CONTRACTOR shall provide and make available to PRDOH any and all documentation related to such account.

ADDITIONAL SPECIFIC CONDITIONS

Notwithstanding the special conditions established in the contract and its exhibits, in accordance with 2 C.F.R. § 200.208, PRDOH reserves the right and authority to impose additional specific conditions under any of the following circumstances:

- At the ASEM and/or PRDOH sole discretion when ASEM and/or PRDOH finds that CONTRACTOR has a history of failure to comply with the general or specific terms and conditions applicable to the CDBG-DR and/or CDBG-MIT funds allocated under this or previous contracts.
- When CONTRACTOR fails to meet expected performance goals under the contract.
- When CONTRACTOR poses an increased risk for noncompliance based on factors including, but not limited to, financial stability, quality of management systems, history of performance under Federal awards, history of timeliness under Federal awards, history of conformance with terms and conditions of previous federal awards, and reports and findings from audits.
- When, in the ASEM and/or PRDOH sole discretion, such conditions are necessary to ensure timely and compliant performance under the CDBG-MIT Program.

Such additional specific conditions may include but are not limited to, withholding of authority to proceed to the next phase of an otherwise eligible Project, requiring additional detailed financial reports, requiring additional project monitoring, requiring the CONTRACTOR to obtain technical or management assistance, establishing additional prior approvals, or any other condition ASEM and/or PRDOH deems reasonable and necessary to safeguard Federal funds or the ASEM and/or PRDOH interests.

Notice of additional specific conditions shall include, but not be limited to, the nature of the additional requirements, the reason why the additional requirements are being imposed, the nature of the action needed to remove the additional requirement (if applicable), and the time allowed for completion of the actions (if applicable).

OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (OSH ACT)

The CONTRACTOR shall comply with the Occupational Safety and Health Act of 1970 (OSH Act) as supplemented by the Department of Labor regulations. This Act created

the Occupational Safety and Health Administration (OSHA). OSHA sets and enforces protective standards of safety and health in the workplace. Under the OSH Act, employers have a responsibility to provide a safe workplace.

Employers must comply with the 29 CFR 1910 General Obligations Clause of the OSH Act. This clause requires employers to maintain their workplaces free from serious, recognized hazards. This includes the adoption of safety and health guidelines and the subsequent training of the employer's workforce in these.

CONTRACTOR whose Scope of Work includes construction activities must comply with the General Clauses, and with provisions of 29 CFR 1926 "Construction Health and Safety Regulations". It shall be a condition of any contract for construction, alteration and/or repair, including painting and decorating, that no contractor or subcontractor for any part of the contract work shall require any worker or mechanic employed in the performance of the contract to work in an environment or in unhealthy, hazardous or dangerous working conditions to their health or safety.

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CONTRACTUAL CLAUSES - APPENDIX II, 2 CFR PART 200

Any acquisition that will be paid for in whole or in part with funds from a federal grant must contain the provisions described below, as applicable:

1. Administrative, Contractual, or Legal Remedies (apply to all contracts exceeding the simplified acquisition threshold)

   This contract shall be governed by the applicable laws of the Government of Puerto Rico and federal laws. If any provision, cause of action, or part of this contract is brought before a court of law and declared unconstitutional or void, such determination shall not affect, undermine, or invalidate the remaining provisions or clauses of this contract, but shall, in effect, limit only the provision declared unconstitutional or void. The parties acknowledge and agree that the Superior Court of San Juan (Court of First Instance) shall be the court with jurisdiction to resolve any legal dispute arising from this contract.

2. Termination for Cause or Convenience (applies to all contracts exceeding $10,000.00)

   Either party may terminate this contract at any time by providing the other party with 30 days' written notice prior to the effective date of termination. However, the prior notice requirement will not apply if probable cause is determined for the Contractor's arrest for any crime under the jurisdiction of the Government of Puerto Rico or the Federal Government, or for any of the reasons stipulated in this contract. ASEM may terminate this contract immediately in the event of negligence, abandonment of duties, or breach of any contractual obligation. Breach shall include, but is not limited to, the Contractor's failure to provide services required by ASEM after having been requested in writing or through any other approved means of communication.

3. Equal Employment Opportunity (applies to all construction contracts, as defined by "federally assisted construction contract" under 41 CFR Part 60-1.3)

   ASEM agrees to incorporate, or make incorporated, into any construction work contract, or modification thereof, as defined in the Secretary of Labor's regulations at 41 CFR Chapter 60, that is paid in whole or in part with funds obtained from the Federal Government or borrowed on credit from the Federal

Government by means of a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

During the performance of this contract, the Contractor acknowledges and agrees to the following:

a. The Contractor will not discriminate against any ASEM employee, applicant, or personnel based on race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that employees exist and are treated during employment without discrimination based on race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action will include, but is not limited to, the following:

   i. Employment, promotion, demotion, or transfer; recruitment or hiring advertising; termination; types of pay or other forms of compensation; and selection for training, including apprenticeships. The Contractor agrees to post notices in conspicuous locations, available to employees and job applicants, setting forth the provisions of this non-discrimination clause.

   ii. In all employee solicitations or advertisements made by or on behalf of the Contractor, the Contractor shall state that all qualified applicants will be considered for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

   iii. The Contractor shall not dismiss or discriminate in any way against any employee or applicant for employment because such employee or applicant inquired about, discussed, or disclosed the compensation of the employee or applicant or of another employee or applicant. This provision shall not apply where an employee who has access to the compensation information of other employees or applicants as part of their essential job duties discloses the compensation of such other employees or applicants to persons who do not have access to such information, except that such disclosure is in response to a formal complaint or charge, in compliance with an investigation, proceeding, hearing, or action,

including an investigation conducted by the employer, or is consistent with the Contractor's statutory duty to provide information.

iv. The Contractor shall send each union or workers' representative with whom it has a collective bargaining agreement or other contract or understand a notice informing such union or workers' representatives of the Contractor's commitments under this section and shall post copies of the notice in conspicuous locations accessible to employees and job applicants.

v. The Contractor shall comply with all provisions of Executive Order 11246 of September 24, 1965, as well as with the applicable rules, regulations, and orders of the Secretary of Labor.

vi. The Contractor shall provide all information and reports required by, or pursuant to, Executive Order 11246 of September 24, 1965, as well as by the rules, regulations, and orders of the Secretary of Labor, and shall allow the administering agency and the Secretary of Labor access to its books, records, and accounts for investigative purposes and to determine compliance with such rules, regulations, and orders.

vii. If the Contractor fails to comply with the non-discrimination clauses of this contract or any of the aforementioned rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for new government contracts or federally assisted construction contracts pursuant to the procedures authorized in Executive Order 11246 of September 24, 1965, and remedies may be imposed and invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as provided by law.

viii. The contractor shall include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in each subcontract or purchase order, unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24,

1965, so that such provisions are binding upon each subcontractor or vendor. The contractor shall take such measures with respect to any subcontract or purchase order as the administering agency may require enforcing such provisions, including penalties for noncompliance.

a. However, whenever a Contractor becomes involved in, or feels threatened with, litigation with a subcontractor or vendor as a result of such management agency direction, the Contractor may request the United States to initiate such litigation to protect the interests of the United States.

b. ASEM further agrees that it will be subject to the aforementioned equal opportunity clause with respect to its own labor practices when participating in federally assisted construction work, provided that, if the applicant participating is a state or local government, the aforementioned equal opportunity clause does not apply to any agency, instrument, or subdivision of that government that is not participating in work under or under the contract.

c. ASEM agrees to actively assist and cooperate with the administering agency and the Secretary of Labor in ensuring that contractors and subcontractors comply with the equal opportunity clause and the Secretary of Labor's applicable rules, regulations, and orders, by providing the administering agency and the Secretary of Labor with the information they require to monitor such compliance, and that, otherwise, it will assist the administering agency in fulfilling its primary responsibility to ensure compliance.

d. ASEM further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor who is disqualified or has not demonstrated eligibility for government contracts and federally assisted construction contracts pursuant to the Executive Order, and will apply the penalties and sanctions for violations of the equal opportunity clause that may be imposed on contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. ASEM further agrees that if it fails to comply with or refuses to comply with these commitments, the administering agency may take any or all of

the following actions: cancel, terminate, or suspend this grant (contract, loan, insurance, guarantee) in whole or in part; refrain from providing any further assistance to ASEM under the program in respect of which the breach occurred or from providing reimbursement until ASEM has received satisfactory assurance of future performance; and refer the case to the Department of Justice for appropriate legal proceedings.

4. Davis-Bacon Act, as amended (applies to all construction contracts valued at more than $2,000.00, pursuant to 40 U.S.C. 3141-3148)

   The Contractor is required to pay wages to workers and mechanics at a rate no lower than the prevailing wages specified in a wage determination issued by the Secretary of Labor. In addition, the Contractor is required to pay wages at least once a week. The non-federal entity shall include a copy of the current prevailing wage determination issued by the Department of Labor in each application and bidding process. The decision to award a contract or subcontract is contingent upon acceptance of the wage determination. The non-federal entity shall report all suspected or reported violations to the federal agency granting the grant.

5. Copeland Anti-Kickback Act (applies to all construction contracts valued at more than $2,000.00, pursuant to 40 U.S.C. 3145), supplemented by regulations of the Department of Labor (29 CFR Part 3, "Contractors and Subcontractors in Public Buildings or Public Works Financed Wholly or Partly by Loans or Grants from the United States")

   No Contractor or sub-grantee is prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public works to waive any portion of the compensation to which they are otherwise entitled. The non-federal entity shall report all suspected or reported violations to the federal agency that granted the grant.

6. Contractual Hours and Safety Standards (applies to all contracts valued at more than $100,000.00), pursuant to 40 U.S.C. 3701-3708, supplemented by the Department of Labor regulations 29 CFR Part 5)

   The Contractor is required to calculate the wages of each mechanic and laborer based on a standard 40-hour workweek. Work exceeding the standard workweek is permitted provided the worker receives compensation of no less than one and a half times the basic rate for all hours worked in excess of 40 hours in the

workweek. The requirements of 40 U.S.C. 3704 apply to construction work and stipulate that no laborer or mechanic shall be required to work in unhealthy, hazardous, or dangerous work environments or conditions. These requirements do not apply to purchases of supplies, materials, or items ordinarily available on the open market, nor to contracts for the transportation or transmission of intelligence

7. Rights to Inventions Made Under a Contract or Agreement (applies when the grant meets the definition of a "funding agreement" under 31 CFR § 401.2(a) and the contract is with a small business or nonprofit organization regarding the substitution of parts, assignment, or performance of experimental, development, or research work under that "funding agreement")

   ASEM acknowledges and agrees to comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Businesses Under Government Grants, Contracts, and Cooperation Agreements," and any implementing regulations issued by the awarding agency.

8. Clean Air Act and Federal Water Pollution Control Act (applies to all contracts exceeding $150,000.00, pursuant to 42 U.S.C. 7401-7671q and 33 U.S.C. 1251-1387)

   The Contractor and ASEM agree to comply with all applicable rules, orders, or regulations pursuant to the Clean Air Act and the Federal Water Pollution Control Act. ASEM will report any violations to the federal agency granting the grant and to the Regional Office of the Environmental Protection Agency (EPA).

9. Exclusion and Suspension, pursuant to Executive Orders 12549 and 12689 ASEM will not award contracts, pursuant to 2 CFR 180.220, to parties included in the government exclusions of the System of Award Management (SAM), in accordance with the OMB guidelines in 2 CFR 180 implementing Executive Orders 12549 (3 CFR Part 1986 Comp., p. 189) and 12689 (3 CFR Part 1989 Comp., p. 235), "Disqualification and Suspension." The SAM Exclusions list contains the names of parties excluded, suspended, or otherwise barred by agencies, as well as parties declared ineligible under legal or regulatory authority other than Executive Order 12549.

   The Contractor agrees to comply with 2 CFR Part 180 and certifies that neither its entity, nor its directors, affiliates, or subcontractors are included on the System for All Government Exclusion List in the Systems for Award Management (SAM). This certification is a material representation of fact upon which ASEM relies in

awarding the contract. The Contractor will include a provision requiring such compliance in its internal-level transactions.

10. Anti-Lobbying Agreement (applies to all contracts valued at more than $100,000.00, pursuant to 31 U.S.C. 1352)

    The parties certify that they will not use and have not used allocated federal funds to pay any person or organization to influence or attempt to influence any official or employee of any agency, a member of Congress, an official or employee of Congress, or an employee of a member of Congress, in connection with obtaining any federal contract, grant, or any other concession covered by 31 U.S.C. 1352.

    The parties agree and acknowledge that they will also disclose, up to the non-federal award, any lobbying activity involving non-federal funds that takes place in connection with obtaining any federal grant.

11. Acquisition of Recovered Materials (applies to any contract where the purchase price of the item exceeds $10,000.00 or the value of the quantity acquired during the prior fiscal year exceeded $10,000.00, pursuant to 42 U.S.C. 6962, 40 CFR Part 247, and Section 101 of Executive Order 14057)

    The parties acknowledge and agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 and further amended, 42 U.S.C. 6962, this includes the requirements of Section 6002 to acquire only items designated in the Environmental Protection Agency (EPA) guidelines in 40 CFR Part 247 that contain the highest possible percentage of recovered materials, consistent with maintaining a satisfactory level of competition; to contract for solid waste management services in a manner that maximizes energy and resource recovery; and to establish an affirmative procurement program for the acquisition of recovered materials identified in the EPA guidelines.

    The recipient or subrecipient must, to the greatest extent possible and in accordance with the law, purchase, acquire, or use products and services that can be reused, reclaimed, or recycled; contain recycled content, are bio-based, or are energy- and water-efficient; and are sustainable. This may include purchasing compostable products and other products and services that reduce the use of single-use plastic products.

12. Prohibition of Certain Telecommunications and Video Surveillance Equipment or Services (Applies to All Contracts)

    a. ASEM is prohibited from obligating or spending loan or grant funds to:

        i. Acquire or obtain covered telecommunications equipment or services;

        ii. Extend or renew a contract to acquire or obtain covered telecommunications equipment or services; or

        iii. Enter into a contract (or extend or renew a contract) to acquire or obtain covered telecommunications equipment or services.

    b. As described in Section 889 of Public Law 115-232, "covered telecommunications equipment or services" means any of the following:

        i. Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities);

        ii. For purposes of public safety, protection of government facilities, physical surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities);

        iii. Telecommunications or video surveillance services provided by such entities or using such equipment;

        iv. Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected with, the government of a covered foreign country;

c. For purposes of this section, "covered telecommunications equipment or services" also includes systems that use covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system.

d. In implementing the prohibition under Section 889 of Public Law 115-232, executive agency officials administering loan, grant, or subsidy programs must prioritize available funding and technical support to assist affected businesses, institutions, and organizations, as reasonably necessary to enable them to transition from covered telecommunications equipment or services to replacement equipment or services, and to ensure that communications service for users and customers remains maintained.

e. When the recipient or subrecipient accepts a loan or grant, they certify that they will comply with the prohibition on covered telecommunications equipment and services in this section. The recipient or subrecipient is not required to certify that no funds will be spent on covered telecommunications equipment or services beyond the certification provided upon accepting the loan or grant and those provided upon submitting payment requests and financial reports.

f. All of the foregoing includes the provisions of Section 889 of Public Law 115-232 and § 200.471.

13. Internal Procurement Preferences (Applies to all contracts)

a. ASEM and Contractor acknowledges and agrees that it must, to the greatest extent possible and in accordance with the law, give preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including, but not limited to, iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all sub-appraisals, contracts, and purchase orders under federal awards.

b. For the purposes of this section:

i. "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, were performed in the United States.

ii. "Manufactured products" means articles and construction materials composed wholly or partially of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipes; aggregates such as concrete; glass, including fiber optics; and wood.

iii. Federal agencies that provide federal financial assistance for infrastructure projects must implement the Buy America preferences established in Part 184 of 2 CFR.

END OF DOCUMENT

Attachment 8: REGULATION NO. 7998, UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS

DEPARTAMENTO DE TRANSPORTACIÓN Y OBRAS PÚBLICAS
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
GOBIERNO DE PUERTO RICO

DEPARTAMENTO DE ESTADO

Número: 7998
Fecha: 3 de marzo de 2011
Aprobado: Hon. Kenneth D. McClintock
Secretario de Estado

Por: Edgardo Arosemena Muñoz
Secretario Auxiliar de Servicios

UNIFORM GENERAL CONDITIONS

for

Public Works Contracts in Puerto Rico

UNIFORM GENERAL CONDITIONS

for

Public Works Contracts in Puerto Rico

PUERTO RICO VERDE

UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACTS

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CERTIFICATION

UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACTS

PART A. INTRODUCTION

ARTICLE 1 –LEGAL BASIS; APPLICATION

1.1 Legal Basis. The Secretary of Transportation and Public Works, in accordance with the powers conferred upon him by Law No. 198 of May 15, 1943, as amended by Law No. 131 of September 2, 2010 and Law No. 170 of August 12, 1988, as amended, hereby enacts the following regulations to establish the applicable legal framework for the contracting and management of all public works.

1.2. Application. The provisions of these Regulations shall be applicable to all contracts for public works executed by all government agencies, departments, public corporations and instrumentalities.

PART B. UNIFORM GENERAL CONDITIONS

ARTICLE 1 -DEFINITIONS AND TERMINOLOGY

1.1 Defined Terms

1.1.1 Wherever used in the Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof.

1.1.1.1. Agreement (or Contract) - The written instrument, which is evidence of the agreement between Owner and Contractor covering the Work.

1.1.1.2. Application for Payment - The form acceptable to Owner which is to be used by Contractor during the course of the Work in requesting progress or final payment and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

1.1.1.3. Architect/Engineer - The Architect or Engineer, referred herein as Architect/Engineer, is the collegiate professional licensed to practice architecture, engineering or surveying in the Commonwealth of Puerto Rico and is referred to throughout the Contract Documents. It is the Architect or Engineer authorized by the Owner for the preparation of all construction documents, plans and specifications and to submit such documents for the approval of the related public agency. The Architect/Engineer may designate an authorized representative. The Architect/Engineer is the individual or entity named as such in the Agreement.

1.1.1.4. Architect/Engineer's Consultant - An individual or entity having a contract with the Architect/Engineer to furnish services as Architect/Engineer's independent professional and collegiate consultant with respect to the Project and who is identified as such in the Supplementary Conditions.

1.1.1.5. Bonds - Performance and Payment bonds and other instruments of surety required in the Contract Documents.

1.1.1.6. Certificate of Final Acceptance - Certificate issued by the Owner, or its duly authorized representative to Contractor indicating the date that the Work reached Final Acceptance.

1.1.1.7. Certificate of Substantial Completion - Certificate issued by the Owner, or its duly authorized representative, to the Contractor indicating the date that Substantial Completion was achieved for the Work.

1.1.1.8. Change in Law – Change in Law shall include: (i) the enactment or adoption by any legislative, regulatory, executive or administrative body of the Commonwealth of Puerto Rico or of the United States of America of any law, or any change or amendment to any law, in force as of the bid opening date, (ii) any change in the interpretation thereof which is final and not subject to administrative or judicial review, which cannot be complied with by a party without incurring in additional costs.

1.1.1.9. Change Order - A written order issued by the Owner, or its duly authorized representative, to the Contractor, signed by both parties, covering, additions, deletions, and/or revisions in the Work and/or an adjustment in the Contract Price and/or the Contract Time, if any, issued on or after the Effective Date of the Agreement. In Unit Price Contracts, a Change Order can also reflect a change in the number of items, as well as an increase or decrease, contained in the proposal. In Lump Sum Contracts, it reflects an order for additional or less work.

1.1.1.10. Claim - A claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims must be made by written notice and in accordance with Article 11.5. The responsibility to substantiate Claims shall rest with the party making the Claim.

1.1.1.11. Commonwealth - The Commonwealth of Puerto Rico.

1.1.1.12. Construction Change Directive – A Construction Change Directive is a written order signed by the Owner, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Price or Contract Time, or both. The Owner may, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Price and Contract Time adjusted accordingly. A Construction Change Directive shall be used only in the absence of total agreement on the terms of the Change Order, Extra Work Order or Work Change Directive, and shall be paid with the monthly Progress Payment according to the method indicated in Article 10.1.2.3.

1.1.1.13. Contract (or Agreement) - The entire and integrated written Agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

1.1.1.14. Contract Documents - The Contract Documents establish the rights and obligations of the parties and include: (i) the Agreement, (ii) addenda (which pertain to the Contract Documents), (iii) Contractor's bid or proposal (including documentation accompanying the Bid and any post Bid documentation submitted prior to the Notice of Award), (iv) the Notice to Proceed, (v) the Bonds, (vi) these General Conditions, (vii) the Supplementary Conditions, (viii) the Special Provisions, (ix) the Specifications, (x) the Drawings as the same are more specifically identified in the Agreement, including Standard Drawings, if applicable and (xi) Instructions to Bidders. It shall also include: (i) all Written Amendments, (ii) Change Orders and Extra Work Orders, (iii) Work Change Directives, (iv) Field Orders and (v) Architect/Engineer's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this Article are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by Owner to Contractor are not Contract Documents, unless otherwise specified in the bid documents.

1.1.1.15. Contract Item or Pay Item - A portion of Work specifically described and for which a price either unit or lump sum is provided. It includes the performance of all Work and the furnishing of labor, equipment and materials described in the Specifications.

1.1.1.16. Contract/Project Limits - The area, including Site and off-Site, within which the Work is to be performed.

1.1.1.17. Contract Price - See Contract Sum.

1.1.1.18. Contract Sum - It is the Contract Price as stated in the Agreement and is the total amount payable by the Owner to the Contractor for the performance of the Work under the Contract Documents subject to additions and deductions, stipulated in the Contract Documents.

1.1.1.19. Contract Time or Time - It is the period of time allotted in the Contract Documents for Substantial Completion of the Work.

1.1.1.20. Contract Unit - A major subdivision of the construction Project identified as such in the Contract Documents.

1.1.1.21. Contracting Officer - The Contracting Officer is the authorized representative of the Owner under the Contract Documents.

1.1.1.22. Contractor - The Contractor is the person or organization that contracts with the Owner for the performance of the Work described in the Contract Documents. The term Contractor, identified as such in the Agreement, means the Contractor or his authorized representative. In cases of Design-Build Contracts, the term Contractor shall also signify the Design-Builder Contractor.

1.1.1.23. Cost of the Work - See section 10.2 for definition.

1.1.1.24. Day - The word "day" shall constitute a calendar day of twenty-four (24) hours measured from midnight to the next midnight.

1.1.1.25. Design-Build Contracts – Shall be those contracts where the Contractor undertakes the duty to design the Work, in addition to performing the duties of Contractor.

1.1.1.26. Design-Builder Contractor – Shall be the Contractor in Design-Build Contracts, who in addition to having all duties of Contractor has the duty to design the Work, as specified in the Contract Documents.

1.1.1.27 Dispute – Any Claim, dispute or other disagreement involving the interpretation of the Contract Documents, a change in the Contract Sum, and or a change in the Contract Time, and other matters in question arising out of, or relating to the Contract or the breach thereof, except for Claims which have been waived by lack of proper notice and/or the making or acceptance of final payment as provided in Articles 13.7.2 and 13.9.1

1.1.1.28. Drawings or Plans - The approved drawings and supplementary drawings showing the location, character, dimensions, and details of the Work to be done which are part of the Contract Documents.

1.1.1.29. Effective Date of the Agreement - The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the parties to the Contract.

1.1.1.30. Engineer or Architect - See Architect/Engineer.

1.1.1.31. Equal or Similar and Substitute - "Similar or Equal" or "Substitute", when used in relation to materials, parts, machinery, equipment, formulas of the Project and/or anything to them related, shall mean that they be of substantially the same quality, form, appearance, resistance, endurance, efficiency, capacity, safety, specifications and any other quality inherent, or related, to them as they are indicated in the drawings and/or specifications of the Contract.

1.1.1.32. Equipment - All machinery and implements, together with the necessary supplies for upkeep and maintenance, and all tools and apparatus necessary for the proper construction and acceptable completion of the Work.

1.1.1.33. Extra Work - An item of Work not provided for in the Contract as awarded but found by the Owner or its duly authorized representative necessary for the satisfactory completion of the Contract within its generally intended scope.

1.1.1.34. Extra Work Order - Is a written order issued by the Owner to Contractor and signed by both parties in a unit price contract concerning the performance of the Work or furnishing of materials involving Extra Work. It authorizes a change in the Work, adjustments in the Contract Price and/or Contract Time for services, or Work, for which there is no basis of payment, either direct or indirect, provided in the proposal, or Contract, or if the resulting overruns, or underruns, of any item, or items, exceed certain percentages. Extra Work Orders apply only to unit price contracts. Such Extra Work may be performed at agreed prices or as provided in Section 10.2 of these General Conditions.

1.1.1.35. Federal Agency - Any agency of the government of the United States of America or its succeeding agency.

1.1.1.36. Field Order - A written order issued by the Owner that requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Time.

1.1.1.37. Final Acceptance - Shall mean the acceptance of the Work by the Owner after the final inspection as evidenced by the Certificate of Final Acceptance sent to Contractor by Owner.

1.1.1.38. Force Account Work - Additional Work that is paid for based on the Cost of the Work as defined in Article 10.2.

1.1.1.39. Force Majeure - Means an act of God; earthquake; tidal wave; hurricane; act of the public enemy; war; blockade; public riot; lighting; fire; flood; explosion; a strike, excluding strikes and any other activity or demonstration by Owner's personnel that does not interfere directly with the Work; and any other cause, whether of the kind specifically enumerated herein or otherwise, which is not reasonably within the sole control of Contractor. A rain, windstorm flood or other natural phenomenon of normal intensity for the particular locality shall not be construed as Force Majeure.

1.1.1.40. Hazardous Environmental Condition - The presence at the Site of asbestos, PCBs, petroleum, hazardous waste, or radioactive material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

1.1.1.41. Hazardous Waste - The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 U.S.C. §6903) as amended.

1.1.1.42. Holidays - Saturdays, Sundays and the legal holidays listed below on which the Contractor will not be allowed to perform Work under the Contract except as otherwise ordered or authorized in writing by the Owner. All other Holidays not listed below will be considered working days. Also, if any of the listed holidays falls on a Sunday, the following Monday will be considered a holiday.

New Year's Day	January 1
Three Kings Day	January 6
Good Friday	Variable
Independence Day	July 4
Constitution Day	July 25
Labor Day	First Monday of September
Election Day (when occurring)	Tuesday after 1st Monday in November
Thanksgiving	Fourth Thursday in November
Christmas Day	December 25

1.1.1.43. Laboratory - The material testing laboratory of the Owner or any other testing laboratory which may be approved by the Owner or its duly authorized representative.

1.1.1.44. Laws and Regulations; Laws or Regulations - Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

1.1.1.45. Liens - Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

1.1.1.46. Major and Minor Contract Items - Any item having a Contract value equal to or greater than five per cent (5%) of the original Contract amount shall be considered as a major item. All the other Contract items shall be considered as minor items. A minor item may become a major item when the minor item is increased to the extent that the total cost of the item is equal to or greater than five per cent (5%) of the original Contract amount.

1.1.1.47. Materials - Any substances specified for use in the construction of the Project and its appurtenances.

1.1.1.48. Milestone - A principal event specified in the Contract Documents related to an intermediate completion date or time prior to the Substantial Completion of the whole Work.

1.1.1.49. Notice of Award - The written notice by the Owner to the apparent successful bidder stating that upon timely compliance by the apparent successful bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

1.1.1.50. Notice to Proceed - A written notice issued by the Owner to the Contractor fixing the date on which the Contract Time will commence to run and on which Contractor shall start to perform the Work under the Contract Documents. Such Notice to Proceed shall identify the persons included in article 5.2.2. Unless otherwise agreed by the parties, all permits and/or endorsements to be furnished by the Owner needed to start construction of the Project must be obtained prior to issuance of the Notice to Proceed.

1.1.1.51. OCIP - see Owner-Controlled Insurance Program.

1.1.1.52. Off-Site Work - Work to be performed outside of the of the Project's limits.

1.1.1.53. Owner - The Owner is the Department, Agency, Public Corporations, or any other instrumentality of the Commonwealth of Puerto Rico as identified in the Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Owner means the Owner or his authorized representative. It shall also mean any person, or entity, named as such in the Contract Documents.

1.1.1.54. Owner-Controlled Insurance Program - also known as "OCIP". An insurance program under which

Commercial General Liability, Excess General Liability, Builder's Risk, and Contractor's Pollution Liability coverage are procured or provided by the Owner for the Contractor, Subcontractors of any tier, who have been properly enrolled, while performing operations at the Project Site.

1.1.1.55. Owner's Representative – One or more persons or entity designated by the Owner, who will perform the functions of the Owner as described in these General Conditions. The Owner's Representative may employ Project Inspectors and/or other assistants to perform any function, duty or responsibility, as delegated by the Owner's Representative, including but not limited to the detailed inspections of performance of any or all portions of the Work.

1.1.1.56. Partial Utilization - Use by Owner of a substantially completed part of the Work for the purpose for which it is intended (or a related purpose) prior to Substantial Completion of all the Work.

1.1.1.57. Pay Item - See Contract Item.

1.1.1.58. Payment Bond - The security required to be furnished by the Contractor and his Surety and approved by the Owner to guarantee the payment of all persons or entities supplying labor, material and equipment in the prosecution of the Work or services required for completion of the Contract.

1.1.1.59. Performance Bond - The security required to be furnished by the Contractor and his Surety and approved by the Owner to guarantee the completion of all the requirements of the Contract.

1.1.1.60. Plans - See Drawings.

1.1.1.61. Project – The total construction of which the Work to be performed under the Contract Documents is the whole, or part.

1.1.1.62. Project Inspector - The professional, duly licensed and collegiate Engineer or Architect, or a legally qualified entity, contracted and/or designated by the Owner and/or the Owner's Representative to perform, as a Project Inspector, the continuous on Site inspection of any or all portions of the Work.

1.1.1.63. Project Manager- The professional licensed and collegiate Engineer or Architect, designated in accordance with the Contract as the Contractor's authorized representative who is made by Contractor responsible for and placed in charge of the Work.

1.1.1.64. Project Manual - The bound documentary information prepared for bidding and constructing the Work.

1.1.1.65.Project Schedule- A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Work within the Contract Times, as required by Article 6.4 of these General Conditions.

1.1.1.66. Reasonable Close Conformity - Compliance with reasonable and customary manufacturing and construction tolerances when working tolerances are not specified. When working tolerances are specified, reasonably close conformity means compliance with such working tolerances. Without detracting from the complete and absolute discretion of the Owner or its duly authorized representative to insist upon compliance with such tolerances, the Owner or its duly authorized representative may, at his sole option and reasonable discretion, accept variations beyond such tolerances when and where they will not materially affect the value or utility of the Work and the interests of the Owner.

1.1.1.67. Reference Specifications - Specifications issued by other official and/or professional organizations that are referred to and made part of the Owner's specifications and other Contract Documents. Unless otherwise specifically indicated in the Contract Documents, references cited shall be the edition of such specifications in effect at the time the Project is advertised for bids/proposals.

1.1.1.68. Right of Way - A general term denoting land, property, easement or interest therein, usually in a strip, acquired for the Project or for the benefit of another project or public utility.

1.1.1.69. Samples - Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

1.1.1.70. Shop Drawings or Working Drawings - All drawings, diagrams, schedules, and other data or information, which are specifically prepared or assembled by or for the Contractor and submitted by Contractor to illustrate some portion of the Work.

1.1.1.71. Site - Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner that are designated for the use of Contractor. It shall also mean areas for the performance of off-site work, if same is required in the Contract Documents.

1.1.1.72. Special Conditions - Special requirements, regulations or direction, covering conditions peculiar to a particular project. Special Conditions shall prevail over particular provisions of these General Conditions only when such option is provided in any particular Article of these General Conditions by the use of words such as "unless otherwise indicated in the Contract Documents..." In all other instances these General Conditions shall prevail over any conflicting provision contained in the Special Conditions.

1.1.1.73. Specialty Item - A Contract Item, which is specifically identified in the Contract Documents as exempted from the computations to determine the total amount of the Work that the Contractor may be authorized to subcontract.

1.1.1.74. Specifications - That part of the Contract Documents consisting of written Technical Specifications, descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable to the Work.

1.1.1.75. Standard Drawings - See Standard Plans.

1.1.1.76. Standard Plans (or Standard Drawings) - Drawings approved for repetitive use, showing details to be used where appropriate, included in the Plans or published as a separate document.

1.1.1.77. Standard Specifications - The set of specifications approved by the Owner for general application and repetitive use.

1.1.1.78. Subcontractor - A Subcontractor is an individual or entity that has a direct contract with the Contractor to perform any of the Work at the Site. The term Subcontractor as referred throughout the Contract Documents means the Subcontractor or his authorized representative.

1.1.1.79. Substantial Completion - The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of the Owner, or its authorized representative, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

1.1.1.80. Supplemental Agreement - A written agreement executed by the Contractor and Owner supplementing the Contract to cover Extra Work and/or changes and/or changed conditions incidental to and necessary for the acceptable completion or the Project.

1.1.1.81. Supplemental Specifications - Approved additions and/or revisions to the Standard Specifications, including Technical Specifications.

1.1.1.82. Supplementary Conditions - That part of the Contract Documents that amends, or supplements, where allowed, these General Conditions.

1.1.1.83 Supplier - A manufacturer, fabricator, supplier, distributor, materialmen, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work.

1.1.1.84. Surety - The insurance or bonding corporation or other legal entity, other than the Contractor, authorized to do business in Puerto Rico, bound with and for the Contractor for the proposal guaranty and/or the Payment Bond and/or the Performance Bond, or other bonds and insurances required by the Contract Documents.

1.1.1.85. Technical Specifications - The directions, provisions and requirements setting forth, or relating to, the performance of the Work and to the kind and quality of materials and labor to be furnished under the Contract for the execution of the Project. Any entity making changes in the Technical Specifications and/or Plans and Drawings, must perform so complying with all laws, codes, rules and regulations applying to them.

1.1.1.86. Underground Facilities/Utilities - All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any easements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

1.1.1.87. Unit Price Work - Work to be paid for based on unit prices.

1.1.1.88. Utility - A public or privately owned agency or entity and the lines and facilities for producing, transmitting or distributing data or voice communications, power, electricity, gas, oil, gasoline, water, sewer and similar commodities for public or private use.

1.1.1.89. Work - The entire construction referred to in the Agreement and the performance of the services identified to be provided in the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce and make workable such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

1.1.1.90. Work Change Directive - A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by the Owner and recommended by the Architect/Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Time but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Time.

1.1.1.91. Work Order - A written order, signed by the Owner, or its duly authorized representative, which requires performance of a specific contractual issue by, the Contractor without negotiation of any sort. If Contractor is not in agreement with the Work Order, he may present a Claim as established in Article 11.5.

1.1.1.92. Working Day - A calendar day, exclusive of Saturday and Sunday and designated legal holidays. All periods of time under the Contract Documents shall be measured in calendar days, unless Working Days are specified.

1.1.1.93. Working Drawings - See Shop Drawings.

1.1.1.94. Written Amendment - See Supplemental Agreement.

1.2 Other Terms - The Owner's manuals and sets of regulations contain additional terms, not included above, which are used in the plans and other Contract Documents. Such terms shall be interpreted as defined in the Owner's manuals and sets of regulations.

1.3 Terminology

1.3.1 Intent of Certain Terms or Adjectives.

1.3.1.1. Unless otherwise indicated in the Contract Documents, whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Architect/Engineer as to the Work, it is intended that such action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to Architect/Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of these General Conditions and the Contract Documents.

1.3.2 Deficient.

1.3.2.1. The word "deficient," when modifying the word "Work," refers to Work, or part of it, that is unsatisfactory, faulty, or defective in that it does not conform to the Contract Document or does not meet the requirements of any inspection, reference standard, test, or approval referred to in the Contract Documents, or has been damaged prior to Owner's Representative's recommendation of final payment, unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with these General Conditions.

1.3.3 Furnish, Install, Perform, Provide.

1.3.3.1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use, assembling, or installation and in usable or operable condition.

1.3.3.2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position, said services, materials, or equipment complete and ready for intended use.

1.3.3.3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

1.3.3.4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "install", "perform" and/or, "provide" is implied.

1.3.4 Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - CONTRACT DOCUMENTS

2.1 Intent and Interpretation of Contract Documents

2.1.1 The Contract Documents constitutes the Contract. The Contract Documents represent the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral, including the bidding documents. The Contract Documents may be amended or modified as set forth in section 2.6.

2.1.2 The intent of the Contract Documents is to provide for the construction and completion of the Work described.

2.1.3 The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the Work in accordance with the plans, specifications and terms of the Contract Documents.

2.1.4 The relationship which the parties intend to create under the Contract Documents is that of principal and independent Contractor and nothing herein is intended or shall be construed, so as to create a relationship of any kind, form or manner, such as but not limited to partnership, co-venturers, or employment between the Owner and Contractor, unless clearly otherwise expressed in the Contract Documents.

2.2 Order of Precedence of Contract Documents

2.2.1 The Contract Documents for each particular Project shall specify the order of precedence among the diverse documents that form the Contract Documents, except for the order of precedence of the General Conditions which may not be altered unless allowed to be altered by means of the Special Conditions as described in Article 1.1.1.72. If no such order of precedence is established in the Contract Documents for the Project, the following order shall be followed:

2.2.1.1. Agreement (which shall include the Bonds and required insurance policies).

2.2.1.2. Dated Contractor's Proposal

2.2.1.3. All addenda issued prior to Bid Date. Unless no conflict exist between addenda, the issuance of a subsequent addendum will supersede all previously issued addenda.

2.2.1.4. Instructions to Bidders

2.2.1.5. The General Conditions of the Contract, (except where in accordance with Article 1.1.1.72 they are allowed to be changed by the Special Conditions).

2.2.1.6. Special Conditions.

2.2.1.7. Plans or Drawings

2.2.1.8. The Standard Drawings.

2.2.1.9. Specifications.

2.2.1.10. Technical Specifications.

2.2.1.11. Supplemental Specifications.

2.2.1.12. Standard Specifications.

2.3 Written Interpretations

2.3.1 Provided reasonable time is granted to Owner, written interpretations necessary for the proper execution or progress of the Work in the form of drawings, or otherwise, will be issued with reasonable promptness by the Owner, its designated representative, or Architect/Engineer so as not to adversely affect the critical path of the Project Schedule.

2.3.2 Contractor may make written request to the Owner, Owner's Representative, or the Architect/Engineer for such interpretations, when deemed necessary for the proper progress of the Work.

2.3.2.1. Such interpretations shall be consistent with and reasonably inferable from the Contract Documents and may be effected by Field Orders.

2.3.2.2. Interpretation drawings are not necessarily changes in the Work.

2.3.3 Except as may otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

2.3.3.1. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or

2.3.3.2. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

2.4 Execution and Correlation

2.4.1. The Agreement shall be signed by the Owner and Contractor or their authorized representatives. The other component parts of the Contract Documents, if not signed by the Owner or Contractor, shall be marked by their authorized representative.

2.4.2 By executing the Contract Documents, the Contractor represents that he has visited the Contract Limits within the Site, familiarized himself with the local conditions under which the Work is to be performed, correlated his observations with the requirements of Contract Documents, and accepts the same.

2.4.2.1 The Owner warrants that it has submitted all the necessary documents required of Owner to be submitted to the appropriate governmental agencies needed for the prosecution of the Work, as required by applicable laws and regulations.

2.4.3 The Owner and the Contractor acknowledge that no service or Work under the Contract Documents will be performed until both parties duly sign the Contract and the Notice to Proceed is issued.

2.4.3.1. No payment and/or disbursement will be made or paid for services rendered in violation of this clause.

2.4.4 The Contract Time.

2.4.4.1. The Contract Time must be specifically expressed on the Contract.

2.4.4.2. The Contract Time will be extended by the same number of days in which the term to execute the Work is extended by Change Orders or by any other mean allowed or permitted by the Contract or Contract Documents.

2.4.4.3. Furthermore, the parties agree that no Work or service will be performed or received beyond Final Acceptance of the Contract.

2.4.4.4. No payment and/or disbursement will be made or paid for services rendered in violation of this clause.

2.4.5 The Contract Documents are complementary, and what is required by anyone shall be as obligatory as if required by all. The intention of the Contract Documents is to include all labor, materials, equipment and other items as provided on these General Conditions necessary for the proper execution and completion of the Work.

2.4.5.1. It is not intended that Work not covered under any heading, section, branch, class or trade of the Specifications shall be supplied unless it is required elsewhere in the Contract Documents.

2.4.5.2. The organization of the Specifications in divisions, sections, articles, and the arrangement of drawings shall not control the Contractor in dividing the Work among subcontractors or in establishing the extent of Work to be performed by any trade.

2.5 Review of Contract Documents and Field Conditions by Contractor.

2.5.1 Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents with each other and check and verify pertinent dimensions and quantities therein and all applicable field measurements.

2.5.2 Contractor shall promptly report in writing to Owner any conflict, error, ambiguity, inconsistency, discrepancy, or omission that Contractor may discover and shall obtain a written interpretation or clarification from Owner before proceeding with any Work affected by said conflict, error, ambiguity, inconsistency, discrepancy or omission.

2.5.2.1. However, Contractor shall not be liable to Owner for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents, unless Contractor failed to report it to the Owner with sufficient time for the Owner to provide a solution before the critical path of the Project is affected.

2.5.2.2. If the Contractor performs any construction activity in violation of this Article 2.5, the Contractor shall assume appropriate responsibility for such performance and shall bear an appropriate amount of the costs attributed to correction.

2.5.2.3. The Owner shall provide a solution to any reported conflict, error, ambiguity, discrepancy, or omission and if such solution adversely affects cost or the critical path of the Project, Owner will adjust Contract Price and Contract Time accordingly.

2.6 Amending and Supplementing Contract Documents

2.6.1 The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof in one (1) or more of the following ways:

2.6.1.1. a Written Amendment;

2.6.1.2. a Change Order;

2.6.1.3. an Extra Work Order; or

2.6.1.4. a Work Change Directive.

2.6.2 The requirements of the Contract Documents may be supplemented and minor variations and deviations in

the Work may be authorized, by one (1) or more of the followings ways:

2.6.2.1. a Field Order;

2.6.2.2. Owner's, or his authorized representative's, approval of a Shop Drawing or Sample; or

2.6.2.3. Owner's, his authorized representatives, or Architect/Engineer's written interpretation or clarification.

2..6.3 A modification may be made only after execution of the Contract.

2..7 Copies Furnished, Ownership and Reuse of Documents

2.7.1. The Contractor will be furnished, free of charge, four (4) complete copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction. If Contractor so requests it, Owner will also furnish, free of charge, if available, an electronic file in PLT format (plot to File) so that the Contractor may make the copies of plans and/or drawings that he needs to build the Project. If such electronic files are not available, the Owner shall allow the Contractor to prepare electronic files and to print, at Contractor's cost, but without additional payment to Owner or Architect/Engineer, those copies needed for use by Contractor.

2.7.2. All Drawings, Specifications and copies thereof furnished by the Owner, Architect/Engineer, or Owner's Representative are, and shall remain, property of the Owner.

2.7.2.1. The Contractor can make copies of all the Drawings, Specifications, and other Contract Documents without permission, and without the payment of any fees or royalties, to the Owner, Architect/Engineer, or Owner's Representative as long as they are necessary for use in the execution of the Work.

2.7.3. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing any of the Work under a direct or indirect contract with Owner:

2.7.3.1. shall not have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Owner, Architect/Engineer or Engineer's Consultant, including electronic media editions; and

2.7.3.2. shall not reuse any of such Drawings, Specifications, other documents, or copies thereof on extension of the Project or any other project without written consent of Owner.

2.7.4 This prohibition will survive final payment, completion, and acceptance of the Work, or termination or completion of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 3- BONDS AND INSURANCE

3.1 General- For Owners with OCIP

3.1.1 The Contractor shall not commence work under the Contract until he has obtained the various insurances policies and bonds specified in the Owner's Controlled Insurance Program. Owner shall provide to Contractor an exact copy of the applicable Owner Controlled Insurance Program manual together with the Contract Documents.

3.2 General- For Owners without OCIP.

3.2.1 The Contractor shall not commence work under the Contract until he has obtained the various

insurances and bonds specified in this section and has submitted to the Owner certificates of insurance (and other evidence requested by Owner) evidencing his compliance with the various insurance requirements set forth in this Article.

3.2.1.1. Unless otherwise indicated in the Contract Documents, Contractor must, within ten (10) calendar days from the Notice of Award, provide to Owner, in form satisfactory to Owner as provided in detail in this Article, the following:

3.2.1.1.1. Performance Bond

3.2.1.1.2. Payment Bonds

3.2.1.1.3. Workmen's Compensation Insurance Policy issued by The Puerto Rico State Insurance Fund and all Social Insurances required by law.

3.2.1.1.4. General Liability Insurance

3.2.1.1.5. Business Auto Policy

3.2.1.1.6. Contract Works Policy (Builder's Risk)

3.2.1.1.7. Installation Floater Policy (when applicable)

3.2.2 Notwithstanding the requirements set forth in this Article, the Owner may opt out of part of the requirements included in this Article and require any and all other policies that it understands are needed for its particular construction projects, including other policies not required herein.

3.2.2.1. However, such decision to opt out of part of the requirements of this Article must be written and signed by the Owner stating particularly the reasoning behind it Such written decision must be made part of Owner's Project file.

3.2.3. The insurance and bond policies required herein shall be obtained from insurance and surety companies complying with the requirements of Puerto Rico's Insurance Commissioner.

3.2.3.1. Prior to Bid announcement Date, Owner will publish a list of unacceptable insurance and bonding companies so that Contractor has knowledge of which companies are not authorized to provide insurances or bonds for the Work. Unless otherwise indicated in the Contract Documents, the Contractor must obtain an endorsement naming the Owner as an additional insured in each of the required insurance policies in this Article (as applicable).

3.2.4 The Contractor shall, throughout the performance of Work under the Contract and until the Final Acceptance of the Project, maintain current, and in effect all the required insurance, except the Contract Works Policy (Builder's Risk), which shall terminate on the date of Substantial Completion.

3.2.4.1. If on the termination date of any of the policies, the Project is still under construction and the Contractor has not renewed the policies, the Owner can renew them and deduct the amount paid for the premium, and applicable costs from the next payment, only if Contractor does not remedy and provide timely evidence of coverage.

3.2.5. Insurance coverage in the minimum limit amounts set forth herein shall not be construed to release the

Contractor from liability in excess of such coverage limit. Contractor must give thirty (30) calendar days written notice to Owner before any policy coverage is changed, canceled or not renewed and shall cause the insurance carrier to do the same.

3.2.6 Acceptance of Insurance; Option to Replace. If either Owner or Contractor has any objection to the coverage afforded by or to other provisions of the insurance required to be purchased and maintained by the other party in accordance with this Article on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within twenty (20) days after receipt of the certificates of insurance and bonds (or other such evidence) required by Article 3.1.1.

3.2.6.1. Owner and Contractor shall each provide to the other such additional information with respect to insurance provided as the other may reasonably request.

3.2.6.2. If either party fails to purchase or maintain all of the insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure prior to the start of the Work, or of such failure is to maintain, prior to any change in the required coverage.

3.2.6.3. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent insurance to protect such other party's interest at the expense of the party who was required to provide such coverage, and a Change Order (or Extra Work Order in a unit price Contract) shall be issued to adjust the Contract Price accordingly.

3.2.7. If Owner finds it necessary or convenient to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in section 14.5 no such use or occupancy shall commence before the insurers providing the property insurance pursuant to section 3.6 have acknowledged notice thereof and in writing effected any changes in coverage needed thereby.

3.2.7.1. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

3.2.7.2. If the Owner accepts, occupies, or uses a portion, or portions, of the Work for its intended use, or whatever use he deems necessary or convenient, it is the Owner's responsibility to insure the property comprising said portion, or portions of the Work.

3.2.7.3. If the Contractor obtained the Contract Works Policy (Builder's Risk) for the Work, the Owner may request that Contractor continues to carry said insurance and will pay the cost, as a Change Order, based on the proportion of the occupied area versus the total Project area.

3.2.7.4. If requested by Contractor, the Owner shall supply copy of its insurance policy, and/or certificate of insurance evidencing that said portion, or portions, of the Work now under the Owner's care, custody and control is properly insured.

3.3 Performance, Payment, and Other Bonds

3.3.1. Unless otherwise stated in the Contract Documents, the Contractor must, within ten (10) calendar days from the date of Notice of Award, furnish and file with the Owner, in form satisfactory to, and with Sureties approved by the Owner, the following:

3.3.1.1. Performance Bond to guarantee the faithful performance of the Contract, in an amount equal to at least fifty percent (50%), but not more than one hundred percent (100%) of the Contract Sum, as stated in the Supplementary General Conditions of the Contract. If none is stated, the amount shall be one hundred percent

(100%) of the Contract Sum.

3.3.1.2. Payment Bond, including Labor Bond in an amount equal to at least fifty percent (50%), but not more than one hundred percent (100%) of the Contract Sum, as stated in Supplementary General Conditions of the Contract. If none is stated, the amount shall be one hundred percent (100%) of the Contract Sum.

3.3.1.3. A separate and additional Payment Bond in an amount equal to the requirements of Law No. 111, approved June 22, 1961, as it may be amended in the future, payable to the Secretary of Labor of the Commonwealth of Puerto Rico to guarantee payment to laborers and employees of the Contractor.

3.3.1.4. Contractor shall also furnish such other Bonds as are required by the Contract Documents.

3.3.2. The Payment and Performance Bonds shall remain in effect as follows:

3.3.2.1. Under the Performance Bond: one (1) year after the date when the final payment becomes due for warranty work, as stipulated in the warranty clause, or as provided otherwise by Laws or Regulations or by the Contract Documents.

3.3.2.2. Under the Payment Bond: six (6) months after the retainage is paid in full to the Contractor, except as provided otherwise by Laws or Regulations or by the Contract Documents.

3.3.3 All Bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations. All Bonds must be signed by an attorney in fact duly authorized by the Commissioner of Insurance of Puerto Rico, and must be accompanied by a certified copy of such power of attorney.

3.3.4 If the Surety on any Bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of the Puerto Rico's Insurance Commissioner, Contractor shall within twenty (20) days thereafter substitute said Bond and Surety with acceptable substitutes.

3.4 Workmen's Compensation Insurance

3.4.1 The Contractor shall provide Worker's Compensation Insurance as required by the "Workers' Compensation Act of the Commonwealth of Puerto Rico". The Contractor shall furnish the Owner a certificate from the State Insurance Fund Corporation covered by the Workers' Compensation Act of the Commonwealth of Puerto Rico.

3.4.2 The Contractor shall also be responsible for compliance with said "Workers' Compensation Act" by all his subcontractors and agents.

3.5 Contractor's Liability Insurance

3.5.1 Contractor shall purchase and maintain the following liability insurance coverage, in an occurrence format, and other insurance as is appropriate for the Work being performed and will provide protection from claims set forth which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

3.5.1.1. Limits. Unless otherwise stated in the Special Conditions of the Contract, the liability insurance limits shall not be less than:

3.5.1.1.1.	General Aggregate Limit	$1,000,000
3.5.1.1.2.	Products/Completed Operations Aggregate Limit	$1,000,000
3.5.1.1.3.	Personal and Advertising Injury Limits	$ 500,000
3.5.1.1.4.	Each Occurrence Limit	$ 500,000
3.5.1.1.5.	Fire Damage Limit	$ 50,000
3.5.1.1.6.	Medical Expense Limit	$ 5,000

3.5.1.2. Claims for damages because of bodily injury, occupational sickness or disease, or death of any person other than Contractor's employees;

3.5.1.3. Claims for damages insured by reasonably available personal injury liability coverage which are sustained: (i) by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or (ii) by any other person for any other reason;

3.5.1.4. Claims for damages, other than to the Work itself, because o injury to or destruction of tangible property wherever located, including loss of use resulting there from.

3.5.2 The insurance policies so required by this section 3.4 to be purchased and maintained, unless otherwise specified in the Contract Documents, shall:

3.5.2.1. include at least the specific coverage and be written for no less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater,

3.5.2.2. include complete operations/premises/products insurance;

3.5.2.3. include contractual liability insurance covering Contractor's indemnity obligations under these General Conditions. Unless otherwise specified in the Contract Documents, the indemnity clause shall read as follows:

3.5.2.3.1. The Contractor for itself, agents, employees, successors and assigns agrees to save harmless the Owner, its Officers, Agents, Employees and Architect/Engineer from and against any and all claims, demands and/or suits, except as stated below, whether judicial or extra judicial for any cost whatever arising out or related to the execution of the Contract, and its insurers shall defend the Owner, its officers, agents, Employees and Architect/Engineer from such claims, demands and/or suits and shall bear all the expenses for such defense contemplated within the coverage limits provided by the Contractor's general liability policy, except where such claims, demands and/or suits are due solely to the negligence of the Owner, its Officers, Agents, employees and negligence, errors and/or omissions of the work performed by the Architect/Engineer.

3.5.2.4. include personal & advertising liability.

3.5.2.5 include XCU hazards (Explosion, Collapse, and Underground), as applicable.

3.5.2.6. include Contractor's subcontracted work;

3.5.2.7. include fire damage and medical expenses;

3.5.2.8. remain in effect at least until Final Acceptance and at all times thereafter when Contractor may be correcting, removing or replacing Work; in accordance with section 13.7 and

3.5.2.9. Include Employer's Liability - Stop Gap coverage with a minimum limit of five hundred thousand

dollars ($500,000.00) each personal occurrence and five hundred thousand dollars ($500,000.00) each accident.

3.6 Business Auto Policy

3.6.1 Automobile Liability coverage shall be written to protect the Contractor against all claims for bodily injuries to members of the public and damage to property of others arising from the use of motor vehicles, and shall cover operations on or the site of all motor vehicles, whether they are owned, non-owned or hired.

3.6.2 Unless otherwise stated in the Contract Documents, the liability limits shall not be less than:

3.6.2.1. Bodily Injury: two hundred and fifty thousand dollars ($250,000.00) each person and five hundred thousand dollars ($500,000.00) each occurrence.

3.6.2.2. Property Damage: one hundred thousand dollars ($100,000.00) each occurrence or two hundred and fifty thousand dollars ($250,000.00) combined single limit for bodily injuries and property damage liability.

3.7 Contract Work-Builders Risk Insurance

3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide a Builder's Risk policy for the amount of coverage set in the Contract Documents. The Builders Risk policy will insure against property damage to the building or structure being constructed or erected during the course of construction.

3.7.1.1. The description of covered property should include all fixtures, materials and supplies to be used in or incidental to, the construction. It should also cover equipment, machinery, materials, etc., not yet installed but destined to become a permanent part of the structure, on the Site or at off Site temporary storage locations.

3.7.1.2. This insurance shall be written under an Inland Marine all risk form, including earthquake, windstorm and flood coverage and shall protect the Contractor, Subcontractors, and the Owner and shall contain a waiver of subrogation clause against the insured parties.

3.7.1.3. Coverage shall be for an amount equal to the Contract Sum, unless otherwise specified in the Contract Documents.

3.7.1.4. Coverage shall include expenses incurred in the repair or replacement of any insured property.

3.7.1.5. Coverage shall include materials and/or equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and/or equipment have been included in an Application for Payment recommended by Owner.

3.7.1.6. Coverage shall allow partial utilization of the Work by Owner, if Owner complies with Article 3.2.7, herein

3.7.1.7. Coverage shall include testing and startup.

3.7.1.8. Coverage shall be maintained in effect until Substantial Completion is achieved unless otherwise agreed to in writing by Owner and Contractor with thirty (30) days written notice to each other additional insured to whom a certificate of insurance has been issued.

3.7.1.9. Unless otherwise stated in the Contract Documents, flood coverage limits shall be for the Contract Sum or up to a maximum of $250,000.00, whichever is lower.

3.7.1.10. Deductibles under this Policy shall be no more than:

3.7.1.10.1. Flooding no more than $5,000.00

3.7.1.10.2. For named windstorms, or hurricanes, no more than two percent (2%) of the Contract Sum.

3.7.1.10.3. For Earthquakes, no more than five percent (5%) of the total Contract Sum.

3.7.2. If the Contract Documents specify that Owner shall purchase the Builders Risk policy, said policy shall be under the same or better terms and conditions, than those indicated in section 3.6. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this section 3.6, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order or Written Amendment.

3.7.2.1. Unless otherwise provided in the contract Documents, Owner shall be responsible for the deductible under this policy.

3.7.2.2. Prior to commencement of the Work at the Site, Owner shall in writing advice Contractor whether or not such other insurance has been procured by Owner.

3.7.3. The Contract Documents shall set forth, whenever applicable, which party shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will insure the interest of Owner, Contractor, and Subcontractors, each of whom is deemed to have an insurable interest and each shall be listed as an insured or additional insured. Unless otherwise set forth in the Contract Documents, said insurance, if needed, shall be purchased and paid for, by the Owner.

3.7.4. Receipt and Application of Insurance Proceeds

3.7.4.1. If Owner purchases said insurance, Owner is authorized and shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing to Owner's exercise of this power within fifteen (15) days after the occurrence of loss.

3.7.4.2. Owner shall settle with the insurers in accordance with what is agreed by the parties who own the insurable interest.

3.7.4.3. If no such agreement among the parties in interest is reached, Owner shall, on behalf of all parties, adjust and settle the loss with the insurers.

3.8 Installation Floater Policy

3.8.1. This policy shall be provided by the Contractor when Builders Risk policy does not apply and coverage is required for only a specific type of property during its installation.

3.8.2. The limit of insurance shall include the aggregate value of the Contractor's, Subcontractor's, or Owner's furnished equipment and materials to be erected or installed by the Contractor.

3.8.3. This insurance shall be written under an Inland Marine all risk form, including earthquake, windstorm and flood coverage and shall protect the Contractor, Subcontractors, and the Owner and shall contain a waiver of subrogation clause against the insured parties.

3.9 Subcontractor's and Subcontractor's Liability Insurance.

3.9.1. Unless otherwise indicated in the Contract Documents, the Contractor shall, throughout the performance of Work under the Contract, procure and maintain in effect, and require all Subcontractors and others performing any such Work to procure and maintain in effect, insurance of the types applicable and with limits no less than the minimum amounts specified above, or insure the activity of his Subcontractors in his own policy.

3.10 Owner's Liability Insurance.

3.10.1 In addition to the insurance required to be provided by Contractor under Article 3.4, Owner, at Owner's option, may purchase and maintain Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

ARTICLE 4-SITE

4.1 Availability of Lands

4.1.1. Unless otherwise stated in the Contract Documents, Owner shall furnish the Site.

4.1.1.1. Owner shall notify Contractor of any known encumbrances or restrictions specifically related to use of the Site with which Contractor must comply in performing the Work.

4.1.1.2. Owner will obtain in a manner that does not adversely affect the critical path of the Work the easements for permanent structures or permanent changes to existing facilities.

4.1.1.3. If Contractor and Owner are unable to agree on the entitlement to or on the amount of any adjustment in the Contract Price or Contract Time, or both, as a result of any delay in Owner's complying with the responsibilities indicated above, Contractor may make a Claim therefore as provided in section 11.5.

4.1.2. Contractor shall secure and provide all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.2 Subsurface and Physical Conditions

4.2.1. Reports and Drawings. The Supplementary Conditions identify:

4.2.1.1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Architect/Engineer has used in preparing the Contract Documents; and

4.2.1.2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Architect/Engineer has used in preparing the Contract Documents.

4.2.2. Limited Reliance by Contractor on Technical Data Provided. On lineal type projects, Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are

not part of the Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data", Contractor may not rely upon or make any Claim against Owner, Architect/Engineer, or any of Architect/Engineer's Consultants with respect to:

4.2.2.1. the completeness of such reports and drawings for Contractor's construction purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

4.2.2.2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

4.2.2.3. any Contractor interpretation of, or conclusion drawn from, any "technical data" or any such other data, interpretations, opinions, or information.

4.2.3. Reliance by Contractor on Technical Data Provided. On building construction projects, Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, and such reports and drawings are part of the Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data", Contractor may not rely upon or make any Claim against Owner, Architect/Engineer, or any of Architect/Engineer's Consultants with respect to:

4.2.3.1. the completeness of such reports and drawings for Contractor's construction purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

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4.2.3.2. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.3 Differing Subsurface or Physical Conditions

4.3.1. Notice: If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

4.3.1.1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in section 4.2 is materially inaccurate; or

4.3.1.2. is of such a nature as to require a change in the Contract Documents; or

4.3.1.3. differs materially from that shown or indicated in the Contract Documents; or

4.3.1.4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents; then Contractor, shall promptly, in no event later than 3 working days, after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Article 6.16), notify Owner's Representative, Owner and Architect/Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

4.3.2. Architect/Engineer's and/or Owner's Representative Review. After receipt of written notice as required by the preceding Article, Architect/Engineer and/or Owner's Representative will promptly review the pertinent condition and determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advice Owner in writing of Architect/Engineer's and/or Owner's Representative findings and conclusions.

4.4. Price and Time Adjustments

4.4.1. The Contract Price, or the Contract Time, or both will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's costs of, or time required for, performance of the Work; subject, however, to the following:

4.4.1.1. such condition must meet any one or more of the categories described in Article 4.3.1; and

4.4.1.2. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of section 11.3.

4.4.2 Contractor shall not be entitled to any adjustment in the Contract Price or Contract Time if:

4.4.2.1. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner in respect of Contract Price and Contract Time by the submission of a Bid or by becoming bound under a negotiated contract; or

4.4.2.2. the existence of such condition could reasonably have been discovered or revealed as a result of any visual examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by Contractor prior to Contractor's making such final commitment; or

4.4.2.3. Contractor failed to give the written notice within the time and as required by Article 4.3.1.

4.4.3 If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price, or Contract Time, or both, a Claim may be made therefore as provided in section 11.5.

4.5 Underground Facilities

4.5.1. Shown or Indicated. The information and/or data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner's Representative, Owner or Architect/Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

4.5.1.1. Owner and Architect/Engineer shall be responsible for the reasonable accuracy or completeness of any such information or data; and

4.5.1.2. the costs of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

4.5.1.2. 1. reviewing and checking all such information and data;

4.5.1.2.2. locating all Underground Facilities shown or indicated in the Contract Documents;

4.5.1.2.3. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and

4.5.1.2.4. the safety and protection of all such Underground Facilities and repairing any damage thereto

resulting from the Work.

4.5.2. Not Shown or Indicated.

4.5.2.1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Article 14.13), notify said findings in writing to the owner of such Underground Facility, Owner's Representative and Architect/Engineer.

4.5.2.2. Architect/Engineer, Owner's Representative and Owner will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility.

4.5.2.3. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

4.5.2.4. If Owner's Representative concludes that a change in the Contract Documents is required, a Work Change Directive, Change Order or Extra Work Order will be issued to reflect and document such consequences.

4.5.2.4.1. An equitable adjustment shall be made to the Contract Price or Contract Time, or both, if warranted under this Article 4.5.

4.5.2.4.2. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Time, Owner or Contractor may make a Claim therefore as provided in section 11.5.

4.6. Reference Points

4.6.1. In projects requiring construction of buildings, at the beginning of the project, the Owner will set construction stakes establishing sufficient property lines, baseline and a bench mark. These stakes and marks will constitute all the surveying work the Owner will provide for the use of the Contractor. From the above-mentioned stakes and marks, the Contractor shall develop and establish all necessary marks and controls to perform his work. The Contractor will be held responsible for the preservation of original stakes and marks provided by the Owner at the beginning of the project, and if any of these stakes or marks are carelessly or willfully destroyed or disturbed by the Contractor, the cost of replacing them will be at Contractor's expense. The Owner will be responsible for the accuracy of the original lines and marks furnished to the Contractor.

4.6.1.1. In lineal projects, Owner shall provide engineering surveys to establish reference points for construction which, in Architect/Engineer's judgment, are necessary to enable Contractor to proceed with the Work.

4.6.2. Contractor shall be responsible thereafter for establishing the reference points and property monuments in accordance with the survey provided by Owner and laying out the Work, shall protect and preserve the reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall be responsible for replacing the established reference points and property monuments, if affected during construction.

4.6.3. Contractor shall report to Owner's Representative and Architect/Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.7. Hazardous Environmental Condition at Site

4.7.1. Reports, Studies and Drawings. Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Architect/Engineer in the Preparation of the Contract Documents.

4.7.2. Limited Reliance by Contractor on Technical Data Provided. On lineal type projects, Contractor may rely upon the general accuracy of the 'technical data" contained in such reports and drawings, but such reports and drawings are not part of the Contract Documents. Such "technical data" is identified in the Technical Specifications. Except for such reliance on such "technical data", Contractor may not rely upon or make any Claim against Owner, Architect/Engineer, or any of Architect/Engineer's Consultants with respect to:

4.7.2.1. the completeness of such reports and drawings for Contractor's construction purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

4.7.2.2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

4.7.2.3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.7.3. Reliance by Contractor on Technical Specifications Provided. On building construction projects, unless otherwise indicated in the Contract Documents, Contractor may rely upon the general accuracy of the "technical data" contained in such Technical Specifications and/or Plans and Drawings. Except for such reliance on such "technical data", Contractor may not rely upon or make any Claim against Owner, Architect/Engineer, or any of Architect/Engineer's Consultants with respect to:

4.7.3.1. the completeness of such reports and drawings for Contractor's construction purposes, including any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

4.7.3.2. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.7.4. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site that was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work.

4.7.5. Contractor shall be responsible for Hazardous Environmental Conditions created due to any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

4.7.6. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately:

4.7.6.1. at Owner's cost, secure or otherwise isolate such condition, if it is not the Contractor's fault; or at Contractor's cost, if it is his fault, or anyone for whom Contractor is responsible;

4.7.6.2. stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by section 6.13 and 14.13); and

4.7.6.3. notify Owner's Representative, Owner and Architect/Engineer and promptly thereafter confirm such notice in writing, no later than 24 hours after the condition has been encountered. Failure to do so shall constituted a waiver of any claim in connection thereto.

4.7.6.3.1. Owner shall promptly consult with Architect/Engineer and/or Owner's Representative concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action.

4.7.7. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner's Representative has obtained any required permits related thereto and delivered to Contractor written notice:

4.7.7.1. specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or

4.7.7.2. specifying any special conditions under which such Work may be resumed safely.

4.7.7.3. If Owner, through Owner's Representative, and Contractor cannot agree as to entitlement to, or on the amount or extent, if any, of any adjustment in Contract Price or Contract Time, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefore as provided in Article 11.5.

4.7.8. If after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner's Representative may order the portion of the Work that is in the area affected by such condition to be deleted from the Work.

4.7.8.1. If Owner, through Owner's Representative, and Contractor cannot agree as to entitlement to, or on the amount or extent, if any, of an adjustment in Contract Price or Contract Time as a result of deleting such portion of the Work, then either party may make a Claim therefore as provided in Article 11.5.

4.7.8.2. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.

4.7.9. To the fullest extent permitted by Laws or Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition:

4.7.9.1. was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and

4.7.9.2. were not created by Contractor or by anyone for whom Contractor is responsible.

4.7.9.3. Nothing in this Article shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

4.7.10. To the fullest extent permitted by Laws or Regulations, Contractor shall indemnify and hold harmless Owner's Representative, Owner, Architect/Engineer, Architect/Engineer's Consultants, and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible.

4.7.10.1. Nothing in this Article shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

4.7.11. The provisions of sections 4.2, 4.3 and 4.4 are not intended to apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5-OWNER

5.1 General

5.1.1. Owner's responsibilities and obligations are expressed throughout these General Conditions and are not limited to the ones contained in this Article.

5.1.2. All functions of the Owner will be performed by the Contracting Officer, unless delegated to others in the Contract Documents.

5.1.3. The Contracting Officer may delegate his full authority to another person, and to that effect shall notify the Contractor by written communication.

5.1.4. Unless otherwise specified in the Contract Documents, the person signing this Contract shall be interpreted to mean the Contracting Officer.

5.2 Information and Services Required of the Owner

5.2.1. The Owner shall furnish all available information describing the Project including, but not limited to, physical characteristics, legal limits and utility locations for the Project.

5.2.1.1. Said information should have been made available with reasonable time, and, unless otherwise specified in Bid Documents, prior to bid opening.

5.2.2 Before commencement of the Work, as specified in the Notice to Proceed, the Owner shall inform the Contractor in writing the name of the Owner's Infrastructure Area Director, Architect/Engineer, Contracting Officer, Owner's Representative and Project Inspector, if applicable. Owner reserves the right to change, from time to time, the designated persons or entities and any other designated representative who will perform the functions of the Owner. The Notice to Proceed shall also indicate the day of the week on which Contractor and Owner's Representative shall hold their weekly meeting to discuss matters related to the Project. The Owner's Representative may, from time to time, change said date of the week.

5.2.3 Furnishing of Right of Way - The Owner will be responsible for obtaining the necessary rights-of-way in advance of construction. Any exceptions will be indicated in the Contract Documents.

5.2.4 Information or services to be provided by Owner shall be furnished by the Owner with reasonable promptness so as to avoid any delay in the orderly programmed progress of the Work.

5.3 Pay Promptly When Due

5.3.1. Owner shall make payments to Contractor promptly when they are due.

5.4 Owner's Right to Stop the Work

5.4.1. The Owner's Representative and/or Owner may in accordance with Article 15.1.2 order the Contractor to stop the Work, or any portion thereof if the Contractor:

5.4.1.1. fails to start (and expeditiously continues) correcting defective work promptly after Contractor is notified in writing by the Owner;

5.4.1.2. persistently fails to supply materials or equipment in accordance with the Contract Documents; or

5.4.1.3. for any other significant reason deemed necessary to insure the proper execution of the Contract until the cause for such order has been eliminated.

5.5 Owner's Right to Carry Out the Work Without Terminating the Employment of the Contractor

5.5.1. If the Contractor persistently neglects to carry out the Work in accordance with the Contract Documents or persistently fails to comply with any provision of the Contract, the Owner, through the Owner's Representative, may, after ten (10) days written notice to the Contractor and Surety, if any, and without prejudice to any other remedy he may have, perform said Work and/or, remedy such deficiencies.

5.5.1.1. In such case, an appropriate deduction for the cost of performing said Work and/or correcting such deficiencies shall be made from the payments then, or thereafter, due the Contractor. If the payments then, or thereafter, due the Contractor are not sufficient to cover such amount, the Contractor and/or surety shall pay the difference to the Owner.

5.5.2. The cost to be charged to Contractor of such Work, repairs or replacement, will be the actual cost incurred by Owner.

5.6 Owner's Right to Clean Up

5.6.1. If a dispute arises between the separate contractors in the Project as to their responsibility for cleaning up as required by these General Conditions, the Owner may, after written notice to Contractor, clean up and charge the cost thereof to the several contractors in the proportion that the Architect/Engineer, or the Owner's Representative, determines equitable. If the Contractor is not in agreement with the cost distribution, he may make a claim as provided in Article 11.5.

5.7 Evidence of Financial Arrangements

5.7.1. Upon Contractor's request, Owner will furnish Contractor reasonable evidence that financial arrangements have been made for the payment of Owners' obligations under the Contract, and that all documentation for said purpose has been filed pursuant to applicable Laws and Regulations.

5.7.1.1. If requested in writing by Contractor, Owner shall supply reasonable written evidence that Owner has complied with these requirements.

5.8 Limitations on Owner's Responsibilities

5.8.1. Unless otherwise provided in the Contract Documents the Owner, through Owner's Representative, shall have no authority over, nor responsibility for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or shall not be held responsible for any failure of Contractor to comply with Laws or Regulations applicable to the performance of the Work. Owner's Representative, or Owner, will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

ARTICLE 6 - CONTRACTOR

6.1 Supervision and Superintendence

6.1.1. Contractor shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

6.1.1.1. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but Contractor shall not be responsible for the negligence of Owner or Architect/Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction, which is shown or indicated in and expressly required by the Contract Documents.

6.1.1.1.1. When the Contract Documents specify the use of a specific means, method, technique, sequence, or procedure of construction, which is shown or indicated in and expressly required by the Contract Document, such means, method, technique, sequence, or procedure of construction shall be used unless others are authorized by the Owner's Representative.

6.1.1.1.2. If the Contractor desires to use a means, method, technique, sequence, or procedure of construction other than specified in the Contract Documents, he shall request authority from the Owner's Representative to do so.

6.1.1.1.2.1. The request shall be in writing and shall include a description of the methods and equipment proposed and of the reasons for desiring to make the change.

6.1.1.1.2.2. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with the Contract Documents.

6.1.1.1.2.3. If, after trial use of the substituted methods or equipment, the Owner's Representative determines that the Work produced does not meet Contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining Work with the specified methods and

equipment.

6.1.1.1.2.4. The Contractor shall remove the deficient Work and replace it with Work of specified quality, or take such other corrective action as the Owner's Representative may direct.

6.1.1.1.2.5. No change will be made in the Contract amount for the construction items involved or in Contract Time as a result of authorizing a change in methods or equipment under these provisions.

6.1.1.1.3. Contractor shall be responsible to ascertain that the completed Work complies accurately with the Contract Documents.

6.1.2. Project Manager. Unless otherwise indicated in the Contract Documents, the Contractor shall employ a competent licensed and collegiate architect or engineer, as the Project Manager, and necessary assistants to direct the Work. These assistants shall be in attendance at the project site at all times during the prosecution of the Work. The Project Manager shall be satisfactory to the Owner or his representatives and shall not be changed except with the consent of the Owner, unless the Project Manager proves to be unsatisfactory to the Contractor (and Contractor gives Owner written notice of the specific reason for removal as Project Manager) or ceases to be in Contractor's employ.

6.1.2.1. The Project Manager will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. The Contractor, prior to the start of the Project, will inform the Owner's Representative, if already assigned, or the Owner, if not assigned, the name, authority and responsibilities of the Project Manager and/or Superintendent.

6.1.2.1.1. All communications given or received from the Project Manager shall be binding on Contractor. All communications related to the Contract directed to the Contractor and/or proceeding from the Owner, Architect/Engineer, Owner's Representative and other representatives of the Owner shall be made thru the Project Manager.

6.2 Labor and Working Hours

6.2.1. Contractor shall provide competent, suitably qualified personnel to survey, layout, and construct the Work as required by the Contract Documents.

6.2.1.1. The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ in relation to the Project or the Work any unfit person or anyone not skilled in the task assigned to him.

6.2.1.1.1. The Contractor shall be responsible to the Owner for the acts and omissions of all of his employees and all subcontractors, their agents and employees and all other persons performing any work under a contract with the Contractor.

6.2.1.2. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the Work to full completion in the manner and within the time required in the Contract Documents.

6.2.1.2.1. Workers engaged in special work or skilled work shall have sufficient experience in the performance of such work and in the operation of the equipment and tools to perform it properly and satisfactorily.

6.2.1.2.2. Any person employed by the Contractor or by a subcontractor who, as determined by the Owner's Representative, does not perform his work in a proper and skillful manner, or is disrespectful, intemperate, disorderly or otherwise objectionable shall, at the written request of the Owner's Representative, be removed forthwith by the Contractor or Subcontractor employing such employee, and such person shall not be employed again on any portion of the Work without the written consent of the Owner's Representative. Owner's Representative shall specify, in writing, the reason for the removal of such person from the jobsite.

6.2.1.2.2.1. Should the Contractor fail to remove such person or persons as required herein, the Owner may withhold payment of estimates which are or may become due, or may suspend the Work by written notice until such orders are complied with.

6.2.2. Except as otherwise required for the safety or protection of persons or the Work or property at the Site, or adjacent thereto, or for completion of daily Work as provided in Article 9.1.2.2.2. or as otherwise stated in the Contract Documents, all Work shall be performed during regular working hours and Contractor will not permit overtime work or the performance of Work on Saturday, Sunday, or any legal holiday without Owner's Representative's written consent (which will not be unreasonably withheld).

6.2.2.1. The Contractor shall comply with all the applicable Federal and Commonwealth laws, rules and regulations concerning fair labor practices including minimum wages, work hours, equal employment opportunities, non-discrimination, civil rights, employment of minors, and other labor relation matters.

6.2.2.2. The Contractor shall pay weekly, in lawful money of the United States of America, including payment by check or direct deposit, the entire amount of wages, less legally authorized or mandated deductions, earned by each of the laborers and employees engaged in the work.

6.2.2.2.1. The Contractor shall make available the Project payrolls to the Owner's Representative for inspection and shall submit copies of such payrolls to the Owner's Representative when required.

6.2.2.2.1.1. Any irregularities noted in the Project's payrolls will be brought to the attention of the Contractor by the Owner's Representative for appropriate corrective action and payment of any pending wages. Should the Contractor fail to take the necessary action, he will be subject to such civil and criminal proceedings as provided by law and regulations.

6.2.2.2.1.2. Payment of wages to laborers and employees of the Contractor for their work shall have preference over the payment of other debts of the Contractor, except as otherwise established by law.

6.3 Services, Materials, and Equipment

6.3.1. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

6.3.2. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents.

6.3.2.1. All warranties and guarantees required by the Contract Documents shall expressly benefit Owner.

6.3.2.2. If required by Owner's Representative, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

6.3.2.3. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise provided in the Contract Documents.

6.4 Progress and Other Schedules

6.4.1. Measurement and payment.

6.4.1.1. Unless otherwise specified in the Contract Documents, all costs in connection with the preparation and maintenance of schedules, workplans, submittals and other work specified in this Article 6.4 are to be included and form part of the project's general administrative expenses. Contractor's Cost for said work required in Article 6.4 shall not be paid as a separate pay item in Unit Price contracts or as a Schedule of Values item, in Lump Sum contracts.

6.4.2. General.

6.4.2.1. Progress schedules shall represent a practical plan to complete the Work within the Contract Time, and shall convey the Contractor's intent as to the manner of prosecuting the progress of the Work.

6.4.2.2. The scheduling and execution of construction in accordance with the Contract Documents are the responsibility of the Contractor. The Contractor shall involve and coordinate all Subcontractors and Suppliers in the development and updating of progress schedules.

6.4.2.3. The submittal of progress schedules shall be understood to be the Contractor's representation that the progress schedule meets the requirements of the Contract Documents and that the Work is expected to be executed in the sequence and duration indicated in the progress schedule.

6.4.3. Scheduling format.

6.4.3.1. The Project Schedule shall be computer produced using the Critical Path Method ("CPM") format. The schedule shall be computer generated utilizing an Owner approved project scheduling software, as indicated in the Contract Documents, such as Primavera, Microsoft Project, or SureTrak. The project scheduling software selected shall be used consistently from commencement to Final Acceptance of the Project. If the Contractor desires to use a project scheduling software other than the one specified in the Contract Documents, he shall request authorization from the Owner's Representative to do so, prior to the issuance of the Notice to Proceed. If the Contract Documents do not indicate a specific scheduling program, the Contractor may use any of the three mentioned herein, at his sole option.

6.4.3.2. The Project Schedule shall be updated monthly and submitted as indicated in Article 6.4.4. .

6.4.3.3. The schedule shall show Contract tasks, percent complete, progress bars, baseline schedules, milestones, start and finish dates, and other breakdowns as required by the Owner's Representative. The schedules shall show clearly the sequence of activities and shall list specifically the following activities:

6.4.3.3.1. interim milestones completion dates. Phasing and staging of the Work as specified shall be prominently identified;

6.4.3.3.2. submittals and the Owner's Representative review of submittals;

6.4.3.3.3. acquisition of permits;

6.4.3.3.4. any long lead time (over 60 days) orders for material and equipment;

6.4.3.3.5. work to be performed by other contractors and agencies;

6.4.3.3.6. delivery of Owner's furnished equipment and materials indicated for incorporation in the Work.

6.4.3.4. Descriptions of scheduled activities shall include sufficient detail to identify the work that is to be accomplished.

6.4.3.4.1. The schedule shall contain sufficient activities to clearly show the sequence and interdependencies of the Work. The Owner's Representative may request that additional activities and information be added and from time to time may also require reasonable amendments to the schedule format that result in more clarity as to how the information is presented.

6.4.3.4.2. Activity durations shall be expressed in whole days. Work that is to be performed by Subcontractor shall be clearly defined.

6.4.3.4.3. Critical path activities are those activities with a total float equal to or less than zero. Schedules with negative total float may be found to be impractical by the Owner's Representative.

6.4.3.4.4. A schedule showing that Work that is completed in less than the completion time specified, shall be considered to have float. The float shall be the time between the scheduled completion of the Work and the Contract completion date. Float time shall not be for the exclusive benefit of either the Owner or the Contractor. Float shall be a resource available to both parties.

6.4.3.4.4.1. If according to the critical path of the originally approved Project Schedule any party that generates a float in said critical path, then said float shall belong exclusively to the party generating said float.

6.4.3.4.5. A schedule found to be impractical for the preceding reasons or any other reasons shall be revised by the Contractor and resubmitted.

6.4.4 Submittals.

6.4.4.1. Within thirty (30) days after the effective date of the Notice to Proceed (unless otherwise specified in the Contract Documents), Contractor shall submit to Owner's Representative for its timely review:

6.4.4.1.1. a preliminary progress schedule indicating the times (numbers and days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

6.4.4.1.2. a preliminary schedule of Shop Drawings and Sample submittals which will list each required submittal and the times for submitting, reviewing, and processing such submittal; and

6.4.4.1.3. a preliminary schedule of values for all of the Work, as specified on Article 13, herein.

6.4.4.2. Submit one (1) electronic copy and the number of hard copies of the Submittals required in Article 6.4 which the Contractor requires to be returned, plus three (3) hard copies which will be retained by the Owner.

6.4.4.3. Schedule submittals will be reviewed by the Owner's Representative, and shall be updated and revised as indicated in section 6.4.6. Re-submittals shall conform to the same requirements as original submittals.

6.4.4.4. The Contractor shall prepare and submit all schedules and schedule analysis reports in electronic as well as hard copies.

6.4.4.5. All progress schedule submittals are subject to review and approval by the Owner's Representative.

6.4.4.5.1. Unless otherwise provided in the Contract Documents, at least ten (10) days before submission of the Application for Payment, a conference, to be attended by Contractor, Owner's Representative, Architect/Engineer, and others as appropriate, will be held to review for purposes of acceptability to Owner's Representative, as provided below, the progress schedules submitted in accordance to Article 6.4.4.1. If said meeting is not held, for reasons other than due to the fault of the Contractor, or if the Owner's Representative does not provide timely approval, or corrections, to the submitted submittals specified in Article 6.4.1., all the previously submitted submittals shall be considered approved, provided Contractor has given notice directly to Owner as required in Article 17.3.2.

6.4.4.5.1.1. Contractor shall have an additional ten (10) days to make corrections and adjustments and to complete and resubmit the schedules. Owner's Representative shall approve said corrections within a period of ten (10) days from the date of re-submittal otherwise they shall be considered approved, provided Contractor has given notice directly to Owner as required in Article 17.3.2.

6.4.4.5.1.1.1. The third progress payment shall not be paid to Contractor until acceptable schedules are submitted to Owner's Representative, or until schedules are considered approved as specified herein.

6.4.4.5.1.1.2. The Progress Schedule will be acceptable to Owner's Representative if in accordance with the Agreement it provides an orderly progression of the Work to completion within any specified Milestones and the Contract Time.

6.4.4.5.1.1.3. Contractor's schedule of Shop Drawings and Sample submittals will be acceptable to Owner's Representative if it provides, in Owner's sole discretion, a workable arrangement for reviewing and processing the required submittals.

6.4.4.6. The first schedule submitted by the Contractor will be reviewed for format, as well as content. The Owner's Representative may request format changes. Once the format has been approved, all subsequent schedules shall be submitted in the approved format.

6.4.5 Four-week work plan.

6.4.5.1. A schedule in calendar time-scaled bar chart format depicting the Contractor's intended work activities for the upcoming four (4) week period shall be submitted on a monthly basis and shall be due on the day of the project's weekly meeting. Each activity of one (1) day or more in duration shall be indicated.

6.4.5.2. Any deviations, such as sequences of work, timing, and durations of activities from the approved Project Schedule, shall be noted and explained in writing.

6.4.5.3. The four (4) week work plan shall be submitted on sheets not less than 8 ½ inches by 11 inches, or as approved by the Owner's Representative.

6.4.6. Review, updates and revisions

6.4.6.1. The Owner's Representative will review and return to Contractor the schedule submittals, with written comments, within the following deadlines counted from the date of receipt.

6.4.6.1.1. Project CPM schedule: 14 calendar days.

6.4.6.1.2. Four (4) week work plan: 8 calendar days.

6.4.6.2. The Contractor shall make all corrections to the Project Schedule requested by the Owner's Representative and resubmit the schedule for approval. If the Contractor does not agree with the Owner's Representative's comments, the Contractor shall provide written notice of disagreement within five (5) days from the receipt of the Owner's Representative's comments. The Owner's Representative's comments on the four (4) week work plan for which the Contractor disagrees shall be resolved in a meeting held for that purpose, if necessary.

6.4.6.3. At least once each month, or often if indicated in the Contract Documents, the Contractor shall submit an updated schedule showing the progress of the Work to date and anticipated activities to be worked on. All updated schedules must comply with Article 6.4.

6.4.6.4. If, according to the approved Project Schedule, the Contractor is thirty (30) or more days behind as to the completion date of any milestone, or the schedule contains thirty (30) or more days of negative float, considering all approved time extensions, the Contractor shall submit a revised schedule, showing a practical plan to complete the Work within the Contract Time.

6.5 Submittals for Approval, Substitutes and/or "Equals"

6.5.1. Submittal for Approval of Materials, Shop Drawings and Samples; Plans and Working Drawings; As-Built Plans.

6.5.1.1. The Contractor shall submit all submittals for approvals of Materials, Shop Drawings and Samples to the Owner's Representative. The Owner's Representative will either perform the review and approval, or forward the Contractor's submittal to the Architect/Engineer's for his review and approval, in accordance with the accepted itinerary for Shop Drawings and Sample submittals.

6.5.1.2. All submittals will be identified as required by Owner's Representative and presented with the number of copies specified in the Contract Documents. If a number is not mentioned, seven (7) copies will be submitted. Of these seven (7) copies, four (4) shall be returned, duly evaluated, to the Contractor.

6.5.1.3. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Owner's Representative the services, materials, and equipment Contractor proposes to provide and to enable Owner's Representative to review the

information for the limited purposes of complying with the requirements of Article 6.17.

6.5.1.4. The Architect/Engineer or the Owner's Representative shall have the following deadlines within which to approve, request additional information or reject any Submittal for Approval of Materials, Shop Drawings and Samples:

6.5.1.4.1. For Materials, Shop Drawings or Samples which are the ones specified in the Contract Documents or are, in the opinion of the Owner's Representative, non-complex Shop Drawings or Materials, the Architect/Engineer or Owner's Representative shall have a period of ten (10) working days.

6.5.1.4.2. For Materials, Shop Drawings or Samples not complying with the requirements indicated in the previous Article, the period shall be twenty (20) working days.

6.5.1.4.3. If no comment by the Architect/Engineer or Owner's Representative is made within said period of time, the Contractor will have the right to Claim if said delay impacts the critical path.

6.5.1.4.4. The above mentioned deadlines can be extended if requested in writing by the Architect/Engineer and/or Owner's Representative as long as approval is made within a time period that does not alter the critical path. Such request for extension shall not be unreasonably denied.

6.5.1.5. Each Sample will be identified clearly as to material, supplier, pertinent data such as catalog numbers, and the use for which it is intended or otherwise as Owner's Representative may require, to enable the Architect/Engineer or the Owner's Representative to review the submittal for the limited purposes of complying with the requirements of Article 6.17.

6.5.1.5.1. The numbers of items each Sample to be submitted will be as specified in the Specifications. If no number of items is mentioned, three (3) samples will be submitted. Of these, three (3) samples, two (2) shall be returned, duly evaluated, to the Contractor.

6.5.2. Where an approval of Materials, Shop Drawing or Samples is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals, any related Work performed, including materials purchases, prior to Owner's Representative or Architect/Engineer's review and approval of the pertinent submittal will be at the sole responsibility of Contractor.

6.5.3. Submittal Procedures.

6.5.3.1. Before delivering each submittal for approvals of Material, Shop Drawing or Sample, Contractor shall have:

6.5.3.1.1. verified that all shop drawing measurements, quantities, shop drawing dimensions, specified performance criteria, installation requirements, materials, catalog numbers, and similar information are in accordance with the Contract Documents and if not in accordance, ascertained that all variations are indicated in the submittal;

6.5.3.1.2. verified all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

6.5.3.1.3. verified all information relative to means, methods, techniques, sequences, and procedures of construction and safety precautions and programs incident thereto; and

6.5.3.1.4. Contractor shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings or Samples and with the requirements of the Work and the Contract Documents.

6.5.3.2. Each submittal shall bear a stamp or specific written indication that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal. If required in the Special Conditions, submittals for Materials and Samples must bear a notarized certificate of compliance.

6.5.3.3. At the time of each submittal, Contractor shall give Owner's Representative specific written notice of such variations, if any, that the submittal for approvals of material, Shop Drawing or Sample submitted may have from the requirements of the Contract Documents, such notice to be in a written communication included with the submittal.

6.5.4. The Architect/Engineer or Owner's Representative's Review.

6.5.4.1. Owner's Representative, either himself or through the Architect/Engineer, will perform a timely review, evaluation and comment of Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to Owner's Representative. If no comment by the Owner's Representative is made within the time stated in this Article 6.5 the Contractor will have the right to claim pursuant the provisions of Article 11.5, if said delay impacts the critical path.

6.5.4.1.1. The Architect/Engineer or the Owner's Representative review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

6.5.4.1.2. The Architect/Engineer or the Owner's Representative's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto.

6.5.4.1.2.1. The review and approval of a separate item, as such, will not indicate approval of the assembly in which the item functions.

6.5.4.1.3. The Architect/Engineer or the Owner's Representative's review and approval of Shop Drawings or Samples shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has in writing called the Architect/Engineer or the Owner's Representative attention to each such variation at the time of each submittal as required by Article 6.17 and the Architect/Engineer or the Owner's Representative has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by the Architect/Engineer or the Owner's Representative relieve Contractor from responsibility for complying with the requirements of Article 6.17.

6.5.5. Re-submittal Procedures.

6.5.5.1. Contractor shall make corrections required by the Architect/Engineer or the Owner's Representative and shall return the required copies of materials submittals, the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval.

6.5.6 Substitutes and "Or-equals".

6.5.6.1. Whenever an item or material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Owner's Representative for review under the circumstances described below. The Contractor will present his submittal for approval, indicating whether the item of material or equipment proposed is an Or Equal or a Substitute.

6.5.6.2. "Or-Equal" Items: If in Owner's Representative's sole discretion an item, or material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it will be considered by Owner's Representative as an "or-equal" item, in which case review and approval of the proposed item be accomplished without compliance with the special requirements for approval of the proposed substitute items and be acceptable or acceptable with comments. Owner's Representative's basis for rejection of the item of material or equipment as an "or equal" material shall be written and may be subject to appeal, as specified in Article 11.5 of these General Conditions, by Contractor. For the purposes of this Article, a proposed item of material or equipment will be considered functionally equal to an item so named if:

6.5.6.2.1. In the exercise of reasonable judgment, Owner's Representative determines that:

6.5.6.2.1.1. it is at least equal in quality, durability, appearance, strength, and design characteristics;

6.5.6.2.1.2. it will reliably perform at least equally well the function imposed by the design concept of the completed Project as a functioning whole, and;

6.5.6.2.2. Contractor certifies that:

6.5.6.2.2.1. there is no increase in cost to the Owner; and

6.5.6.2.2.2. it will conform substantially, even with deviations, to the detailed requirements of the item named in the Contract Documents.

6.5.6.2.2.3. Owner's Representative shall make the decision on the "or equal" material with sufficient time so as not to alter the Contractor's Programmed Schedule of the Work. If no comment by the Owner's Representative is made within said period of time, the Contractor will have the right to Claim pursuant the provisions of Article 11.5 if said delay impacts the critical path.

6.5.6.3. Substitute Items

6.5.6.3.1. If in Owner's Representative's sole discretion an item or material or equipment proposed by Contractor does not qualify as an "or-equal" item under Article 6.5.6, it will be considered a proposed substitute item.

6.5.6.3.2. Contractor shall submit sufficient information as provided below to allow Owner's Representative to determine that the item or material or equipment proposed is essentially equivalent to that specified and an acceptable substitute therefore.

6.5.6.3.2.1. Requests for review of proposed substitute items, material or equipment will not be accepted by

Owner's Representative from anyone other than Contractor.

6.5.6.3.3. The procedure for review by Owner's Representative will be as set forth in Article 6.5.6, as supplemented in these General Conditions and as Owner's Representative may decide is appropriate under the circumstances.

6.5.6.3.4. Contractor shall first make written application to Owner's Representative for review of a proposed substitute item, material or equipment that Contractor seeks to furnish or use.

6.5.6.3.4.1. The application shall certify that the proposed substitute item will perform adequately the functions and achieve the results called for by the general design, be similar in substance to that specified, and be suited to the same use as that specified.

6.5.6.3.4.2. The application will state the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's timely achievement of Substantial Completion, whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for work on the Project) to adapt the design to the proposed substitute item and whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.

6.5.6.3.4.3. All variations of the proposed substitute item from that specified will be identified in the application, and available engineering, sales, maintenance, repair, and replacement services will be indicated.

6.5.6.3.4.4. The application will also contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change, all of which will be considered by Owner's Representative in the evaluation of the proposed substitute item.

6.5.6.3.4.5. Owner's Representative may require Contractor to furnish additional data about the proposed substitute item.

6.5.6.3.5. Owner's Representative shall make the decision on the "substitute" material with sufficient time so as not to alter the critical path. If no comment by the Owner's Representative is made within said period of time, the Contractor will have the right to Claim pursuant the provisions of Article 11.5 if said delay impacts the critical path.

6.5.6.3.6. Owner's Representative's basis for rejection of a "substitute" material shall be written and may be subject to appeal and Claim by Contractor, as specified in Article 11.5.

6.5.6.4. If a Substitute item is approved by the Owner and such change affects the Contract Price, then the Contract Price shall be equitably adjusted.

6.5.7. Substitute Construction Methods or Procedures.

6.5.7.1. If a specific means, method, technique, sequence, or procedure of construction is shown, or indicated in, or expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Owner's Representative.

6.5.7.1.1. Contractor shall submit sufficient information to allow Owner's Representative, in Owner's

Representative's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. Such submittal shall be made with sufficient time as to allow the Owner's Representative to review it.

6.5.7.1.1.1. The procedure for review by Owner's Representative will be similar to that provided in section 6.5.6 but no Claim may be made by contractor due to untimely evaluation by Owner.

6.5.8. Owner's Representative's Evaluation.

6.5.8.1. Owner's Representative or Architect/Engineer will be allowed a reasonable time, which will not unreasonably delay the critical path of the Work, within which to evaluate each proposal or submittal made pursuant to Article 6.5.

6.5.8.2. Except as provided above. Owner's Representative will be the sole judge of acceptability.

6.5.8.3. No "or-equal" or substitute will be ordered, installed or utilized until Owner's Representative's review is complete, which will be evidenced by written approval by Owner for a substitute or an approved Shop Drawing or an "or-equal."

6.5.8.4. Owner's Representative will advise Contractor in writing of any negative determination.

6.5.8.5. Owner's Representative will charge Contractor for any overtime expenses and other costs incurred in the evaluation of a proposed substitute, similar, or equal materials, unless said proposal was submitted by Contractor with reasonable time as to afford the Owner the time necessary to analyze the submittal without affecting the Project Schedule.

6.5.9. Special Guarantee.

6.5.9.1. Owner's Representative may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

6.5.10. Contractor's Expense.

6.5.10.1. Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.5.11. Approval of Submittals.

6.5.11.1. If within the periods of time provided under this Article 6 for approval of submittals made by the Contractor, the Owner's Representative fails to render his decision as to any submittal and the critical path is adversely affected, the Contractor shall require in writing the approval of the Owner's Representative, who shall have ten (10) working days to issue his decision. If no decision is forthcoming from the Owner's Representative within the stated time, for reasons other than due to the fault of Contractor, the submittal shall be considered approved, provided Contractor has also given the same timely notice directly to Owner required in Article 17.3.2

6.6 Review of Contract Documents

6.6.1. The Contractor shall carefully study and compare the Contract Documents with each other and with

information furnished by the Owner and shall at once report to the Owner, Architect/Engineer, and Owner's Representative any error, inconsistency or omission he may discover.

6.6.1.1. The Contractor shall not be liable to the Owner for any errors, inconsistencies or omissions in the Contract Documents.

6.6.1.2. The Contractor shall not take advantage of any such errors, inconsistencies, or omissions.

6.6.1.3. The Owner's Representative after being notified by the Contractor of such errors, inconsistencies or omissions will make the corrections and interpretations deemed necessary for fulfilling the intent of the Contract Documents, within a reasonable time so as not to alter the programmed progress of the Work. If no comment by the Owner's Representative is made within said time the Contractor will have the right to Claim pursuant the provisions of Article 11.5 if said delay impacts the critical path.

6.7 Patent, Fees and Royalties

6.7.1. Contractor shall pay all license fees and royalties and assume all costs incident to the use, in the performance of the Work or the incorporation in the Work, of any invention, design, process, product, or device which is the subject or patent rights or copyrights held by others.

6.7.2. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Architect/Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

6.7.3 To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner, Architect/Engineer, Architect/Engineer's Consultants, and the officers, directors, partners, employees or agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges or engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.8 Permits

6.8.1. Unless otherwise indicated in the Contract Documents, the responsibilities for securing and paying for permits, governmental fees and licenses for work to be performed are as follows:

6.8.1.1. To obtain the Construction Permit, the Contractor shall pay the premiums to secure the State insurance Fund policy and the Municipal Construction Taxes, at the rate that is in effect at bid date, unless the Contractor is explicitly not obligated to pay said taxes under the terms and provisions of the Contract Documents, in which case, shall so be specifically stated in the Contract Documents. The Owner shall secure all the Architect or Engineer's and Owner's Representative's certificates necessary and pertinent needed to secure the Construction Permit as well as submit applications and secure the permits for the Plan CES and for the Federal Storm Water Drainage plan, if same is required for the Project.

6.8.1.2. To obtain the Use Permit, the Contractor shall secure the endorsements required for said Use Permit from all government agencies, unless one or more of these cannot be obtained due to circumstances beyond the control of the

Contractor. The Owner must ascertain that the reports required for the Use Permit from the Architect or Engineer and Owner's Representative are duly filed with "Oficina de Gerencia de Permisos" and must also obtain any of the above mentioned endorsements that cannot be obtained due to circumstances beyond the control of Contractor.

6.8.1.3. All payments due, or to become due, to any agency, public or private, for connection to, or improvement of any of said agencies' infrastructure (Impact Fees) shall be paid by the Owner with sufficient time so as not to adversely affect the critical path of the Work.

6.8.1.4. The Contractor shall secure and pay for all incidental permits required for the completion of the Work, unless such incidental permits deviate from the normal procedures, or costs, of the requiring agency and shall do so in a timely manner so as not to adversely affect the critical path of the Work.

6.8.1.5. Any other fees or charges related to permitting to be paid by the Contractor will be indicated in the special conditions.

6.8.1.6. The duties of Owner and of Contactor stated in this Article 6.8 shall be performed in a timely manner as to not adversely affect the critical path of the Work.

6.9 Laws and Regulations

6.9.1. Contractor shall give all notices and comply with all Laws and Regulations applicable to the performance of the Work.

6.9.1.1. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner, nor Owner's Representative nor Architect/Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

6.9.1.2. Should the Contractor observe that the Contract Documents are at variance with any Federal, Commonwealth and Municipal laws, ordinances, rules, regulations, by-laws, and all orders or decrees, he shall promptly notify the Owner's Representative in writing and the Owner's Representative shall instruct the Contractor, also in writing, as to how Contractor is to proceed. Any additional cost and /or extra time incurred by the Contractor to comply with Laws and Regulations enacted after the bid opening date, it may file a claim for equitable adjustment of the Contract Price or the Contract Time or both, as shall any decrease in cost or time resulting therefrom.

6.9.1.3. If the Contractor performs any work knowing it to be contrary to Federal, Commonwealth and Municipal laws, ordinances, rules, regulations, by-laws, orders or decrees, the Contractor shall assume full responsibility therefore, and shall bear all cost arising there from.

6.9.1.4. The Contractor shall save the Owner and its authorized representatives harmless from any claim or liability arising from or based on the infraction or violation of any such laws, ordinances, rules, regulations, by-laws, all orders or decrees, except if the infractions or violations are caused by acts of the Owner, or of Owner's authorized representatives.

6.9.1.5. If Contractor performs any Work knowing or having reason to know that he is acting contrary to said Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred as a consequence thereof. It shall not be Contractor's primary responsibility to make certain

that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not release Contractor of Contractor's obligations hereunder.

6.10 Taxes

6.10.1. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work and which were in effect at the bid opening date.

6.10.1.1. Among said taxes, the Contractor shall pay the municipal construction taxes applicable to the Project in a timely fashion, but no later than fifteen (15) calendar days after the first partial (certification) payment is made by the Owner to Contractor.

6.10.1.2. If specifically stated in the Contract Documents, the Municipal Construction tax rate may be determined between Owner and the municipal government where the project is to be located, in such case a specific rate shall be established by the mayor and the municipal legislature, and notified to the Contractor before bid time. If no such rate is indicated in the Contract Documents regarding such arrangement between Owner and the municipal government, then the Contractor shall pay at the rates prevailing at the time of the bid.

6.10.1.1.1. The Contractor shall furnish and deliver to the Owner written evidence that said payment(s) was made before the second partial (certification) payment is made by the Owner to Contractor.

6.10.1.1.2. In case that the Contractor does not furnish and deliver said evidence of payment, the Owner shall deduct from said partial (certification) payments the undisputed amount of municipal tax plus any penalties and fines and pay it directly to the municipality.

6.10.1.1.2.1. If the amount of the second partial (certification) payment is not enough to cover the total amount of the municipal tax, the Owner shall continue to deduct from the following partial (certification) payments until the undisputed amount is paid in full.

6.10.1.1.2.2. The direct payment provided for in Article 6.10.1.1.2 shall be effected after the retainage required in Article 13.2.2 is deducted.

6.11 Use of Site and Other Areas

6.11.1. Limitation on Use of Site and Other Areas.

6.11.1.1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment.

6.11.1.1.1. Contractor shall assume full responsibility for any damage to any such land or area, or to the Owner or occupant thereof, or of any adjacent land or areas, resulting from the performance of the Work.

6.11.1.1.2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly resolve the dispute with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

6.11.1.1.3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold Owner, Architect/Engineer, Architect/Engineer's Consultant, and the officers, directors, partners, employees, agents, and other consultants of each and any of them harmless from and against all claims, costs, losses, and damages (including but not limited to all fees and charges or engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Architect/Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

6.11.2. Removal of Debris during Performance of the Work.

6.11.2.1. During the progress of the Work, Contractor shall keep the Site and other areas free from excessive accumulations of waste materials, rubbish, and other debris caused by his operations on the Site.

6.11.2.1.1. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

6.11.3. Cleaning.

6.11.3.1. Prior to Substantial Completion of the Work Contractor shall clean the Site and make it ready for utilization by Owner.

6.11.3.1.1. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

6.11.3.1.1.1. If the Contractor fails to clean up as indicated above, the Owner may do so and the cost thereof shall be charged to the Contractor.

6.11.4. Loading Structures.

6.11.4.1. Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.11.4.2. Owner's Representative shall not permit any of the Owner's Other Contractors, his personnel, or any other entity performing work for him directly at the Site, to load any part of any structure in any manner that will endanger the structure, nor shall Owner's Representative subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.11.5. Rights To and Use of Materials Found On the Work.

6.11.5.1. The Contractor, with the prior written approval of the Owner's Representative, may use to perform the Work materials obtained from existing structures at the Site which are to be removed that are determined by the Owner's Representative to be acceptable for a use approved in writing by Owner's Representative.

6.11.5.2. Unless otherwise provided in the Contract Documents, material from any existing structures to be removed may be used temporarily by the Contractor in the erection of new structures.

6.11.5.2.1. If the material is to be salvaged for the Owner, its modification will not be permitted except as approved by the Owner's Representative.

6.11.5.2.2. Unless otherwise specified in the Contract Documents, all soil existing at the Project Site will be considered fit to be used as fill in the performance of the Work if such soil meets the Project's field fill criteria.

6.12 Record Document

6.12.1. Contractor shall maintain in a safe place at the Site one (1) record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Extra Work Orders, Work Change Directives, Field Orders, permits, and written interpretations and clarifications in good order and annotated showing changes made during construction.

6.12.1.1. Said documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Architect/Engineer and the Owner's Representative.

6.12.1.2. If not previously submitted, prior to Final Acceptance, said documents, Samples, and Shop Drawings will be delivered to Owner's Representative for delivery to Owner.

6.13 Safety and Protection

6.13.1. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.13.1.1. all persons on the Site or who may be affected by the Work;

6.13.1.2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

6.13.1.3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

6.13.2. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

6.13.2.1. Contractor shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

6.13.2.2. All damage, injury, or loss to any property referred to in Articles 6.13.1.2 or 6.13.1.3 caused, directly or indirectly, in whole or in part, by Contractor any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Architect/Engineer or Architect/Engineer's Consultant, or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or

indirectly employed by any of them).

6.13.2.3. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Owner's Representative has issued a notice to Owner and Contractor of Final Acceptance of the Work (except as otherwise expressly provided in connection with Substantial Completion).

6.13.3. If so provided in the bid documents, the Owner has the right to establish any reasonable monetary penalties for violations of this Section 6.13.

6.14 Safety Representative

6.14.1. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs. The safety representative at the Site may have other duties assigned to him.

6.15 Hazard Communication Programs

6.15.1. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available at the Site in accordance with Laws or Regulations.

6.16 Plans and Working Drawings; As-Built Plans.

6.16.1. Plans and Working Drawings.

6.16.1.1. The detail Plans and Specifications for the Project have been prepared by licensed and collegiate competent Architect/Engineer exercising reasonable care and are intended to show as clearly as is practicable the Work required to be performed. Contractor will rely on the accuracy of said drawings, specifically in their compliance with all applicable codes and regulations in effect on the bid opening date.

6.16.1.1.1. The Contractor realizes, however, that construction details cannot always be accurately anticipated and that in executing the Work, field conditions may require reasonable minor modifications in the details of plans and quantities of Work.

6.16.1.1.1.1. Therefore, all Work must be carried out taking into account the mentioned considerations as well as field conditions, to the satisfaction of the Owner's Representative, and in accordance with his instructions and with the Contract Documents.

6.16.2 Working Drawings

6.16.2.1. The Plans will be supplemented by such Working Drawings as are necessary to adequately control the Work.

6.16.22. Working Drawings for structures shall be furnished by the Contractor and shall consist of such detailed Plans as may be required to adequately control the Work and to complement the Plans furnished by the Owner.

6.16.2.3. They shall include, among others, stress sheets, shop drawings, erection plans, false work plans,

cofferdam plans, bending diagrams for reinforcing steel or any other supplementary plans or similar data required of the Contractor.

6.16.3. Working Drawings and related documents submitted for manufactured and shop-fabricated products shall be accompanied by a certification from the manufacturer that the materials and/or equipment meet all the requirements of the Specifications.

6.16.3.1. In the event that any item is not exactly in accordance with the requirements of the Plans and Specifications, the certificate shall identify and explain each such difference.

6.16.4. Unless otherwise indicated, all Working Drawings are subject to review and acceptance by the Owner's Representative.

6.16.4.1. Such review and acceptance shall not release the Contractor from any of his responsibilities for the safe and successful completion of the Work.

6.16.4.2. The cost of preparing and furnishing all required Working Drawings is included in the Contract Price and no separate payment will be made for such Drawings.

6.17 As Built Record Drawings

6.17.1. The Contractor shall keep at the Site a copy of the Drawings marked in a neat manner that record all changes made during construction.

6.17.1.1. The set of provisional record Drawings shall be kept up to date and submitted for the inspection and approval of the Owner's Representative, at least five (5) days prior to any partial monthly payment, unless otherwise required in the Contract Documents.

6.17.2. Prior to Final Acceptance, the Contractor shall deliver the as built Drawings to the Owner's Representative.

6.17.2.1. These Drawings will be used as the draft for the preparation of the final As Built Drawings for the Project by Architect/Engineer.

6.17.3. The Architect/Engineer will, with the full cooperation of Contractor and of the Owner's representative prepare final as-built record drawings in reproducible form as reasonably required by Owner, to be delivered to the Owner.

6.17.3.1. The Owner will cause the Architect/Engineer to submit, with enough time so as not to adversely alter the critical path of the Work, the revised as-built drawings to the required governmental entities and obtain the approval of an amended Construction Permit, if same is required, and deliver the same to Owner and Contractor. This amended Construction Permit will be used to obtain the Use Permit for the project.

6.18 Notice to Proceed.

6.18.1. After the Agreement has been executed, the Contractor will be formally notified to proceed with the Work or service provided in the Contract Documents.

6.18.1.1. The Notice to Proceed will stipulate the date on which Owner expects the Contractor will begin construction and the date on which Contract Time will commence to run.

6.18.1.2. Pre-Construction Conference.

6.18.1.2.1. Prior to the start of the Project the Owner will summon all interested parties to a Pre-construction Conference in order to organize the start of the work and other matters. If no such conference is summoned by the Owner, and in any event, the Contractor may start the Work on the date stated in the Notice to Proceed.

6.18.2. Prosecution and Progress.

6.18.2.1. After obtaining written permission issued by the Owner, the Contractor may assemble materials and equipment and start preliminary Work as soon as he is notified of the award, but no responsibility for acceptance and payment of the Work so performed shall be assumed by the Owner until and unless the Contract has been executed and the order to proceed issued.

6.18.2.2. The rate of progress in the prosecution of the Work shall be compared in accordance with Articles 4.2 and 4.3 with approved Progress Schedule as the Work progresses.

6.18.2.2.1. If the Contractor is at fault for falling thirty (30) working days or more behind the approved schedule or ten percent (10%) of Contract Time, whichever is less, Contractor shall submit a revised schedule for completion of the Work within the Contract Time and modify his operations, including, but not limited to, working overtime and on Saturdays, Sundays and legal holidays, to providing such additional materials, equipment and labor as necessary to comply with the revised schedule. Any additional cost caused by the modified schedule will be at Contractor's expense.

6.18.2.3. Should the prosecution of the Work be discontinued for any reason, the Contractor shall notify the Owner's Representative at least twenty-four (24) hours in advance of resuming operations.

6.18.3. Conformity with Plans and Specifications.

6.18.3.1. All work performed and materials furnished shall be in reasonably close conformity with the Plans and other Contract Documents requirements.

6.18.3.2. Plan dimensions and Contract Specification values are to be considered the target values to be strived for and complied with as the design values to which any allowed tolerances are applied.

6.18.3.2.1. Materials and workmanship shall be uniform in character and shall be reasonably close to the prescribed target value or to the middle portion of the tolerance range.

6.18.3.3. When the Specifications include an acceptance plan for any construction or characteristic of materials, the acceptance plan will be used by the parties to determine the attainment of Reasonably Close Conformity with plans and specifications and to assign a value to the non-conforming work which does not meet that standard.

6.18.4 Cooperation with Utilities.

6.18.4.1. The Owner will notify all utility companies, all pipe line owners, or other parties affected, and endeavor to have all necessary adjustments of the public or private utility fixtures, pipe lines, and other

appurtenances within or adjacent to the limits of construction, which are not to be performed by the Contractor, made in accordance with the Project construction schedule.

6.18.4.2. Water lines, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cableways, signals, and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted, are to be moved by their respective owners except for those to be moved by the Contractor as specifically provided in the Contract Documents.

6.18.4.3. It is understood and agreed that the Contractor has considered in his proposal all of the permanent and temporary utility appurtenances in their present or relocated positions as if same are shown on the plans and that no additional compensation will be considered for any delays, inconvenience, or damages sustained by Contractor due to any interference from the said known utility appurtenances or the operations of moving them, except in the case of failure by a utility to reasonably comply with its responsibility in relocating or adjusting its facility as required.

6.18.4.4. Prior to commencing Work, the Contractor shall make arrangements to protect the properties of all public and private utilities and other property within and adjacent to the Work area, if indicated in the Contract Documents, from damage by his construction operations.

6.18.4.5. Contractor shall cooperate with the utility owners in the removal and rearrangement of any underground or overhead utility lines or facilities to minimize interruption to service and duplication of work by the utility owners.

6.18.4.6. In the event of interruption to water or other utility services as a result of accidental breakage, or as a result of being exposed or unsupported, the Contractor shall promptly notify the proper authorities and shall cooperate with them in the restoration of service as promptly as possible.

6.18.4.7. Fire hydrants shall be kept accessible to the Fire Department at all times and no Work shall be undertaken near fire hydrants until provisions for continued service have been made.

6.18.4.8. Contractor shall be responsible for the repair costs of any damage to utility facilities caused by his equipment or operations, except for underground facilities whose existence or approximate location was previously unknown.

6.18.5. Materials.

6.18.5.1. Source of Supply and Quality Requirements.

6.18.5.1.1. The materials used in the Work shall meet all quality requirements of the Contract Documents.

6.18.5.1.2. Unless otherwise provided in the Contract Documents, all materials used in the Work shall be furnished by the Contractor from sources selected by the Contractor.

6.18.5.1.3. Materials will be tested and approved when delivered to the Project or in their final position after incorporation to the Work as provided by the individual specifications.

6.18.5.1.4. At the option of the Owner's Representative, sources of materials may be given preliminary approval before delivery is started.

6.18.5.2. Procurement and Delivery of Materials.

6.18.5.2.1. The Contractor shall schedule the delivery at the Site of all materials and equipment required for the execution and completion of the Work at a time convenient to him so as to avoid delays in the prosecution of the Work and to allow completion of the Work within the Contract Time specified in the Contract Documents.

6.18.5.3. Earthwork Material Sources.

6.18.5.3.1. Designated Sources.

6.18.5.3.1.1. Specific sources of materials from offsite or onsite locations may be designated on the Plans and described in the Contract Documents.

6.18.5.3.1.2. Unless otherwise provided in the Contract Documents, direct payment will be made for development, preparation, erosion control, hauling and restoration of material sources or related work areas and sites.

6.18.5.3.2. Contractor Sources.

6.18.5.3.2.1. When no materials sources are designated in the Contract Documents, or if the Contractor desires to use materials from sources other than those designated, the Contractor shall be responsible for acquiring the necessary rights to take materials from the sources selected, for determining that the materials meet the specified requirements, and he shall bear all expenses for the exploration, development, erosion control and restoration of such sources, and for all costs of hauling the materials. Contractor will make sure that his sources of materials have the required permits.

6.18.5.4. Contractor's Quality Control.

6.18.5.4.1. The Contractor is responsible for the quality of all materials and workmanship furnished in the construction of the Project.

6.18.5.4.1.1. If specifically required in the Supplementary General Conditions, the Contractor shall provide his own quality control system and procedures including all personnel, equipment, supplies and facilities necessary to obtain samples, perform tests, evaluate test results and adequately control his work in order to insure that all such materials and workmanship meet the Contract requirements.

6.18.5.4.2. The Contractor shall, in all instances, perform his own process control sampling, testing and inspection during all phases of the Work as often and at a rate sufficient to assure that the Work conforms to the Contract requirements.

6.18.5.4.2.1. The Contractor shall insure that all of the testing equipment to be used is properly calibrated and meets the specifications applicable to each specified test procedure.

6.18.5.4.3. The cost of complying with Contractor's quality control obligations referred to in Article 6.18.5.4 is included in the Contract Price and no additional payment will be made therefore.

6.18.5.5. Storage of Materials.

6.18.5.5.1. Materials shall be so stored as to assure the preservation of their quality and fitness for incorporation to the Work.

6.18.5.5.1.1. Stored materials, even though approved before storage, may again be inspected at any time prior to or during their incorporation to the Work.

6.18.5.5.1.2. Stored materials shall be located so as to facilitate their prompt inspection.

6.18.5.5.2. When authorized by the Owner's Representative, portions of the Project Site may be used for storage purposes and for the placing of the Contractor's plant/facilities and equipment provided that they are located so as not to constitute a hazard to the construction of the Project or otherwise.

6.18.5.5.2.1. Any additional space required therefore must be provided by the Contractor at his expense.

6.18.5.5.3. Private property may be used for storage purpose with written permission of the Owner or lessee, and, if requested by the Owner's Representative, copies of such written permission shall be furnished to him.

6.18.5.5.4. All temporary storage areas and plant sites shall be restored to their original condition by the Contractor, at his expense, in a manner acceptable to the Owner's Representative.

6.18.5.6. Handling of Materials.

6.18.5.6.1. All materials shall be handled in such manner as to preserve their quality and fitness for incorporation to the Work.

6.18.5.7. Materials Furnished by the Owner.

6.18.5.7.1. The Contractor shall furnish all materials required to complete the Work, except those indicated in the Contract Documents to be furnished by the Owner.

6.18.5.7.2. Except as provided in Article 6.18.5.7.4, if the material to be furnished by the Owner is to be delivered to the jobsite, the Owner, unless specified otherwise in the Contract Documents, will furnish the material to the Contractor at no cost to the Contractor and the Owner will pay for all transportation, insurance, taxes and other cost related to the furnishing of the material to the jobsite. Cost of unloading is included in the Contract Price and Contractor shall receive no additional compensation for unloading.

6.18.5.7.3. If the material to be furnished by the Owner is to be delivered to the jobsite, the Contract Documents will indicate the delivery schedule. If no such schedule is indicated, the delivery will be made as agreed by the parties. Owner shall program the delivery schedule as not to adversely affect the critical path.

6.18.5.7.4. If the material to be furnished by the Owner is not to be delivered to the jobsite the Contract Documents will indicate the terms and conditions of said delivery. If no terms and conditions are included in the Contract Documents then the cost of delivery to the jobsite is not included in the Contract Price.

6.18.5.7.5. If the material to be furnished by the Owner is not to be delivered to the jobsite the Contract Documents will indicate the date and time of availability of the material. If no such date and time is indicated, the material will be available by agreement as not to impact the critical path.

6.18.5.7.6. The material to be furnished by the Owner will include all ancillary items included in the Technical Specification that describes the material to be furnished by the Owner, unless indicated otherwise in the Contract Documents.

6.18.5.7.7. The Owner warrants that the materials furnished by the Owner to the Contractor are of a quality sufficient for the purpose of their use. The Owner further warrants that the material to be furnished is Equal or Similar to that specified in the Technical Specification that describes the material to be furnished by the Owner.

6.18.5.7.8. The material furnished by the Owner will be of sufficient quantity including normal construction breakage, waste and shrinkage to complete the Work, unless the Contract Documents indicate otherwise.

6.18.5.7.9. The Contractor will be responsible for all Owner furnished materials delivered or made available to him in accordance with the terms and conditions of this section. If due to the fault of the Contractor, the Owner has to supply more material to the Contractor than indicated in the Contract Documents, the Owner may deduct this cost from any Partial Payment or Retainage due to the Contractor.

6.18.5.7.10. If the Owner's Representative has informed in a timely manner, the date or schedule of delivery of the material, the Contractor will be liable for all demurrage charges if he fails to receive the Owner furnished material within the time limit or schedule specified.

6.18.5.7.11. Unless otherwise indicated in the Contract Documents, all costs at jobsite including unloading, handling, warehousing and Installation of the Owner furnished material are included in the Contract Price and Contractor shall not receive additional compensation therefore.

6.18.5.8. Certification of Compliance.

6.18.5.8.1. When a certification of a material or assembly is required by the Contract, each lot of such materials or assemblies delivered to the Site shall be accompanied by certificate of compliance in which the delivered material or assembly is clearly identified.

6.18.5.8.2. Commercially manufactured products shall be accompanied by certificates signed by the manufacturer and, when required, supported by tests performed by the manufacturer. Certified copies of such test results shall be furnished to the Owner's Representative.

6.18.5.8.3. Materials or assemblies accompanied by certificates of compliance may be sampled and tested at any time and if found not to be in conformity with Contract Documents will be subject to rejection at any time whether incorporated to the Work or not.

6.18.5.8.3.1. Removal of such rejected materials will be at the Contractor's expense, unless such materials have been supplied by the Owner and it was Owner's duty to test for conformity with the Contract Documents.

6.18.6 Contractor shall carry on the Work and adhere as reasonably as possible to the Progress Schedule during all Disputes or disagreements with Owner.

6.18.6.1. If the Dispute or disagreement hinders the ability of the Contractor to carry on the Work, the Contractor shall so inform the Owner.

6.18.6.2. If the Dispute allows more than one course of action to be followed in the prosecution of the Work, the Owner's Representative may instruct the Contractor on the course of action to be followed.

6.18.6.3. No Work shall be delayed or postponed pending resolution of any Disputes or disagreements, except as permitted in section 15.4 or as Owner's Representative and Contractor may otherwise agree in writing.

6.18.7. Limitations on Operations.

6.18.7.1. Unless otherwise specified in the Contract Documents, the Contractor shall not open up new Work to the prejudice or detriment of Work already started.

6.18.7.1.1. In lineal projects, the Owner's Representative may require the Contractor to finish a section on which Work is in progress before Work is started on any additional section, if the opening of such section is essential to public safety or convenience.

6.18.7.1.2. If said order causes the Project to be delayed, the Contract Price and/or Contract Time shall be equitable adjusted.

6.19 Contractor's General Warranty and Guarantee

6.19.1. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be deficient. Contractor's warranty and guarantee hereunder excludes defects or damage after substantial, or partial completion and occupancy caused by:

6.19.1.1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

6.19.1.2. normal wear and tear under normal usage by Owner or individuals or entities for whom Owner is responsible.

6.19.2. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

6.19.2.1. observations by Architect/Engineer and/or Owner's Representative;

6.19.2.2. recommendation by Owner's Representative or payment by Owner of any progress or final payment;

6.19.3. the issuance of a certificate of Substantial Completion by Owner's Representative or any payment related thereto by Owner;

6.19.4. use or occupancy of the Work or any part thereof by Owner;

6.19.3. The Contractor warrants to the Owner that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all Work will be free from faults and defects and in conformance with the Contract Documents for the time periods specified in the Contract Documents or for one (1) year, whichever is

longer, unless otherwise specified in the Contract Documents.

6.19.3.1. If required by the Owner's Representative, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

6.20 Indemnification

6.20.1. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner, Architect/Engineer, Architect/Engineer's Consultants, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out or relating to the performance of the Work, provided that any such claim, cost, loss, or damage:

6.20.1.1. is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting there from; and

6.20.1.2. only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.

6.20.2. The indemnification obligations of Contractor under section 6.20.1 shall not extend to the Architect/Engineer and Architect/Engineer's Consultants or to their officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them arising out of:

6.20.2.1. errors and/or omissions in the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

6.20.2.2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 Subcontractors, Suppliers and Others

6.21.1. Award of Subcontracts for Portions of The Work.

6.21.1.1. Unless otherwise specified in the Contract Documents the Contractor, as soon as practicable after the signing of the Contract, shall furnish to the Owner's Representative in writing for his acceptance a list of the names of the main Suppliers and Subcontractors proposed for the principal portions of the Work.

6.21.1.1.1. The Owner's Representative shall promptly notify the Contractor in writing if he, after due investigation, has reasonable objection to any Supplier or Subcontractor on such list and does not accept him. Said reasonable objection may include, but are not limited to, previous default by said Subcontractor or Supplier with Owner, a record of flagrant safety violations or an unsatisfactory past performance with Owner.

6.21.1.1.1.1. The Owner's Representative shall specify in writing the reasons for such objection

6.21.1.1.1.2. If within fifteen (15) calendar days from submittal by the Contractor, the Owner's Representative fails to make objections to any Supplier or Subcontractor on the list, the Contractor shall request the approval of the list by the Owner's Representative who shall have ten (10) days to issue his decision. If no reply is forthcoming from the Owner's Representative within the stated time, the list of Suppliers or Subcontractors shall be deemed approved.

6.21.1.1.2. The Contractor shall not contract with any Supplier or Subcontractor or any person or organization (including those who are to furnish materials or equipment fabricated to a special design) that has been rejected by the Owner's Representative in the manner indicated in Article 6.21.1.1.1, above.

6.21.1.1.3. If the Owner's Representative refuses to accept any Supplier, Subcontractor, person, or organization on a list submitted by the Contractor in response to the requirements of the Contract Documents, the Contractor shall submit an acceptable substitute.

6.21.1.1.3.1. No increase in the Contract Sum shall be allowed for any such substitution of a rejected Subcontractor and/or Supplier or other in accordance with Article 6.21.

6.21.1.1.3.2. No acceptance by Owner's Representative of any such Subcontractor, Supplier, or other individual or entity, whether initially, or as a replacement, shall constitute a waiver of any right of Owner's Representative or Engineer to reject defective Work.

6.21.1.1.4. Unless otherwise specified in the Contract Documents, the Contractor shall execute, with his own forces and organization, Work amounting to not less than twenty-five percent (25%) of the original total Contract Price.

6.21.1.1.4.1. Any items designated in the Contract Documents as "Specialty Trades or Items" shall be deducted from original total cost before computing the amount of the work required to be performed by the Contractor with his own forces and organization

6.21.2. Payments to Subcontractors.

6.21.2.1. The Contractor shall pay each Subcontractor for work performed in the Project in accordance with the terms and conditions stipulated in the contract executed by and between the Contractor and the Subcontractor.

6.21.2.1.1. The Contractor shall also require the Subcontractor to make similar payments to his Sub-Subcontractors.

6.21.3. Flow Down of Applicable Agreement Provisions.

6.21.3.1. The Contractor shall cause the inclusion, in all agreements executed by contractor with Subcontractors and Suppliers, of all applicable provisions of the Agreement with which Subcontractors and Suppliers need to comply for their proper performance on behalf of Contractor, of the duties and obligations imposed by the Contract Documents. Contractor shall also cause Subcontractor and Suppliers to include in their respective agreements with Sub-Subcontractors, and Sub-Suppliers the same duties to flow down to all lower tier agreements such applicable Agreement provisions.

6.21.4. The Contractor shall be considered as an independent contractor for all purposes under the Contract, and no persons engaged or contracted by the Contractor for the performance of Contractor's obligations shall be considered an employees or agents of the Owner.

6.21.5. Contractor shall be fully responsible to Owner's Representative, Owner and Architect/Engineer for all acts and omissions of the Subcontractors, Suppliers, and other such individuals or entities performing or furnishing any of the Work.

6.21.5.1. Nothing in the Contract Documents shall create for the benefit of any Subcontractor or Supplier a contractual relationship between Owner's Representative, Owner or Architect/Engineer, nor shall it create any obligation on the part of Owner's Representative, Owner or Architect/Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws or Regulations.

6.21.6. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other such individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

6.21.7. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Owner's Representative only through Contractor.

6.21.8. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner's Representative, Owner and Architect/Engineer, including required contract provisions applicable to Federal Agency funded projects.

6.21.8.1. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in section 3.6, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights (including subrogation) against Owner, Contractor, Architect/Engineer, Architect/Engineer's Consultants, and all other individuals or entities identified in the Contract Documents to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to Work.

6.21.8.1.1. If the insurers underwriting any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

ARTICLE 7 - ARCHITECT/ENGINEER AND DESIGNATED INSPECTOR

7.1 Administration of the Contract

7.1.1. The Owner will provide general Administration of the Construction Contract, including performance of the functions hereinafter described, through the Owner's Representative.

7.1.2. The Owner, prior to the start of the Project, will inform the Contractor in writing the name of the Owner's Representative. If the Owner's Representative is changed during the course of the project the Owner will inform the Contractor in writing the name of the new Owner's Representative. If the Contractor has valid reasons for objecting said designation, Contractor shall so inform the Owner in writing and, if Owner deems Contractor's reasons valid, a different Owner's representative shall be chosen by the Owner.

7.1.3. The Owner may from time to time change the person or entity designated as Owner's Representative, or may

assume and/or change the functions of the Owner's Representative, and the Architect/Engineer by notifying the Contractor in writing.

7.2 Duties of Architect/Engineer and the Owner's Representative

7.2.1. The Architect/Engineer is the person or entity who prepares the Drawings and Specifications for the Owner and is responsible for the analysis, design, and code compliance of the Project.

7.2.1.1. The Architect/Engineer will make periodic visits to the site to familiarize himself generally with the progress and quality of the Work and to determine in general if the Work is proceeding in accordance with the Contract Documents.

7.2.1.1.1. Based on on-Site observations, the Architect/Engineer will keep the Owner informed of the progress of the Work, and will endeavor to safeguard the Owner against defects and deficiencies in the Work.

7.2.1.1.2. The Architect/Engineer will be the Owner's representative for technical matters related to the Contract.

7.2.1.1.3. The Architect/Engineer will be the primary interpreter of the plans and specifications.

7.2.1.1.4. The Architect/Engineer and Owner's Representative will not be responsible for the acts or omissions of the Contractor, or any Subcontractor and vice-versa, or any of their agents or employees, or any other persons performing any of the Work.

7.2.2. The Owner's Representative will represent the Owner in the interpretation of all contractual and non-technical matters. The Owner's Representative will have authority to act on behalf of the Owner to the extent provided in the Contract Documents.

7.2.2.1. All communications related to this Contract between the Contractor and Architect/Engineer shall be made thru the Owner's Representative, except that any party may directly communicate orally or by written communication with the others if authorized by the Owner's Representative, or in case of an Emergency.

7.2.2.2. The Owner's Representative may delegate some or all of his functions to Project Inspectors and/or Inspectors.

7.2.2.2.1. The Owner's Representative will inform the Contractor the name of the Project Inspectors and/or Inspectors. If the Contractor has a valid reason for not accepting the designated Project Inspector, he shall so inform the Owner in writing and if Owner deems the reason valid a different Owner's representative shall be chosen by the Owner.

7.2.2.2.2. Inspectors employed by the Owner, the Architect/Engineer and/or the Owner's Representative are authorized to inspect all work done and materials furnished, including the preparation, fabrication or manufacture of the materials to be used.

7.2.2.2.3. Inspectors also have the authority to reject any materials and work until any questions at issue can be resolved.

7.2.2.3. Owner's Representative and/or inspectors are not authorized to alter or waive the provisions of the

Contract, to issue instructions contrary to the plans and specifications, or to act as foremen for the Contractor.

7.2.2.4. Based on his observations and the Contractor's Application for Payment, the Owner's Representative will determine the amount owed to the Contractor and will recommend approval of Payment in such amount.

7.2.2.4.1. If the Owner so requires, Architect/Engineer will also review, and approve, the Contractor's Application for Payment.

7.2.2.5. The Owner's Representative will prepare Change Orders, and Extra Work Orders, in accordance with these General Conditions.

7.2.3. The Owner's Representative, the Architect/Engineer and/or the Owner shall at all times have access to the Work either in preparation or in progress. The Contractor shall provide access to the Work so that at all times Owner's Representative may perform his duties under the Contract Documents, and Contractor shall provide such information and assistance, as is required, to make a complete and detailed inspections.

7.2.3.1. If the Owner's Representative, and/or the Owner, request it, the Contractor, at any time before Final Acceptance of the Work, shall remove or uncover such portions of the finished Work as instructed . After examination, the Contractor shall restore said portions of the Work to the standard required by the specifications.

7.2.3.1.1. Should the Work so exposed and examined prove acceptable, the uncovering, or removing, and the replacing of the covering will be paid by the Owner as extra work; but should the Work so exposed or examined prove unacceptable, the uncovering, removing, remediation and the replacing of the covering will be at the Contractor's expense.

7.2.3.1.2. Any Work done or materials used without supervision or inspection by an authorized Owner's representative may be ordered removed and replaced at the Contractor's expense unless the Owner representative failed to inspect after having been given a written notice of at least two (2) Working Days prior to the date in which Work was performed.

7.2.3.1.3. When any government agency or any utility is to accept or pay for any portion of the Work, its respective representatives shall have the right to inspect the Work. Such inspection shall not make the government agency or utility a party to the Contract. Contractor and Owner shall diligently perform all necessary actions to promote the timely inspection of the Work in a manner that does not affect the critical path.

7.2.3.1.4. The inspection of the Work and materials by the Owner shall not release the Contractor of any of his obligations under the Contract as prescribed in the plans, specifications and other Contract Documents.

7.2.3.1.5. The Owner's Representative will conduct inspections to determine the dates of Substantial Completion and final completion and will receive and review written guarantees and related documents submitted by the Contractor.

7.2.3.1.6. In case of any dispute between the Contractor and any one Project Inspector or Inspector as to materials furnished or the manner of performing the Work, the Project Inspector or the Inspector shall have the authority to reject materials or suspend the work until the question at issue can be referred to and decided by the Owner's Representative, within reasonable promptness, so at not to alter the critical path or modify substantially the float and the programmed progress of the job.

7.2.4. The Owner's Representative will be, in the first instance, the interpreter of the requirements of the Contract

Documents, except as indicated in Article 7.2.1.3. The Owner's Representative will, within a reasonable time, render such interpretations that he, or the Contractor, if so requested, may deem necessary for the proper execution or progress of the Work.

7.2.4.1. All interpretations and decisions of the Owner's Representative shall be consistent with the intent of the Contract Documents. In his capacity as interpreter, he will exercise his best efforts to insure faithful performance under the Contract.

7.2.4.2. Claims, disputes and other matters in question relating to the execution or progress of the Work or the interpretations of the Contract Documents shall be submitted initially to the Owner's Representative for a decision in accordance with Article 11.

7.2.5. The Owner's Representative will have authority to reject work only when such work does not conform to the Contract Documents. Whenever, in his reasonable opinion, he considers it necessary or advisable, to insure the proper implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of the Work in accordance with Article 12.3 whether or not such Work is then fabricated, installed or completed.

7.2.5.1. However, neither the Owner's Representative's authority to act under this Article, nor any decision made by him in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Owner, Owner's Representative or Architect/Engineer to the Contractor, any Subcontractor, any of their agents or employees, or any other person performing any of the Work, nor will the Contractor be released from any of his obligations under the Contract.

7.2.5.1.1. The Owner's Representative shall have the authority to stop the Work in whole or in part when such stoppage is necessary to insure the proper execution of the Work and compliance by contractor with the Contract.

ARTICLE 8 - OTHER WORK AND SEPARATE CONTRACTS

8.1 Owner's Right to Award Separate Contract, Perform Work with Owner's Employees and Utility Workers. Related Work at Site

8.1.1. Owner's Right to Award Separate Contract, Perform Work with Owner's Employees and Utility Workers.- Owner may perform other work related to the Project at the Site with Owner's employees, or by awarding separate contracts, or by having the work performed by utility workers. Written notice thereof will be given to Contractor prior to starting any such other work.

8.1.1.1. If the terms and conditions of the work to be performed by Owner's employees, separate contractors or by others, are not described in the Contract Documents prior to the bid, the Contract Time and Sum will be equitably adjusted as a result of said work and any other work to the extent that such work performed by Owner's employees, separate contracts or by others affects the Contractor's Work.

8.1.1.2. If the terms and conditions of the work to be performed by Owner's employees, separate contractors or by others are described in the Contract Documents prior to the bid, then the Contract Time and Sum will be equitably adjusted but only to the extent that said work differs from the work indicated in the Contract Documents that is to be performed by Owner's employees, separate contractors or by others.

8.1.1.3. Should the performance of other work related to the Project at the Site by Owner's employees,

separate contractors, utility workers, that was not indicated in the Contract Documents, cause damages, delays or interferes with the Work being performed by the Contractor, the Owner will assume full responsibility and pay for all costs, expenses, and delays to which the Contractor is subjected caused by the execution and/or performance of said other work described herein if the critical path is adversely affected.

8.1.1.4. In the event one or more contracts are awarded related to the Project, the "contractor" in the contract document in each case, will be the contractor who signs each separate contract.

8.1.1.5. If there is under construction other work for Owner,by written contract or otherwise, adjacent to the limits of the site, the Contractor, if so ordered by the Owner, shall permit access to others performing such work through the Site.

8.1.1.5.1. If Owner authorizes the other contractors performing work adjacent to the Site to use said access Owner shall prescribe limitations and conditions for such use as required to protect Contractor's operations and the Work.

8.1.1.5.1.1. In accordance with this Article 8.1, the Owner will be responsible for any damages, costs, or delays caused to the Contractor by such order.

8.1.1.6. If Owner and Contractor are unable to agree on entitlement to or on the amount or time, if any, of any adjustment in the Contract Price or Contract Time necessary as a result of such other work, a Claim may be made therefore as provided in Article 11.5.

8.1.2. Coordination of the Separate Contracts and Work by Others.

8.1.2.1. Unless otherwise specified in accordance with Article 8.1.2.4, Owner shall be responsible for the coordination of the Work between the Contractor, Owner's employees, the separate contractors and any others, as to the interaction and scheduling of the various work and the proper and safe access to the Site and storage of the equipment and materials of the Contractor, the Owner's employees, the separate contractors and others contracted by Owner.

8.1.2.2. Contractor shall fully cooperate with the Owner in the coordination of the Contractor's Work with that of the Owner's employees, the separate contractors and any work by others as to the interaction and scheduling of the various work and the proper and safe access to the Site and storage of the equipment and materials of the Contractor, the separate contractors and others.

8.1.2.3. The Owner may delegate this coordination, in whole or in part, to a Construction Manager or separate contractor and must give prior notice to Contractor in writing, containing the terms and conditions of this delegation.

8.1.2.3.1. The Construction Manager or the separate contractor will act on behalf of Owner strictly within the limits of such delegation.

8.1.2.4. The Owner may delegate this coordination responsibility in whole or in part to one of the separate contractors or to the Contractor as follows:

8.1.2.4.1. If prior to the bid opening date, the Owner requires that the Contractor be responsible for the coordination of the Owner's employees, separate contracts or any work by others, the Owner will indicate the

terms and conditions of such obligation in the bid documents and it shall be the Contractor's responsibility to include in the Contract Price whatever costs are required for this coordination of the work.

8.1.2.4.2. If the Owner requires that Contractor be responsible for the coordination of Owner's employees, separate contracts or work by others after the bid has been awarded, the Owner will indicate the terms and conditions of such obligation as a Change Order.

8.1.2.5. Contractor Coordination Meetings:

8.1.2.5.1. If the Owner, or the party with the coordinating responsibility so requires it, the Contractor shall attend coordination meetings with the Owner's employees, separate contractors or others performing work at a site to be determined by the coordinator.

8.1.2.5.1.1. The purpose of the coordination meeting shall be for the Contractor and all separate contractors and/or others performing work to coordinate schedules and construction activities to enable the construction of the different work under the separate contracts to occur on a coordinated, efficient and expeditious manner.

8.1.2.5.1.2. The coordination meeting shall also serve as forum for the Contractor and all separate contractors and/or others performing work at the site to discuss, and try to avoid and try to resolve between and among themselves any conflicts in their respective schedules or construction activities and prevent delays in one contractor's activities caused by another.

8.1.2.5.2. If the different contractors cannot reach an agreement on the coordination of the construction activities and schedule to be followed, the Owner, or his designated coordinating representative, will decide on the course of action to be followed and shall provide the necessary instructions to the Contractor, Owner's employees, separate contractors and others performing work on how to proceed, as a Field Order or, if required, as a Change Order.

8.1.3. Contractor, and any other entity contracted by the Owner to perform direct work related to the Project, shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate such other work with the work of the Contractor or any other entity contracted by the Owner to perform related work on the Project.

8.1.3.1. Contractor, or any other entity contracted by the Owner to perform related work on the Project, shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Owner and the others whose work will be affected.

8.1.4. The duties and responsibilities of Contractor under this Article are for the benefit of such utility owners and separate contractors to the extent that there are comparable provisions for the benefit of Contractor, including general, supplemental and special conditions, as well as similar insurance and hold harmless clauses, in said direct contracts between Owner and such utility owners and separate contractors.

8.1.4.1. Furthermore, the Owner will verify that the schedule of others contracted to perform related work on the Project does not interfere with the Project Schedule.

8.1.4.1.1. If in order to accommodate the work performed by others contracted by the Owner to perform related work in the Project, the critical path is adversely affected and/or any damage to the Work occurs, the Owner will compensate the Contractor in time and/or adjustment to Contract Price.

8.1.5. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article, Contractor shall promptly inspect such other work and, within ten (10) working days, report to Owner in writing any delays, defects, or deficiencies in such other work that, in his opinion, render it unavailable or unsuitable for the proper execution and results of the Work.

8.1.5.1. Contractor's failure to report will constitute acknowledgement that said work is suitable, except for hidden latent defects in such work.

8.1.5.2. The same rules stated herein will apply if other entities contracted by the Owner to perform related work in the Project depend on Work performed by the Contractor.

8.2 Owner's Right to Award Separate Contract.

8.2.1. The Owner may award separate contracts in connection with other portions of the Project or additional work to the Work covered by the Contract, and if such work affects the Work, Contractor will be notified by Owner in a timely manner of the award of such separate contract.

8.2.1.1. The Owner may assign these separate contracts, as a Change Order, to the Contractor for a fee, as indicated on Article 10.5.

8.2.2. When Separate Contracts are let within the limits of any project, the Owner shall coordinate the work of each contractor so as not to interfere with or hinder the progress or completion of the Work being performed by Separate Contractors.

8.2.2.1. Contractors working on the same Project shall fully cooperate with each other.

8.2.2.2. Furthermore, the Owner will be responsible to verify that the schedule of the Separate Contractors contracted to perform Work on the Project does not interfere with the Contractor's Project Programmed Schedule previously approved for the Project.

8.2.2.2.1. Owner will compensate the Contractor, in time and/or adjustment to Contract Price, if his schedule has to be varied, and/or any damage occurs, to accommodate the work performed by other entities contracted by the Owner to perform related work in the Site.

8.3 Mutual Responsibility of Contractors

8.3.1. Each Contractor involved shall assume all liability, financial or otherwise, in connection with his Contract and shall protect and save harmless the Owner from any and all damages or claims that may arise out of the performance of the Contractor's Work.

8.3.1.1. The Owner will require from each Separate Contractor and other entities working on the Project, Contract Documents, including General, Supplemental and Special Conditions, similar to those executed with the Contractor and to include similar insurance clauses and hold harmless clauses.

8.3.1.2. The Owner will also be responsible to verify that the schedule of the Separate Contractors) and other entities working on the project do not interfere with the Contractor's Project Programmed Schedule previously approved for the Project.

8.3.2. Should the Contractor cause damage to the work or property of any separate contractor and/or others working on the Project, the Contractor shall, be liable for said damage.

8.3.2.1. If such other separate contractor files a claim against Owner on account of any such damage alleged to have been so sustained, Contractor shall have the right to defend Owner, either by itself or in conjunction with Owner, and Contractor shall compensate Owner for damages, costs and expenses sustained therefore by Owner which are attributable to Contractor.

8.3.2.1.1. If the Contractor is found to be responsible for the alleged defects claimed by the separate contractor and any judgment or award against the Owner arises therefrom, the Contractor shall pay or satisfy it and shall reimburse the Owner for all attorney's fees and court, arbitration costs or other costs which the Owner has therefore incurred.

8.3.2.1.2. If the Contractor is found not to be responsible for the alleged defects claimed by the separate contractor, then the Owner shall pay for any judgment or award against him as well as reimburse the Contractor for all attorney's fees and court or arbitration costs incurred in defending the Owner.

ARTICLE 9-TIME

9.1 Progress and Completion

9.1.1 All time limits stated in the Contract Documents are of the essence of the Contract.

9.1.2 The time limit for the execution of this Contract has been figured out based on the Architect/Engineer and/or Owner's estimate.

9.1.2.1. Such time limit to into consideration all Sundays, legal holidays indicated in Article 1.1.1.4,1, included within the said time limit.

9.1.2.2. The Contractor will be entitled to work premium time (overtime) as required to comply with the schedule of the Project.

9.1.2.2.1. No work shall be performed on Saturdays, Sundays or legal holidays, except in cases of emergency, or unless prior written permission has been granted by the Owner's Representative.

9.1.2.2.1.1. Except in cases of emergency, request for permission to Work on Saturdays, Sundays or legal holidays shall be filed with the Owner's Representative not less than twenty four (24) hours in advance of said date, if the activity affects the critical path and not less than forty eight (48) hours if the proposed activity does not affect the critical path.

9.1.2.2.1.2. Said permission shall not be unreasonably denied.

9.1.2.2.2. Premium time (overtime) necessary in case of emergency, or for completion of daily work, or to comply with the Project schedule, shall be notified to the Project Inspector during the course of the day that said premium time will be worked.

9.1.3. The date of commencement of the Work shall be stated in the Notice to Proceed.

9.1.3.1. The Contractor shall begin the Work on such date of commencement fixed by the Notice to Proceed.

9.1.3.2. The Contractor shall carry out the Work expeditiously with adequate forces and shall complete it within the Contract Time

9.1.3.3. A Notice to Proceed issued without the Owner having furnished all required permits and/or endorsements necessary to commence the Work which fixes a commencement date which cannot be complied with due to the lack of such permits shall constitute a valid basis for a claim by Contractor under Article 11.5 if such act adversely affects the Project's critical path and no concurrent cause of delay by the Contractor is present.

9.1.4. The Contract Time limit to execute the Work until it is substantially complete shall be that number of calendar days resulting from the sum of the original Contract Time and the authorized extensions to the original Contract Time. Said Contract Time shall start to run on the date fixed in the Notice to Proceed (the commencement date) and shall end on the date of Substantial Completion. If the work is Substantially Completed prior to said time limit, the Contractor will have achieved early completion, if Work is not Substantially Completed within said time limit, the Contractor will not have completed the Work on time in accordance with the Contract.

9.1.4.1. Time under the Contract will, stop running on the date of Substantial Completion.

9.2 Change of Contract Time

9.2.1. The Contract Time (or Milestones) may only be changed with a Change Order, Extra Work Order or by a Written Amendment.

9.2.1.1. Any Claim for an adjustment in the Contract Time (or Milestones) shall be based on a written notice submitted by the party making the claim to the Owner in accordance with the provisions of Article 11.5.

9.2.2. Any adjustment of the Contract Time (or Milestones) due to any delay beyond the control of Contractor, will be made in an amount equal to the time lost due to such delay, including its consequences, if a Claim is made therefore as provided in Article 11.5 only if such delay affect the critical path, as reflected in the monthly Progress Schedule.

9.2.2.1. Delays beyond the control of Contractor shall include, but are not limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated on these General Conditions, lack of, or lapse, of any permit, or endorsement, issued by the governmental entities having jurisdiction in the Project which are the responsibility of Owner, fires, floods, epidemics, weather conditions, or acts of God.

9.3 Delays and Extensions of Time

9.3.1. No extension of the Contract Time will be allowed for any reason except as provided below:

9.3.1.1. If satisfactory fulfillment of the Contract with authorized extension and increases requires the performance of Work in greater quantities than those set forth in the proposal so that the total final payment is

greater than the total original Contract Price, then the time allowance will be equitably adjusted taking into account the amount and difficulty of the additional Work and only if the scope of the Work is increased or the critical path of the Project Schedule is affected.

9.3.1.2. In case of total suspension ordered by the Owner and not due to any fault of the Contractor, the total number of calendar days during which the Work is suspended shall be added to the Contract Time. In case of suspension of part of the Work ordered by the Owner not due to any fault of the Contractor, the Contract Time shall be extended to the extent that the effect that such suspension has on the Contract Time, and only to the extent the critical path of the Project Schedule is affected.

9.3.1.2.1. After Contractor has taken all reasonable steps to minimize Project overhead during the suspension, the Project fixed overhead costs incurred during the suspension by the Contractor will be reimbursed to Contractor by the Owner.

9.3.1.3. In case of damage to the Work due to Force Majeure, the Owner shall equitably adjust Contract Time based on the time required to repair the damage, provided the critical path is affected.

9.3.1.4. In case of delays or interruptions to the Work caused by any act of the Owner, or by any separate Contractor employed by the Owner or by any other cause not attributable to the fault or negligence of the Contractor, then the Contract Time shall be equitably adjusted.

9.3.1.4.1. The Project reasonable fixed overhead costs incurred by the Contractor due to the time extension caused by the acts described in Article 9.3.1.4 ,will be reimbursed to the Contractor by the Owner.

9.3.1.5. Every Change Order, Extra Work Order or Supplemental Agreement, if any, shall include all adjustments to Contract Time and to Contract Price related thereto, if any.

9.3.1.6. Unless otherwise specified in the Contract Documents, additional Contract Time will be allowed due to weather conditions, and their consequences, which render the performance of Work impossible.

9.3.1.7. Except as otherwise stated in this Article 9, where Contractor is prevented from completing any part of the Work within the Contract Time (or Milestones) due to delays beyond the control of both Owner and Contractor, if the critical path of the Project Schedule is affected, an extension of the Contract Time (or Milestones) for a period of time equal to the time lost due to such delay shall be Contractor's sole and exclusive remedy for such delay.

9.3.2. Extension in Contract Time shall not be considered or allowed for the following reasons:

9.3.2.1. Suspensions of Work ordered by the Owner or Owner's Representative due to the fault of the Contractor or his Subcontractor.

9.3.2.2. Unauthorized suspensions of Work by the Contractor.

9.3.2.3. Delays within the control of Contractor.

9.3.2.3.1. Delays attributable to or within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

9.3.3 All notifications of claims for extension of time shall be made in writing by the Contractor to the Owner's Representative not more than thirty (30) working days after acquiring knowledge of the occurrence of the delay. Once made, the Contractor must supplement such claim by notice to Owner within thirty (30) working days after the event that caused the delay has concluded. If proper notification of a claim or subsequent supplemental notice is not given to Owner, then all related claims regarding increases to Contract Time, and Contract Price will be deemed waived by Contractor.

9.3.3.1. Claims for extension of time shall include:

9.3.3.1.1. the reasons for the time extension as required by the Owner's Representative;

9.3.3.1.2. the operation(s) alleged to have been delayed;

9.3.3.1.3. the calendar dates on which the operation(s) were delayed;

9.3.3.1.4. the number of calendar days by which Contractor requests Contract Time be extended;

9.3.3.1.5. a complete and detailed statement as to how the critical path was affected; and

9.3.3.1.6. a complete and detailed breakdown of adjustment to Contract Price to be claimed due to the claimed time extension, if adjustment to Contract Price is to be claimed.

9.4 Delay Damages

9.4.1. In no event shall Owner or Architect/Engineer be liable to Contractor, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

9.4.1.1. delays caused by or within the control of Contractor; or

9.4.1.2. delays caused by Force Majeure and/or beyond the control of both Owner and Contractor .

9.4.1.3. delays not notified within the time specified in Article 9.3.3 or contrary to Article 9.3.3.1.

9.4.2. Nothing in this Article 9 bars a change in Contract Price to compensate Contractor due to delay, interference, or disruption directly attributable to actions or inactions of Owner or anyone for whom Owner is responsible, provided Contractor complies with the requirements of Articles 9.3.3. and 9.3.3.1.

9.5 Liquidated Damages

9.5.1. Unless otherwise specified in the Contract Documents should the Contractor or, the Surety in case of Termination for Cause, fail to complete all the Work within the time specified in the Contract or as extended by the written authorization of the Owner, a deduction of the amount stipulated herein will be made for each and every calendar day that the Work is not completed after the expiration of the time limit to execute the Work described in Article 9.1.4:

SCHEDULE OF LIQUIDATED DAMAGES		
Original Contract Price		Daily Charge
From More Than	To and Including	
$ 0.00	$ 99,999.99	$ 300.00
$ 100,000.00	$ 499,999.99	$ 400.00
$ 500,000.00	$ 999,999.99	$ 800.00
$ 1,000,000.00	$ 1,999,999.99	$ 1,000.00
$ 2,000,000.00	$ 4,999,999.99	$ 2,000.00
$ 5,000,000.00	$ 9,999,999.99	$ 3,000.00
$ 10,000,000.00	$19,999,999.99	$ 4,000.00
$ 20,000,000.00	$29,999,999.99	$ 5,000.00
$ 30,000,000.00	$39,999,999.99	$6,000.00
$ 40,000,000.00	$49,999,999.99	$7,000.00
Over $50,000,000.00	Unlimited	$8,000.00 or as otherwise indicated in the Special Conditions

9.5.2. This amount will be deducted from any money due or that may become due the Contractor or his Surety by Owner.

9.5.3. The Original Contract Price in the above schedule of Liquidated Damages for unit price projects refers to the total original contract amount including all the units in a multi-unit contract. Liquidated damages will be applied on multi-unit contracts based on the daily charges applicable to the total original contract amount.

9.5.4. The amount stipulated in Article 9.5.1, or otherwise if otherwise specified in the Contract Document, as the case may be, shall be considered and treated not as a penalty, but as a total, fixed, and agreed upon liquidated damages due the Owner by the Contractor or, by the Surety in case of Termination for Cause, for and including but not limited to, public inconvenience, obstruction to traffic, interference with and/or loss of business, increase of engineering, inspection and administrative cost to the Owner; and other costs and expenses which have caused an expenditure of public funds, resulting from the Contractor's, or in case of Termination for Cause of the Surety's, failure to complete the work within the time specified in the Contract.

9.5.5. Permitting the Contractor to continue and finish the Work or any part thereof after expiration of the time limit for Substantial Completion described in Article 9.1.4 shall in no way operate as a waiver of any right or remedy available to Owner under this Contract or at law.

9.6 Early Completion Incentive

9.6.1. Unless otherwise stated in the Contract Documents, should Contractor Substantially Complete the Work before expiration of the Contract Time as extended by the Owner, the Contractor shall receive an incentive pay from the Owner equal to one half (1/2) of the stipulated liquidated damages for each calendar day the Work is Substantially Completed prior to the time limit to complete the Work described in Article 9.1.4.

ARTICLE 10 - CHANGE OF CONTRACT PRICE, COST OF THE WORK AND UNIT PRICE WORK

10.1 Change of Contract Price

10.1.1. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Owner in accordance with Article 11.5.

10.1.2. The value of the Work covered by a Change Order or covered by a Claim for an adjustment in the Contract Price will be determined as follows:

10.1.2.1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of section 10.4); or

10.1.2.2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with section 10.5) or by newly agreed unit prices; or

10.1.2.3. where the Work involved is either: (a) not covered by unit prices contained in the Contract Documents, or (b) agreement as to a lump sum is not reached (under Article 10.1.2.2,) the value of the work shall be computed on the basis of the Cost of the Work (determined as provided in Article 10.2) plus a Contractor's fee for overhead and profit (as provided in Article 10.5).

10.2 Cost of the Work

10.2.1. Costs Included: The term Cost of the Work means the sum of all costs necessarily incurred and paid by Contractor in the proper performance of a change in the Work. When the value of any Work covered by a Change Order, Extra Work Order or Construction Change Directive or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work. Except as otherwise agreed in writing by Owner's Representative, such costs shall be in amounts no higher than those prevailing in the locality of the Project and shall include only the items indicated below:

10.2.1.1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classification agreed upon by Owner's Representative and Contractor.

10.2.1.1.1. Such employees shall include without limitation engineers, superintendents, foremen, and other supervisory, safety, security and clerical personnel employed full time at the Site.

10.2.1.1.2. Payroll costs for employees not working exclusively in connection with the Work shall be apportioned based on their time spent working on the Work.

10.2.1.1.3. Payroll costs shall include, but shall not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, union, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto.

10.2.1.1.4. The expenses of performing Work outside the regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above mentioned costs, to the extent authorized by Owner's Representative.

10.2.1.2. Actual cost of all necessary materials and equipment furnished and incorporated in the Work, including costs of transportation, taxes and reasonable and necessary storage thereof, and Suppliers' field services required in connection therewith.

10.2.1.2.1. All cash discounts with regard to the purchase by Contractor of materials and equipment shall accrue for the benefit of Contractor unless Owner deposits funds with Contractor with which to purchase the materials and equipment, in which case the cash discounts shall accrue to Owner.

10.2.1.2.2. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that these discounts etc. may be obtained.

10.2.1.3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors.

10.2.1.3.1. If required by Owner's Representative, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Architect/Engineer, which bids, if any, will be acceptable.

10.2.1.3.2. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Article 10.2.

10.2.1.4. Reasonable and necessary costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services exclusively related to the Work.

10.2.1.5. Supplemental costs including the following:

10.2.1.5.1. The proportion of reasonable and necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work. Airplane travel shall be on coach class and the car transportation, hotel and subsistence shall be at moderate cost.

10.2.1.5.2. Reasonable cost, including transportation, taxes and maintenance, of all materials, supplies, equipment, machinery, appliances, computers, office, warehousing and temporary facilities exclusively related to the Contract, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

10.2.1.5.3. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner's Representative with the advice of Architect/Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and

removal thereof.

10.2.1.5.3.1. All such costs shall be in accordance with the terms of said rental agreements.

10.2.1.5.3.2. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

10.2.1.5.4. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

10.2.1.5.5. In such instances (only) where Contractor is insured under OCIP, or where the Owner assumes responsibility for some part of the required projects insurances (such as Builder's Risk) losses and damages (and related expenses) caused by damage to the Work, not compensated by said insurance, sustained by Contractor in connection with the performance of the Work, provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable.

10.2.1.5.5. 1. Such losses shall include settlements made with the written consent and approval of Owner's Representative. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

10.2.1.5.6. The cost of all utilities, telephone, data, fax, internet, security services, fuel, and sanitary facilities within the Site.

10.2.1.5.7. When the Cost of the Work is used to determine the value of a Change Order, or Construction Change Directive, Extra Work Order or of a Claim, the cost of premiums for additional Bonds and insurance required because of the changes in the Work.

10.2.1.5.8. An amount of the Contractor's main office overhead costs, when applicable, reached by mutual accord between the parties. If no mutual accord can be reached, the cost for main office overhead shall be computed using the Eichleay case and subsequent case law. If the Contractor does not have financial statements prepared externally by a recognized CPA, he must prepare them in order to be able to present a claim for this purpose.

10.2.2 Costs Excluded: The term Cost of the Work shall not include any of the following items:

10.2.2.1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor who work at Contractor's principal, branch or other office, other than Contractor's office at the Site, for general administration of the Work, all of which are to be considered administrative costs covered by the Contractor's fee, and not specifically included in the agreed upon schedule of job classifications referred to in Article 10.2.1.1 or specifically covered by Article 10.2.1.4.

10.2.2.2. Expenses of Contractor's principal, branch or other offices, other than Contractor's office at the Site.

10.2.2.3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed

for the Work and charges against Contractor for delinquent payments.

10.2.2.4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, or making good any damage to property.

10.2.2.5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Articles 10.2.1.1 and 10.2.1.2, unless proven as a valid reasonable and necessary expense directly and exclusively related to the Project.

10.2.3. Contractor's Fee. When the value of any Work covered by a Change Order/Extra Work Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Article 10.5.

10.2.4 Documentation: Whenever the Cost of the Work for any purpose is to be determined pursuant to Articles 10.2.1 and 10.2.2, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Architect/Engineer, or Owner's Representative, an itemized cost breakdown together with supporting documentation and data.

10.2.5 Time Extension: Whenever additional time is required to perform extra work, said time allotment shall be included as part of the Change Order.

10.2.6 If the requirement specified in Article 10.1.2.3, above, causes a delay in the project completion, the costs of said delays, including project and main office overhead shall be added to the cost of the Work and a reasonable time extension provided under the Contract.

10.3 Cash Allowances

10.3.1 Unless otherwise stated in the Contract Documents, it is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents.

10.3.2 Items covered by allowances shall be supplied for such amount and by such persons or entities as the Owner's Representative may direct, but the contractor shall not be required to employ persons or entities against which the Contractor makes written reasonable objections.

10.3.3 If the allowance covers the cost of only furnishing material or , the allowance should include:

10.3.3.1. The cost to Contractor (less any applicable discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

10.3.3.2. Contractor's costs for unloading and handling on the Site. Labor and installation costs, have been included in the Contract Price.

10.3.4 If the allowances include the cost of furnishing and installing material or equipment to be furnished and installed by the Contractor the allowances include the cost to Contractor (less any applicable discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes plus the total cost of installation including unloading and handling.

10.3.5 If the allowances include the cost of furnishing and installing material or equipment to be furnished and installed by a Subcontractor the allowances include the cost to the Contractor of the subcontractor's price.

10.3.6 Unless otherwise provided in the Contract Documents, insurances and bonds do not form part of the allowance price, but are included as part of the Contract Price.

10.3.7 An appropriate Change Order/Extra Work Order will be issued to reflect any difference in the actual cost of the allowance versus the amount specified in said allowance in the Contract Documents. Said amount will be due to Contractor, or credited to Owner as the case may be, on account of Work covered by allowances, and the Contract Price, and Contract Time, if necessary, shall be correspondingly equitably adjusted. Said Change Order/Extra Work Order will include the costs of bonds, insurances and fee stated in Article 10.5. If the change order is a credit, the amount credited will be the net amount due the Owner.

10.4 Unit Price Work

10.4.1 Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include, for all Unit Price Work, an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

10.4.1.1. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of bids and determining an initial Contract Price.

10.4.1.1.1. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Owner's Representative subject to the provisions of Article 13.2.1.

10.4.2 Each unit price will be deemed to include an amount considered by Contractor in the proposal to be adequate to cover Contractor's overhead and profit for each separately identified item.

10.4.3 Owner and Contractor may make a Claim for an adjustment in the Contract Price in accordance with Article 11.5 if:

10.4.3.1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

10.4.3.2. there is no corresponding adjustment with respect any other item of Work; and

10.4.3.3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

10.5 Contractor's Fee: The Contractor's fee for overhead and profit for Work performed under a Change Order/Extra Work Order shall be determined as follows:

10.5.1. a mutually acceptable fixed fee; or

10.5.2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

10.5.2.1. for costs incurred under Articles 10.2.1.1 and 10.2.1.2, the Contractor's fee shall be fifteen (15) percent;

10.5.2.2. for costs incurred under Article 10.2.1.3, 10.2.1.4 and 10.2.1.5, the Contractor's fee shall be ten (10) percent;

10.5.2.3. where one (1) or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Article 10.5.2.1 is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of fifteen (15) percent of the costs incurred by such Subcontractor under Articles 10.2.1.1 and 10.2.1.2 and that any higher tier Subcontractor and Contractor will each be paid a fee often (10) percent of the amount paid to the next lower tier Subcontractor;

10.5.2.4. no fee shall be payable on the basis of costs itemized under Articles 10.1.2.1 and 10.1.2.2;

10.5.2.5. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost; and

10.5.2.6. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed based on the net change in accordance with Article 10.5.2.1 through 10.5.2.5, inclusive.

ARTICLE 11 - CHANGES IN THE WORK

11.1 Authorized Changes in the Work

11.1.1 Without invalidating the Agreement and without notice to any surety, Owner, through the Owner's Representative, may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Written Amendment, a Change Order, an Extra Work Order, Work Change Directive, or a Construction Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved, which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

11.1.2 If there is agreement that said request will include an adjustment either in the Contract Sum, the Contract Time, or both, the adjustment shall be based on one of the following methods:

11.1.2.1. Mutual acceptance of a lump sum properly itemized and supported with sufficient substantiating data and documentation to permit evaluation and mutually acceptance of adjustment to Contract Time, and Contract Price if necessary;

11.1.2.2. Contract Price and Contract Time to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage Contractor's fee; or

11.1.2.3. As provided in Articles 9.2 and 10.

11.1.3 The Owner's Representative shall have authority to order minor changes in the Work not involving any adjustment in the Contract Sum or an extension of the Contract Time and not inconsistent with the intent of the Contract Documents.

11.1.3.1. Such changes shall be made by a written Field Order, or by other written orders.

11.1.3..2. Such changes shall be binding on the Owner and the Contractor.

11.1.3.2.1. If the Contractor is not in agreement that such order does not increase either the Contract Sum or the Contract Time, the Contractor shall promptly present his Claim in the method specified in Article 11.5, herein.

11.1.4. The Owner's Representative may issue written Field Orders covering minor changes in the Work without change in Contract Sum or Contract Time.

11.1.4.1. If the Contractor is not in agreement that such Field Order does not increase either the Contract Sum or the Contract Time, he shall promptly present his claim in the method specified in Article 11.5, herein.

11.1.5. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Time, or both, that should be allowed as a result of a Work Change Directive or a Construction Change Directive, a claim may be made therefore as provided in Article 11.5.

11.2 Unauthorized Changes in the Work

11.2.1. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents as amended, modified, or supplemented, except in the case of an emergency as provided in Article 14.13 or in the case of testing and/or uncovering Work as provided in Articles 12.3 and 12.4.

11.3 Execution of Change Orders and Extra Work Orders

11.3.1. Owner and Contractor shall execute appropriate written Change Orders and/or Extra Work Orders (or Written Amendments) recommended by Owner's Representative covering:

11.3.1.1. changes in the Work, which are:

11.3.1.1.1. ordered by Owner's Representative pursuant to Article 11.1;

11.3.1.1.2. required because of acceptance of defective Work under Article 12.7.1 or Owner's Representative's correction of defective Work under Article 12.8; or

11.3.1.1.3. agreed to by the parties;

11.3.1.2. changes in the Contract Price or Contract Time which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive or a Construction Change Directive; and

11.3.1.3. changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by Owner's Representative pursuant to Article 11.5; provided that in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws or Regulations, but during any such appeal of the Dispute, Contractor shall carry on the Work and adhere to the Progress Schedule and the Owner shall pay for such work performed subject to final resolution of the Dispute.

11.3.1.4. Owner, with the approval of the Change Order/Extra Work Order, shall submit written evidence to the Contractor that the money to pay for said Change Order Work has been assigned to make payment under the Contract.

11.4 Notification to Surety

11.4.1. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to Contract Price or Contract Time) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The penal sum of each applicable Bond will be adjusted to reflect the effect of any such change.

11.4.1.1. Owner shall submit to the pertinent government agencies any documentation required by law or regulation to be submitted for the validity or enforceability of any Change Order Work, and shall provide proof of the proper submittal of said documentation if requested in writing by the Contractor.

11.5 Claims and Disputes

11.5.1. Written notice stating the general nature of each Claim, Dispute, or other matter shall be delivered by Contractor to Owner, through Owner's Representative, promptly (but in no event later than 30 days) after the start of the event giving rise thereto.

11.5.1.1. Notice of the amount or extent of the Claim, Dispute, or other matter with supporting data shall be delivered to the Owner within sixty (60) days after the end of such event (unless Owner's Representative allows additional time for claimant to submit additional or more accurate data in support of such Claim, dispute, or other matter).

11.5.1.2. A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Article 11.1.2.

11.5.1.3. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Article 9.2.2.

11.5.1.4. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event.

11.5.2. If the Dispute is not decided by the Owner's Representative, or said decision notified to Contractor within thirty (30) days following the receipt of the notice of Dispute by the Owner's Representative, the Claim shall be deemed rejected.

11.5.3. Owner's Representative's Decision: Owner's Representative will render a formal decision in writing within thirty (30) days after receipt of the submittal of the Claim. Owner's Representative's written decision regarding the Dispute, or other matter, will be final and binding upon Owner and Contractor unless:

11.5.3.1. An appeal from Owner's Representative's decision is taken within the time limits and in accordance with the dispute resolution procedure set forth in Article 16.

11.5.4. No Claim for an adjustment in Contract Price or Contract Time (or Milestones) will be valid if not submitted in accordance with this section 11.5.

ARTICLE 12 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

12.1 Notice of Defects

12.1.1. Prompt notice of all defective Work of which Owner, Owner's Representative and Architect/Engineer has actual knowledge will be given to Contractor. If no notice is promptly given to Contractor of previously known defective Work, it shall be deemed acceptable to Owner.

12.1.2. All defective Work may be rejected, corrected, or accepted as provided in this Article.

12.2 Access to Work

12.2.1. Owner, Owner's Representative, Architect/Engineer, Architect/Engineer's Consultant, other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Said access shall be previously coordinated with Contractor.

12.2.1.1. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

12.3 Tests and Inspections

12.3.1. Inspection of Materials

12.3.1.1. Unless otherwise specified in the Contract Documents, all materials are subject to inspection, sampling, testing, retesting and rejection by the Owner's Representative as provided in the specifications and prior to acceptance of the Work.

12.3.1.2. Any work in which untested and unaccepted materials are used without the approval of the Owner's Representative, except if said material is the one specified in the Contract Documents, will be performed at the Contractor's risk.

12.3.1.1.2.1. Material found to be unacceptable will not be paid for and, if directed by the Owner's Representative, shall be removed at the Contractor's expense.

12.3.1.3. Unless otherwise indicated in the Contract Documents, the sampling of materials for testing will be performed by Owner's Representative personnel or by other personnel designated by the Owner, at Owner's expense.

12.3.1.1.3.1. Where sampling by the Contractor is specified, the samples shall be taken using approved Contractor furnished sampling devices, under the supervision of the Owner's Representative, and at such times or intervals as directed.

12.3.1.1.3.2. When materials are tested by the Owner, copies of the test reports will be furnished to the Contractor. Unless otherwise required in the Contract Documents, tests may or may not be performed by Owner and the Contractor shall not rely on the results of the Owner testing being available for process control.

12.3.1.4. Plant Inspection: Owner's Representative may undertake the inspection of materials at the production plant. In the event plant inspection is undertaken the following conditions shall be met:

12.3.1.1.4.1. The Owner's Representative shall have the cooperation and assistance of the Contractor and the producer with whom he has contracted for materials.

12.3.1.1.4.2. The Owner's Representative shall have full entry at all times to such parts of the plant as may

concern the manufacture or production of the materials being furnished.

12.3.1.1.4.3. Adequate safety measures shall be provided and maintained.

12.3.2 Contractor shall give Owner's Representative timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspections and testing personnel to facilitate required inspections or tests. No delays, or hindrance in the performance of the Work, shall be caused by tardiness in Owner's Representative's inspection of the Work.

12.3.2.1. The Contractor shall submit to the Owner's Representative, within twenty (20) calendar days following the date of Notice to Proceed, the name of the local testing laboratory (ies) proposed for use with respect to the Work.

12.3.2.1.1. The Owner's Representative shall, within ten (10) calendar days after receipt of the submittal of the proposed testing laboratory(ies), approve said laboratory (ies), or submit written reasons for his disapproval.
12.3.2.1.2. If no notice of approval or disapproval is received within said period of time, Contractor shall submit the request for approval to the Chief of Construction or equivalent division head of Owner who shall have ten (10) calendar days to issue his decision. If the Chief of Construction or equivalent division head of Owner does not render his decision within said time, the testing laboratory (ies) will be deemed approved by the Owner's Representative.

12.3.3. Unless otherwise provided in the Contract Documents, Owner's Representative shall employ and pay for the services of independent testing entities to perform all inspections, tests, or approvals required by the Contract Documents except for inspections, tests, or approvals covered by Article 12.3.4. The costs incurred in connection with tests or inspections conducted pursuant to Article 12.4.2.1 shall be paid as provided in Article 12.4.

12.3.3.1 Whenever Contractor is responsible for arranging, obtaining and paying for costs in connection with any inspection, test, or approval required for Owner's Representative's or Architect/Engineer's acceptance of materials, mix designs, or equipment, the inspecting or testing entity shall be submitted for approval by Owner's Representative and the inspection or test shall be performed prior to Contractor purchasing such materials, mix designs, or equipment for incorporation to the Work.

12.3.3.1.1. Unless otherwise indicated in the Contract Documents, such inspections, tests, or approvals shall be performed by organizations acceptable to Owner, Owner's Representative and Architect/Engineer, whose acceptance shall not be unreasonably denied.

12.3.4. If Laws or Regulations of any public body having jurisdiction, at bid opening date, require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Owner's Representative the required certificates of inspection or approval. If said Laws and Regulations are enacted after bid opening date, the costs for said inspections shall be borne by the Owner.

12.4 Uncovering Work

12.4.1. If a portion of the Work, whether or not inspected, tested or approved is covered contrary to the Owner's Representative written request or to requirements specifically expressed in the Contract Documents,

it must, if required in writing by the Owner's Representative be uncovered for the Owner's Representative observation and be replaced or reconstructed at the Contractors expense without change in the Contract Time and Amount.

12.4.2. If a portion of the Work whether or not inspected, tested or approved has been covered and the Owner's Representative had not specifically required its inspection in writing prior to being covered, the Owner's Representative may required its inspection and it shall be uncovered by the Contractor.

12.4.2.1. If it is found that such Work is defective, Contractor shall pay all Claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others.)

12.4.2.2. If however, such Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time (or Milestones), or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction.

12.5 Correction or Removal of Deficient Work

12.5.1. Contractor shall correct all deficient Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Owner's Representative's, remove it from the Project and replace it with Work that is not deficient. Contractor shall bear, exclusively, the cost of correcting such deficient Work.

12.6 Correction Period

12.6.1. If within one (1) year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be deficient; or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations, at the Effective Date of the Agreement, as contemplated in Article 6.11.1 is found to be deficient, in all such instances Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

12.6.1. 1. repair such deficient land or areas; or

12.6.1.2. correct such deficient Work or, if the deficient Work has been rejected by Owner, remove it from the Project and replace it with Work that is not deficient, and

12.6.1.3. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or other's land or areas resulting therefrom.

12.6.1.3.1. If Contractor does not, after a ten (10) day written notice from Owner, promptly start complying and diligently comply with the terms of such instructions, (or in an emergency where delay would cause serious risk of loss or damage), Owner may have the deficient Work corrected or repaired or may have the rejected Work removed and replaced, and all costs, arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

12.6.2. In special circumstances where a particular item of equipment is placed in continuous service, at the request of the Owner's Representative, before Substantial Completion of all the Work, the correction period for that item shall start to run from the date that said equipment is placed on service.

12.6.3. Where deficient Work (and damage to other Work resulting there from) has been corrected or removed and replaced under this section 12.6, the correction period hereunder with respect to such Work will be extended for an additional period of one (1) year after such correction or removal and replacement has been satisfactorily completed.

12.7 Acceptance of Non-Compliant Work

12.7.1. If both parties agree, instead of requiring correction or removal and replacement of deficient Work, and Owner (prior to Architect/Engineer's recommendation of final payment) prefers to accept it, Owner may do so.

12.7.1.1. If both parties cannot reach agreement on acceptance of deficient work, then the Contractor shall correct such deficient Work to Owner's satisfaction or either party may make a Claim as provided in Article 11.5.

12.7.2. If any such acceptance occurs prior to Owner's Representative's recommendation of final payment, a Change Order/Extra Work Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted.

12.7.2.1. If the parties are unable to agree as to the amount thereof, either party may Claim as provided in Article 11.5.

12.8 Owner's Right to Correct Deficient Work

12.8.1. If Contractor fails within a reasonable time after written notice from Owner's Representative to start correction of deficient Work or to diligently prosecute correction or to remove and replace rejected Work as required by Engineer in accordance with Article 12.6.1, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to substantially comply with any other provision of the Contract Documents, Owner may, after seven (7) days written notice to Contractor, correct and remedy any such deficiency.

12.8.2. In exercising the rights and remedies under this paragraph. Owner shall proceed expeditiously.

12.8.2.1. In connection with such corrective and remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere.

12.8.2.2. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Architect/Engineer and Architect/Engineer's Consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

12.8.3. All costs incurred or sustained by Owner in exercising the rights and remedies under this Article 12.8 will be

charged to Contractor.

12.8.3.1. If the parties are unable to agree as to the amount of the adjustment, a Claim therefore may be made as provided in Article 11.5.

12.8.3.1.1. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's deficient Work.

12.8.4. Contractor shall not be allowed an extension of the Contract Time (or Milestones) because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Article 12.8.

ARTICLE 13 - PAYMENTS AND COMPLETION

13.1 Proposal Schedule and Schedule of Values

13.1.1. Proposal Schedule (Unit-Price Contracts)

13.1.1.1. In Unit-Price Contracts, the quantities in the proposal schedule are approximate only and the actual quantities to be paid for cannot be determined until the work is performed and accepted. Increases or decreases in the proposal schedule quantities will be considered as normal overruns or underruns, and the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract unit prices for the accepted quantities of work performed.

13.1.1.2. Payments to the Contractor shall be made only for the actual quantities of each contract item, performed and accepted in accordance with the plans and specifications and, if upon completion of the construction, these actual quantities shall show either a decrease or increase from the quantities in the proposal schedule, the contract unit prices will prevail.

13.1.1.2.1. In Unit-Price Contracts, the Contractor will submit for approval to the Owner's Representative a schedule of values for those Lump-Sum bid items only.

13.1.1.2.2. This schedule, when approved by the Owner's Representative, shall be used solely as a basis for the monthly partial payments.

13.1.1.3. If the "Basis of Payment" in the specifications relating to any unit price in the bid schedule requires that said unit price cover and be considered compensation for certain work or material essential to the item, this same work or material will not also be measured or paid for under any other pay item which may appear elsewhere in the Contract Documents.

13.1.2. Schedule of Values (Lump-Sum Contracts)

13.1.2.1. In Lump-Sum Contracts, the Contractor, within fifteen (15) days after the date of the Notice to Proceed, will submit for approval, to the Owner's Representative, a schedule of values prepared in approved forms of the various portions of the Work aggregating the total Contract Sum, divided so as to facilitate monthly partial payments.

13.1.2.2. Each item in the schedule of values shall include its proper share of overhead and profit. Initial disbursements items such as mobilization, temporary facilities, premiums for insurance, and bonds and all cost of government fees and permits required for work, shall be separately itemized to facilitate first partial payment.

13.1.2.3. This schedule, when approved by the Owner's Representative, shall be used solely as a basis for the monthly partial payments and not as unit prices for changes in the Work.

13.1.2.4. The schedule of values shall be approved, or rejected in writing for cause notified to Contractor within fifteen (15) calendar days after receipt by Owner's Representative.

13.1.2.4.1. Any individual item on the schedule of values that is rejected by the Owner's Representative must be properly identified and reason for rejection substantiated and notified to the Contractor within said time period.

13.1.2.4.2. The Owner's Representative may allow certain individual items to appear in the schedule of values as lump sum items. These items must be broken down into individual items prior to request any partial payment regarding said individual item.

13.1.2.5. If the Owner's Representative does not reject the schedule of values as specified herein, then the same shall be deemed approved.

13.2 Progress Payments

13.2.1. Applications for Payments

13.2.1.1. The Progress Payment Period shall be one (1) month long unless otherwise indicated in the Contract Documents. The end of the Progress Payment period shall be the last day of the month unless otherwise established in the Contract Documents. The Contractor does not have to submit an application for payment every month if he so chooses.

13.2.1.2. At least twenty (20) days before the date established for each progress payment, Contractor shall submit to Owner's Representative for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

13.2.1.3. The determination of quantities of acceptable completed Work under the terms of the Contract Documents will be jointly made by the Owner's Representative and Contractor. It will be based on measurements made by them, or their assistants, according to the units of measurement for each item as shown in the schedule of values and by the method indicated in the corresponding specification, if so indicated in said specification for said item.

13.2.1.4. If the requested payment is based on materials and equipment not incorporated in the Work, but delivered and suitably stored at the Site, or at another location, agreed to in writing, the Application for Payment shall also be accompanied by: (i) a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and (ii) evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein. All evidence required herein shall be in form satisfactory to Owner.

13.2.1.4.1. Such advance payment may be made to the Contractor for the cost of materials that are to be incorporated into the work, provided the materials meet the requirements of the plans and specifications and are on hand at the Site or stored in acceptable storage places.

13.2.1.4.1.1. No advance payment will be made on living or perishable plant materials.

13.2.1.4.1.2. In the case of materials that have been purchased by the Contractor, the cost shall be determined by the vendors invoice.

13.2.1.4.1.3. In the case of materials manufactured or obtained by the Contractor through the use of his own workmen or equipment, the cost will be determined by the Owner's Representative in accordance with and based upon that particular unit of the Project in which the materials are to be utilized.

13.2.1.4.2. The Contractor shall present signed receipts or other documentary evidence to prove that the cost of the materials for which he is to receive advance payment has been paid in full or, if the materials have not been paid for, the invoice shall be accompanied by a release from the materials dealer expressing his agreement with the payment for such materials to the Contractor by the Owner.

13.2.1.4.3. If at any time after the Contractor has received advance payment for materials on hand at the Site, the Owner or Owner's Representative obtains evidence indicating that said materials, or any part or parts thereof, are defective, or that said materials, or parts thereof, do not conform to the specifications, the Owner will proceed to deduct from any of the succeeding partial payments due the Contractor for work actually performed, a sum sufficient to cover the cost of the materials, or part or parts thereof, found to be defective.

13.2.1.4.4. Materials for which the Contractor has received advance payment shall be properly housed at the Site or in acceptable storage places in the vicinity of the Project in a secure manner that will insure the preservation of their quality and fitness for the Work.

13.2.1.4.4.1. Moreover, the Contractor shall not withdraw said materials for any purpose other than incorporation into the Project, unless he has written consent from the Owner or Owner's Representative to do so.

13.2.1.4.4.2. Storage and protection costs and the cost of replacing lost or damaged materials shall be borne by the Contractor.

13.2.1.4.5. Approval of partial payments for stockpiled materials will not constitute acceptance of such materials for use in completing items of Work.

13.2.1.4.6. An amount equal to the value of materials incorporated into the Work and for which an advance payment has been made, shall be deducted from the partial estimates.

13.2.1.4.7. Unless otherwise specified in the Contract Documents, Payment shall be made to the Contractor for materials fabricated, pre-cast or otherwise produced for the Project and stored at an approved site in Puerto Rico other than in the immediate vicinity of the Project, provided the Contractor furnish and file with the Owner insurance which shall protect the Contractor and the Owner from all risk of physical loss or damage to these materials.

13.2.1.4.7.1. The amount of such insurance shall not be less than the value of such materials.

13.2.2. Retainage

13.2.2.1. The amount of retainage with respect to progress payments shall be as stipulated in the bid documents.

13.2.2.1.1. Unless otherwise specified in the Contract Documents, such retainage shall be five percent (5%) of each partial payment made to the Contractor.

13.2.2.1.1.1. In cases in which a ten percent (10%) Retainage is required by Owner, then after fifty percent (50%) of the Work has been completed to the Owner's Representative's satisfaction and the Project is on schedule and the quality of Work is satisfactory to the Owner's Representative, all the remaining payments may be made in full.

13.2.2.1.2. Immediately after the Owner's Representative, on the basis of an inspection, has determined and certified that the Work is sufficiently complete, or the Work has been occupied for the use for which it was intended, the Owner will release to the Contractor fifty percent (50%) of the amount previously retained provided the following conditions are met.

13.2.2.1.2.1. A written consent of Surety to make such payment is submitted.

13.2.2.1.2.2. There are no claims to be settled from the Owner to the Contractor.

13.2.2.1.2.3. There are no liquidated damages due.

13.2.2.1.2.3.1. However, at Owner's discretion, the Owner may release to Contractor the difference between fifty percent (50%) of the retainage and the amount of liquidated damages.

13.2.3. Review of Applications

13.2.3.1. The Owner's Representative will review the Application for Payment as soon as it is received and will notify the Contractor within five (5) working days of any exceptions he may have. The Contractor will make the necessary corrections and resubmit the Application.

13.2.3.2. The Owner's Representative will, within seven (7) days of the Contractor's date of submittal or five (5) days from the date of resubmission, if the corrections are acceptable, submit the approved Application for Payment to the Owner with all required documentation and approvals from the Architect/Engineer and the Owner's Representative.

13.2.3.3. Owner's Representative's recommendation of any payment requested in an Application for Payment will constitute a representation by Owner's Representative to Owner, based on Owner's Representative's observations on the Site of the executed Work as an experienced and qualified professional and on Owner's Representative's review of the Application for Payment and the accompanying data and schedules, that to the best of Owner's Representative's knowledge, information and belief.

13.2.3.3.1. the Work has progressed to the point indicated

13.2.3.3.2. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent test called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work, and to any other qualifications stated in the recommendation); and

13.2.3.3.3. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled

in so far as it is Owner's Representative's responsibility to observe the Work.

13.2.3.4. By recommending any such payment, Owner's Representative will not thereby be deemed to have represented that:

13.2.3.4.1. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Owner's Representative in the Contract Documents; or

13.2.3.4.2. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

13.2.3.5. Neither Owner's Representative's review of Contractor's Work for the purposes of recommending payments nor Owner's Representative's recommendation of any payment, including final payment, will impose responsibility on Owner's Representative to supervise, direct, or control the Work or for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work.

13.2.3.5.1. Additionally, said review or recommendation will not impose responsibility on Owner's Representative to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

13.2.3.6. Owner's Representative may refuse to recommend in whole or in part of any payment if, in Owner's Representative's reasonable opinion, it would be untruthful to make the representations to Owner referred to in Article 13.2.3.3.

13.2.3.6.1. Owner's Representative may also (i) refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, (ii) revise or (iii) revoke any such payment recommendation previously made, to such extent as may be necessary in Owner's Representative's reasonable opinion to protect Owner from loss because:

13.2.3.6.1.1. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

13.2.3.6.1.2. the Contract Price has been reduced by Written Amendment, Change Orders or Extra Work Orders to the extent that justifies withholding payment;

13.2.3.6.1.3. Owner has been required to correct deficient Work or complete Work and has not yet done so; or

13.2.3.6.1.4. Owner's Representative has actual knowledge of the occurrence of any of the events enumerated in Article 15.2.1.

13.2.4. Payments Becomes Due

13.2.4.1. Unless otherwise specified in the Contract Documents, forty (40) days after Owner's approval of the Application for Payment, with Owner's Representative's recommendation, the amount recommended will become due, and when due, shall be paid by Owner to Contractor.

13.2.5. Reduction in Payment

13.2.5.1. The Owner's Representative, without incurring in liability, may decline to approve any Application for Payment or, because of subsequently discovered evidence or subsequent inspection, he may nullify the whole or any part of any Application for Payment previously issued, to such extent as may be necessary in his opinion to protect the Owner from loss because of:

13.2.5.1.1. Deficient Work not remedied; or

13.2.5.1.2. Failure of the Contractor to comply with any requirements of the Contract Documents.

13.2.5.2. Owner may refuse to make payment of the full amount recommended by Owner's Representative because:

13.2.5.2.1. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

13.2.5.2.2. Liens have been filed in connection with the Work, except where Contractor has delivered a specific Bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

13.2.5.2.3. there are other items entitling Owner to a set-off against the amount recommended; or

13.2.5.2.4. Owner has actual knowledge of the occurrence of any of the events enumerated in Article 13.2.3.6 or 15.2.1.

13.2.5.3. If Owner refuses to make payment of the full amount recommended by Owner's Representative, Owner must give Contractor immediate written notice (with a copy to Owner's Representative) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld.

13.2.5.3.1. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's Representative's satisfaction the reasons for such action.

13.2.5.3.2. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Article 13.2.4.

13.2.5.4. Partial payments may be suspended when in the judgment of the Owner the Work has not proceeded according to the terms of the Contract Documents.

13.2.5.5. If at any time during the construction of the Project, the Owner receives proper notice from a third party stating a claim under Civil Code Article 1489, the Contractor shall settle the claim with the third party within fifteen (15) calendar days from the notice to the Owner and inform the Owner of said settlement or otherwise if Contractor disputes the validity of said claim, post a bond, acceptable to Owner, for the benefit of Owner to protect Owner against liability for payment to the third party under Civil Code Article 1489 in which case partial payment therefore will not be withheld. This will apply in any project where there is no Payment or Performance Bond, or the penal sum of such bond is an amount less than one hundred (100) percent of the Contract Sum.

13.2.5.5.1. If no settlement is reached or a bond is not posted and accepted, the Owner, the Contractor, and the claimant third party shall meet within thirty (30) days after the expiration of the fifteen (15) calendar days to ascertain the amount of the alleged debt.

13.2.5.5.2. Contractor shall then pay within five (5) calendar days the undisputed amount. If no payment is made, the Owner shall retain said amount from the next partial payment and proceed to pay directly the undisputed amount to the third party. If the Contractor posts a bond as provided in Article 13.2.5.5 the Owner will not withhold said amount from Contractor and will not pay the amount to the third party claimant until the Contractor or the third party claimant notify Owner that the dispute among them has been resolved at which time Owner will act accordingly.

13.2.6. Scope of Payment

13.2.6.1. The payment of any partial estimate or of any retained percentage, in no way shall release the obligation of the Contractor to renew or repair any deficient materials used in the construction, or to be responsible for all damage due to such deficiencies.

13.2.6.2. No payment will be made for any unauthorized work.

13.2.6.3. No certificate for a progress payment, nor any progress payment, or any partial or entire use or occupancy of the Project by the Owner shall constitute an acceptance of any Work not in accordance with the Contract Documents.

13.3 Contractor's Warranty of Title

13.3.1. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment, and will pass free and clear of all Liens, Claims, security interests or encumbrances. Contractor also warrants and guarantees that no Work, materials, or equipment covered by an Application for Payment has been acquired by the Contractor, subject to an agreement under which an interest therein, or an encumbrance thereon, is retained by the seller or otherwise imposed by the Contractor or such other person. This will also apply to any other person performing the Work for the Project on behalf of Contractor , or furnishing materials and equipment for the Project.

13.4 Substantial Completion

13.4.1. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Owner's Representative in writing that the entire Work is Substantially Complete (except for items specifically listed by Contractor as incomplete) and request that Owner's Representative issue a Certificate of Substantial Completion. Owner may, at its sole option, request that part of the Work be declared Substantially Complete as provided in Article 13.5.1.

13.4.1.1. Within five (5) working days after such request, Owner, Contractor and Owner's Representative shall make an inspection of Work to determine the state of completion. If within this time period, the Owner's Representative fails to make objections or respond, the Contractor shall request the approval of the Chief of Construction or equivalent division head of Owner which shall have fifteen (15) working days to issue its approval or disapproval of the Certificate of Substantial Completion.

13.4.1.1.1. If Owner's Representative does not consider the Work substantially complete, Owner's Representative will notify Contractor in writing, within five (5) working days after the inspection, giving the reasons therefore.

13.4.1.1.2. If Owner's Representative considers the Work substantially complete, Owner's Representative will prepare and deliver to Owner, within ten (10) working days after the inspection, a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion.

13.4.1.1.3. There shall be attached to the certificate a tentative list of items (punch list) to be completed or corrected before final payment.

13.4.1.2. Owner shall have ten (10) working days after receipt of the tentative certificate during which to make written objection to Owner's Representative as to any provisions of the certificate of Substantial Completion or attached list.

13.4.1.3. If, after considering such objections, indicated on Article 13.4.1.2, Owner's Representative concludes that the Work is not substantially complete, Owner's Representative will within fifteen (15) working days after submission of the tentative certificate of Substantial Completion to Owner notify Contractor in writing, stating the reasons therefore.

13.4.1.4. If, after consideration of Owner's objections, indicated on Article 13.4.1.2, Owner's Representative considers the Work Substantially Complete, Owner's Representative will, within said fifteen (15) working days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised final punch list of items to be completed or corrected). Such final certificate will reflect such changes from the tentative certificate as Owner's Representative believes justified, after consideration of any objections from Owner.

13.4.1.5. At the time of issuance of the certificate of Substantial Completion, Owner will assume all responsibilities with respect to security, operation, safety, and protection of the Work, maintenance, utilities, insurance, and Contractor warranties and guarantees periods will start to run.

13.4.1.6. Unless Owner and Contractor agree otherwise in writing and inform Owner's Representative also in writing prior to Owner's Representative's issuing the definitive certificate of Substantial Completion, Owner's Representative's aforesaid recommendation will be binding on Owner and Contractor until final payment is made.

13.4.2. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion, but Owner shall allow Contractor reasonable access to complete or correct items on the final punch list.

13.5 Partial Utilization

13.5.1 Use by Owner, at Owner's option, of any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Owner's Representative, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose, without significant interference with Contractor's performance of the remainder of the Work, may be effected (put to such use) prior to Substantial Completion of all the Work subject to the following:

13.5.1.1. Owner at any time may request Contractor in writing to permit Owner to use any such part of the Work which Owner believes to be ready of its intended use and substantially complete.

13.5.1.1.1. If Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Owner's Representative that such part of the Work is substantially complete and request Owner's Representative to issue a certificate of Substantial Completion for that part of the Work.

13.5.1.1.2. Contractor at any time may notify Owner and Owner's Representative in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Owner's Representative to issue a certificate of Substantial Completion for that part of the Work.

13.5.1.1.2.1. Within a reasonable time (not more than fifteen (15) days) after either party's request, Owner, Contractor, and Owner's Representative shall make an inspection of that part of the Work subject to the request to determine its state of completion.

13.5.1.1.2.2. If Owner's Representative does not consider that part of the Work to be substantially complete, Owner's Representative will notify Owner and Contractor in writing giving the reasons therefore.

13.5.1.1.2.3. If Owner's Representative issues a certificate of Substantial Completion for said part of the Work thereupon all applicable provisions of Article 13.4 shall apply.

13.5.1.1.3. No occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Article 13.4.1.5 regarding property insurance.

13.6 Final Inspection

13.6.1. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Owner's Representative will, within five (5) working days, make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars this inspection reveals with regard to incomplete or deficient Work.

13.6.1.1. Contractor shall immediately take measures to complete such Work and remedy such deficiencies.

13.7 Final Payment

13.7.1. Application for Payment

13.7.1.1. After Contractor has, in the opinion of Owner's Representative, satisfactorily remedied all incomplete and deficient Work identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents, and other documents required by the Contract, Contractor may make application for final payment following the procedure for progress payments.

13.7.1.2. The final Application for Payment shall be accompanied, except if previously delivered to Owner's Representative, by:

13.7.1.2.1. all documentation, guarantees, Bonds and insurance called for in the Contract; and.

13.7.1.2.2. consent of the surety, if any, to final payment; and

13.7.1.2.3. complete and legally effective releases, or waivers, (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

13.7.1.3. In lieu of the releases or waivers of Liens specified in Article 13.7.1.2.3, if approved by Owner, Contractor may furnish payment receipts or releases in full as part of an affidavit executed by Contractor to the effect that:

13.7.1.3.1. the releases and receipts include all liabilities related to labor, services, material, and equipment for which a Lien could be filed; and

13.7.1.3.2. all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner and Owner's property might in any way be responsible, have been paid or otherwise satisfied.

13.7.1.3.3. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a Bond or other collateral satisfactory to Owner to indemnify Owner against liability related to any such Lien.

13.7.2 Review of Final Application for Payment and Acceptance of the Work.

13.7.2.1. If, on the basis of Owner's Representative's observation of the Work during construction and final inspection, and Owner's Representative's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Owner's Representative is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Owner's Representative will, within fifteen (15) days after receipt of the final Application for Payment, indicate to Owner in writing Owner's Representative's recommendation regarding payment and if payment is recommended present the Application for Payment to Owner, for payment.

13.7.2.1.1. At the same time, Owner's Representative will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Article 13.9.

13.7.2.1.2. Otherwise, within the time specified in Article 13.7.2.1, Owner's Representative will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment. If within said fifteen (15) days after submittal of the final Application for Payment by Contractor the Owner's Representative fails to make objections or respond, the Contractor shall request approval directly from the Owner who shall have fifteen (15) working days to issue approval or disapproval, provided Contractor has also given the same timely notice directly to Owner as required in Article 17.3.2. If no reply is forthcoming from the Owner within the stated time, the final Application for Payment shall be deemed approved.

13.7.3. Final Payment Becomes Due

13.7.3.1. Unless otherwise specified in the Contract Documents, forty (40) days after Owner's approval of the Application for Final Payment, with accompanying documentation, the amount recommended by Owner's Representative will become due, and when due, shall be paid by Owner to Contractor.

13.7.3.2. If payment is not made within the time stated in Article 13.7.3.1., thereafter Owner will pay Contractor interest at the legal rate on the amount due.

13.8 Final Completion Delayed

13.8.1. If, through no fault of the Contractor, final completion of the Work is significantly delayed, and if Owner's

Representative so confirms, Owner shall, upon receipt of Contractor's final Application for Payment and recommendation of Owner's Representative, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted.

13.8.2. If the remaining balance to be held by Owner for Work not fully completed, or corrected, is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in Article 3, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Owner's Representative with Application for such payment.

13.8.2.1. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of any claim or of any right under the Contract.

13.9 Waiver of Claims

13.9.1. The making and acceptance of final payment will constitute:

13.9.1.1. a waiver of all Claims by Owner against Contractor, except for Claims arising from unsettled Liens, from deficient Work appearing after final inspection as the result of failure to comply with the Contract Documents, from special guarantees or from Contractor's continuing obligations under the Contract Documents; and

13.9.1.2. a waiver of all other unsettled Claims by Contractor against Owner, other than those previously made in a timely manner in writing.

13.10 Unilateral Liquidation

13.10.1. The procedures established in this section will be applicable whenever the Contractor is not available in order for the Owner to issue the final payment in accordance with Article 13.7.

13.10.1.1. For purposes of this section, the term "unavailable" shall meant that the Contractor repeteadly fails to answer Owner's requests to meet with the Owner and/or to submit the required documentation under Article 13.7 in order to proceed with the final payment and Project liquidation.

13.10.2. If Contractor is unavailable, Owner shall proceed to issue and process the final application for payment. In order to accomplish this, whenever possible, the Owner will seek to obtain the documentation required under Article 13.7.1.2 and 13.7.1.3.

13.10.2.1. When Owner can not obtain documentation required under Article 13.7.1.2 and 13.7.1.3 such documentation it may be waived by Owner in order to proceed to the issuance of final payment. However, in case of such waiver, Owner may impose those reasonable conditions Owner deems relevant in order to protect Owner's interests and safeguard against claims by third parties.

13.10.3. If after finalizing liquidation of the Contract, payment is due Contractor and Contractor remains unavailable, Owner will retain such payment until Contractor is available to collect such payment. If the Final Payment is negative (i.e., the balance is in favor of the Owner), the Owner shall compensate such amount from any other payment in favor of Contractor, if any, and/or proceed to collect it by any means available.

ARTICLE 14 - PROTECTION OF PERSONS AND PROPERTY

14.1 Public Convenience and Safety

14.1.1. The Contractor shall at all times conduct the Work in a manner that insures the public safety and convenience and the protection of persons and property.

14.1.1.1. Contractor shall perform the Work in a manner that will not cause unreasonable inconvenience to the general public.

14.1.2. The Contractor shall comply with all laws, rules, codes and regulations applicable to the class of work being performed pertaining to public safety and the protection of persons and property.

14.2 Laws to be Observed

14.2.1 It is the Contractor's responsibility to be fully informed of and comply with all Federal, Commonwealth and municipal laws, ordinances, safety codes and regulations, and all such orders or decrees presently in effect or that may be enacted prior to Final Acceptance or which in any way affect the prosecution of the Work.

14.2.1.1. The Contractor shall at all times observe and comply with all such laws, ordinances, safety codes, regulations, orders and decrees; and shall protect Owner and its representatives against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by himself, his employees, his subcontractors, his suppliers, his agents, or the employees of any of them or by anyone for whom Contractor is responsible.

14.2.1.2. When the United States Government pays all or any portion of the cost of the Work, the federal laws and the rules and regulations pursuant to such laws, if applicable, must be observed by the Contractor, and the Work may be subject to the inspection by any appropriate federal agency.

14.2.2. All costs related to compliance with all laws, rules and regulations enacted after bid opening date, shall be paid for by the Owner and any resulting adjustment to the Contract Price or the Contract Time shall be made by a Change Order to the Contract.

14.2.2.1. If Owner's Representative and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of any such adjustment, a Claim may be made therefore as provided in Article 11.5.

14.2.2.2. Payment under this paragraph is contingent to those situations not covered under Article 14.4.4.

14.3 Sanitary, Health and Safety Provisions

14.3.1. The Contractor shall comply with all Federal, Commonwealth and local laws, rules and regulations concerning construction safety and health standards and shall admit without delay any inspector from such health and safety agencies upon presentation of proper credentials.

14.3.2. Contractor shall provide and maintain in orderly sanitary condition such facilities as necessary for the use of his employees, in compliance with the Commonwealth Departments of Health and Labor and other bodies having jurisdiction.

14.3.3. The Contractor shall not require work to be performed under unsanitary, hazardous or dangerous conditions.

14.4 Labor Relations and Wages

14.4.1. The Contractor shall comply with all the applicable Federal and Commonwealth laws, rules and regulations concerning fair labor practices including minimum wages, work hours, equal employment opportunities, non-discrimination, civil rights, employment of minors, and other labor relation matters.

14.4.2. The minimum wage rates to be paid shall be according to the regulations of the Minimum Wage Board of the Puerto Rico Department of Labor as indicated in the latest issue of its mandatory decree at any time during the execution of the Project.

14.4.3. The Contractor shall pay weekly, in lawful money of the United States of America, including payment by check or direct deposit, the entire amount of wages, less legally authorized or mandated deductions, earned by each of the laborers and employees engaged in the Work.

14.4.3.1. The Contractor shall make available to the Owner for inspection the project payrolls and shall submit copies of such payrolls to the Owner when required.

14.4.3.2. Any irregularities noted will be brought to the attention of the Contractor by the Owner for appropriate corrective action and payment of any pending wages.

14.4.3.2.1. Should the Contractor fail to take the necessary action, he will be subject to such civil and criminal proceedings provided by law and regulations.

14.4.3.3. Payment of wages to laborers and employees of the Contractor for their work shall have preference over the payment of other debts of the Contractor, except as otherwise established by law.

14.4.4. If during the term of the Contract, federal minimum wages are increased and said increase is applied to Puerto Rico, or if labor costs and/or fringe benefits are increased by local legislation, the cost of the increase in the Work shall be considered as a Change Order and proven cost increases, including fringe benefits and insurance costs, shall be paid to the Contractor, unless those increases have been legislated, or included as part of a resolution, by either the Commonwealth or Federal Legislative chambers prior to the bid opening date. If after the bid opening date, new local legislation or regulation is imposed which directly increases Contractor's costs of materials or transportation, the Contractor may present a Claim under Article 11.5 for such increases. Such increases in costs must be evidenced and substantiated by the Contractor.

14.4.4.1. If Owner's Representative and Contractor are unable to agree as to entitlement, amount or extent, if any, of any such adjustment under Article 14.4.4, a Claim may be made therefore as provided in Article 11.5.

14.5 Environmental Protection

14.5.1. Contractor shall comply with all Federal, Commonwealth and local environmental laws and regulations.

14.5.1.1. Contractor shall take all necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oil, bitumen, chemicals, or other harmful materials and to prevent pollution of the

atmosphere with particulate or gaseous matter.

14.5.2. Unless otherwise approved in writing by the Owner, construction operations in rivers, streams, lakes and other bodies of water shall be restricted to those areas where channel changes are shown on the plans and to those areas which must be entered for the construction of temporary or permanent structures.

14.5.2.1. Rivers, streams, lakes and reservoirs shall be promptly cleared of all false work, piling, debris, or other obstructions placed therein or caused by the construction operations.

14.5.3. Frequent fording of live streams with construction equipment will not be permitted. Temporary bridges or other structures shall be used wherever an appreciable number of stream crossings are necessary.

14.5.3.1. Unless otherwise approved in writing by the Owner, mechanized equipment shall not be operated in live streams except as may be required to construct channel changes and temporary or permanent structures.

14.5.4. Contractor shall comply with all the requirements regarding soil erosion and water pollution control included in the Environmental Quality Board's regulations, the Owner's other standard specifications, the Plans and other Contract Documents.

14.5.5. If the Contractor should encounter or expose during construction operations any abnormal condition, which may indicate the presence of a hazardous and/or toxic waste, the Contractor shall proceed in accordance with Article 4.7.

14.5.5.1. Abnormal conditions shall include, but shall not be limited, to the following, presence of barrels, discolored earth, metal or wood; obnoxious or unusual odors; visible fumes; excessively hot earth; smoke; or any other condition which appears to be a possible indication of hazardous and/or toxic waste.

14.6 Construction Over or Adjacent to Navigable Waters

14.6.1. All Work and related activity, over, on or adjacent to navigable waters shall be conducted so that free navigation of the waterways will not be interfered with and that the existing navigable depths and clearances will not be impaired except as allowed by permit issued by the U.S. Coast Guard and/or the U.S. Army Corps of Engineers, as applicable.

14.7 Traffic Protection Devices

14.7.1. The Contractor, when applicable, shall provide, erect and maintain all necessary advance warning signs, barricades, suitable and sufficient lights, danger signals, signs, and other traffic control devices; shall provide a sufficient number of watchmen and flag persons, and shall take all necessary precautions for the protection of the Work and the safety of the public in accordance with the plans and other Contract Documents.

14.8 Use of Explosives

14.8.1. When the use of explosives is necessary for the prosecution of the Work, the Contractor shall comply with all the Laws and Regulations concerning the use, storage, transporting, handling and detonating of explosives.

14.8.1.1. The Contractor shall exercise the utmost care with the explosives so as not to endanger life and

property and he shall be responsible for any and all damages that may result from his use of explosives.

14.8.2. Prior to initiating the use of explosives, the Contractor shall submit to the Owner evidence that his comprehensive general liability insurance required under Article 3 provides coverage for the use of explosives and blasting.

14.8.3. Blasting operations shall be conducted under the most careful and experienced supervision. The Contractor shall keep the Owner informed as to his drilling, blasting and demolition operations.

14.8.4. The Contractor shall furnish and erect special signs to warn the public of his blasting operations.

14.8.4.1. Such signs shall be placed at appropriate points within the Project limits, shall be maintained so as to be clearly evident to the public during all critical periods of the blasting operations and, if blasting is by means of electric detonators, shall include a warning statement to have radio transmitters turned off.

14.8.5. The Contractor shall notify each property owner and public utility company having structures in the proximity to the Site and the Work of his intention to use explosives.

14.8.5.1. Such notice shall be given sufficiently in advance to enable the parties being warned to take steps necessary to protect persons and property from injury.

14.9 Protection and Restoration of Property

14.9.1. The Contractor shall be responsible for the preservation of all public and private property, and shall carefully protect from disturbance or damages all land monuments and property marks until the Owner has witnessed or otherwise referenced their location, and shall not move them until directed.

14.9.2 When the Contractor's excavating operations encounter items of archeological interest such as remains of pre-columbine people's dwelling sites or artifacts of historical, paleontological or archeological significance, operations in the vicinity of such findings shall be temporarily discontinued and the Owner notified.

14.9.2.1. The Owner will contact the proper authorities to determine the disposition thereof.

14.9.2.2. When directed by the Owner, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and shall remove them for delivery to the custody of the proper authorities.

14.9.2.2.1. Such specialized excavation and time delay costs, if any, will be considered and paid for as Extra Work unless the Owner elects to undertake such recovery work by other means.

14.9.2.2.2. If the Owner elects to perform this work by other means, he shall be responsible to the Contractor for costs associated with delay to the Work, only if said delay affects the critical path.

14.9.3 Contractor shall be responsible for all damages or injury to property of any character during the prosecution of the Work resulting from any act, omission, neglect or misconduct in the Contractor's manner or method of executing the Work, or at any time due to deficient work or materials. The Contractor's responsibility will not be released until the Project has been completed and accepted.

14.9.4 When any direct or indirect damage or injury is caused to public or private property by or on account of an

act, omission, neglect or misconduct in the execution of the work, or as a consequence of the non-execution thereof, by Contractor, such property shall be restored at the Contractor's expense to a condition similar or equal to that existing before such damage or injury was caused by repairing, rebuilding or otherwise restoring the same, or Contractor shall make good such damage or injury in a manner acceptable to owner.

14.9.5 Contractor shall comply with all necessary soil erosion and water pollution control measures, as indicated in the Contract Documents, and shall exercise due care in their implementation, to avoid causing erosion and drainage problems in all areas inside and outside the Project construction limits.

14.10 Forest Protection

14.10.1. In carrying out Work or related activity within or adjacent to Commonwealth or National Forests, the Contractor shall comply with all regulations of the Commonwealth Fire Service, Puerto Rico Department of Agriculture, United States Forest Service or other authority having jurisdiction, governing the protection of forests and the carrying out of Work within forests, and shall observe all sanitary laws and regulations with respect to the performance of work in forest areas.

14.10.1.1. Contractor shall keep all areas affected by construction related activities in an orderly condition, dispose of all refuse, obtain permits for the construction and maintenance of all construction camps, stores, warehouses, residences, latrines, cesspools, septic tanks, and other structures in accordance with the requirements of the agency having jurisdiction of the forest.

14.10.2 The Contractor shall take all reasonable precautions to prevent and suppress forest fires and shall require his employees and subcontractors, both independently and at the request of forest officials, to do all that is reasonably within their power to prevent and suppress and to assist in the prevention and suppressing forest fires. They shall make every possible effort to notify a forest official at the earliest possible moment of the location and extent of any fire seen by them.

14.11 Responsibility for Damage Claims

14.11.1. The Contractor shall indemnify and save harmless the Owner as follows:

14.11.1.1. The Contractor for itself, agents, employees, successors and assigns agrees to save harmless the Owner, its Officers, Agents, Employees and Architect/Engineer from and against any and all claims, demands and/or suits, except as stated below, whether judicial or extra judicial for any cost whatever arising out or related to the execution of the Contract, and it's insurers shall defend the Owner, its Officers, agents, Employees and Architect/Engineer from such claims, demands and/or suits and shall bear all the expenses for such defense contemplated within the coverage limits provided by the Contractor's general liability policy, except where such claims, demands and/or suits are due solely to the negligence of the Owner, its Officers, Agents, employees and negligence, errors and/or omissions of the work performed by the Architect/Engineer. In case that the amount to be paid exceeds the policy amount, then the Contractor shall be responsible for the exceeding amount.

14.12 Contractor's Responsibility for Work

14.12.1. Until the final written acceptance of the Work by the Owner, the Work shall be under the charge and care of the Contractor. He shall take every necessary precaution to protect it from injury or damage to any part thereof by the action of the elements or from any other cause whether arising from the execution or non-execution of the Work.

14.12.2. The Contractor shall rebuild, repair, restore and make good any damages to any portion of the Work occasioned by any of the causes indicated in paragraph 14.12.1, above, before its completion and acceptance, and shall bear the expense thereof, except damages to the Work due to unforeseeable causes beyond the control of and without fault or negligence of the Contractor, including but not restricted to acts of God, such as earthquake, hurricane, tidal wave, major flooding or other cataclysmic phenomenon of nature, acts of the public enemy or of the government.

14.12.3. In case of suspension of Work from any cause whatsoever, the Contractor shall be responsible for the Work under the Contract and shall take such precautions as may be necessary to prevent damage to the Project, provide suitable drainage and erect necessary temporary structures, signs or other facilities.

14.12.3.1. During such period of suspension of work, the Contractor shall properly and continuously maintain in acceptable growing conditions all living material in newly established plantings, seeding, and sodding furnished under his contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

14.12.3.2. All costs for the work described above attributable to a suspension by the Owner shall be reimbursed to the Contractor by the Owner.

14.12.3.3. If the temporary suspension of Work is caused by the Contractor, then he will bear the expenses in such event.

14.12.4. When Work is suspended by the Contractor without authorization from the Owner, or is suspended by the Owner due to the fault of the Contractor, the costs of providing the protective measures specified in paragraph 14.12.3, above, during the period of suspension shall be borne by the Contractor.

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14.13 Emergencies

14.13.1. In any emergency affecting the safety of persons or property, the Contractor shall act at his discretion to prevent damage, injury, or loss.

14.13.1.1. Any additional compensation or extension of time claimed by the Contractor on account of emergency Work shall be determined as provided in Article 11. Additional costs incurred by the Contractor in a case of an emergency need not be authorized by the Owner's Representative when there is insufficient time to seek Owner's authorization.

14.13.2. If an emergency affects the safety of persons or property at the Site or property adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Either the Owner or the Contractor can declare an emergency.

14.13.2.1. Contractor shall give Owner's Representative prompt notice if Contractor believes that any significant changes in the Work or variations from what is provided by the Contract Documents have been caused by the emergency or are required as a result thereof.

14.13.2.1.1. If Owner's Representative determines that an amendment to the Contract Price or Contract Time is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive, a Change Order or an Extra Work Order will be issued.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.1 Suspension of Work

15.1.1. At any time and without cause, Owner may, with a minimum of seven (7) calendar days written notice, suspend the Work or any portion thereof for a period of not more than ninety (90) consecutive days by notice in writing to Contractor and Architect/Engineer. Said notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be allowed an adjustment in the Contract Price or an extension of the Contract Time, or both, directly attributable to any such suspension if Contractor makes a timely Claim therefore as provided in Article 11.5. Said adjustment shall be computed based on the following factors:

15.1.1.1. Fixed Project expenses (after all reasonable reduction and mitigation of expenses) for the period of the Work stoppage, such as: (i) the Contractor's and subcontractor's supervisory, administrative, and operations personnel salaries, together with their corresponding fringe benefits and insurance costs if this personnel has been kept in the Contractor's payroll and are not gainfully utilized by Contractor or someone else elsewhere, (ii) utilities, (iii) Project's fixed equipment, and (iv) miscellaneous expenses such as safety, and vigilance.

15.1.1.1.1. At any time during the suspension, the Owner may order the Contractor to demobilize, paying the Contractor the de-mobilization costs and any future mobilization costs to re-start the Project.

15.1.1.1.2. Cancellation costs and cost increases for materials already ordered which had to be canceled and reordered, provided that such costs are not in excess of reasonable market prices.

15.1.1.1.3. Differential increases in labor costs, and its corresponding fringe and insurance benefits, in the Project for the period that the work is stopped.

15.1.1.1.4. Construction equipment use costs for the stoppage period if said equipment remains stationed at the site (idle equipment rates), or transportation costs if the Owner orders in writing that it be removed from the site. If the equipment is owned by the Contractor, he will be paid the cost (depreciation) of said equipment.

15.1.1.1.5. Insurance costs whose rates are based on the time such insurance is in effect, such as Builder's Risk Insurance, for the period that the work is stopped.

15.1.1.1.6. Contractor's overhead and profit in the amount equivalent to fifteen percent (15%) of all expenses detailed above.

15.1.1.1.7. An amount of the Contractor's main office overhead costs (exclusively in this instance and solely related to suspension) reached by mutual accord between the parties or if no mutual accord can be reached, the cost for main office overhead shall be computed using the Eichleay formula using as base the previous two (2) years of Contractor's main office overhead cost taken from the previous two (2) years financial statements which have been externally audited by a recognized CPA. If the Contractor does not have financial statements prepared externally by a recognized CPA, he must prepare them in order to be able to present a claim for this purpose.

15.1.1.1.8. Contractor shall exert his best effort to mitigate the costs included in this Article 15.1.1.

15.1.2. At any time, the Owner's Representative may, with a minimum of seven (7) calendar days written notice, for the following causes suspend the Work or part of the Work due to:

15.1.2.1. the repeated and persistence failure of the Contractor to perform his contractual obligations;

15.1.2.2. the repeated and persistent failure of the Contractor to have sufficient labor and the trades necessary to maintain the quality and progress required in the Contract Documents;

15.1.2.3. the repeated and persistent failure of the Contractor to have sufficient material necessary to maintain the quality and progress required in the Contract Documents;

15.1.2.4. the repeated and persistent failure of the Contractor to have sufficient equipment and type of equipment necessary to maintain the quality and progress required in the Contract Documents.

15.1.3. The Contractor will be responsible for all of his costs due the suspension of the Work indicated in Article 15.1.2 and there will be no increase in Contract Price or extension to the Contract Time as a result of such suspension for cause.

15.1.3.1. The suspension for cause under Article 15.1.2 will last until the Contractor remedies the situation or until termination.

15.1.3.2. The Contractor shall also be responsible for the inspection costs made necessary by overtime work to restore the project to its intended schedule due to delays caused by the actions mentioned in Article 15.1.2. Said costs will consist of the actual cost paid therefore by and to the inspector, if his presence is required or necessary.

15.1.4. At any time, the Owner's Representative or the Contractor may suspend the work or part of the work without advanced notice due to any danger or potential danger that may exist to life, limb or property or any emergency whether on the Site or off the Site.

15.1.4.1. The Contractor will be responsible for all of his costs due the suspension and there will be no time extension to the Contract Time if the suspension is due to the failure of the Contractor to perform his contractual obligations.

15.1.4.2. The Owner will compensate the reasonable costs incurred by Contractor if the suspension is due to causes other than the failure of the Contractor to perform his contractual obligations and such causes are attributable to Owner.

15.1.5. In case of suspension of Work for any cause whatsoever, the Contractor shall be responsible for the Work under the Contract and shall take such precautions as may be necessary to prevent damage to the Project, provide suitable drainage and erect necessary temporary structures, signs or other facilities.

15.1.5.1. During such period of suspension, the Contractor shall properly and continuously maintain in acceptable growing conditions all living material in newly established plantings, seeding, and sodding furnished under his contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

15.1.5.2. When Work is suspended by the Contractor without authorization from the Owner, or is suspended by the Owner due to the causes specified in Article 15.1.2, the costs of providing the protective measures specified in Article 15.1.5. and 15.1.5.1, during the period of suspension shall be borne by the Contractor.

15.1.5.3. The Contractor will be responsible for all of its costs due to the suspension and there will be no time extension to the Contract Time if the suspension is due to the failure of the Contractor to perform its contractual obligations, or other causes attributable to Contractor.

15.1.5.4 The Owner will compensate the reasonable costs incurred by Contractor if the suspension is due to causes other than the failure of the Contractor to perform his contractual obligations and such causes are attributable to Owner.

15.2 Owner May Terminate for Cause

15.2.1. The occurrence of any one or more of the following events will justify termination for cause:

15.2.1.1. Contractor's persistent or repeated failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under the Contract, as adjusted from time to time); or

15.2.1.2. Contractor's egregious disregard of Laws or Regulations of any public body having jurisdiction; or

15.2.1.3. Contractor's persistent or repeated disregard of the authority of Architect/Engineer, Owner or Owner's Representative; or

15.2.1.4. Contractor's persistent and repeated violation of any substantial provisions of the Contract Documents; and does not start curing and without interruption continues to cure same prior to termination.

15.2.1.5. Contractor is adjudged bankrupt, or is a party to a fraud; or

15.2.1.6. Contractor should make a general assignment for the benefit of his creditors; or

15.2.1.7. A receiver be appointed on account of the Contractor's insolvency; or

15.2.1.8. An attachment is made upon a substantial amount the Contractor's properties utilized to perform the Work, and it is not lifted, or the claim otherwise secured, within five (5) working days thereafter; or

15.2.1.9. Contractor persistently fails to make prompt payment to subcontractors, as per Article 6.21.2, or for materials, services, or labor already paid to Contractor by the Owner; or

15.2.1.10. Contractor abandons or discontinues the prosecution of the Work without Owner's written authorization.

15.2.1.10.1 Nevertheless, Contractor may discontinue the prosecution of the Work during: (i) Holy Thursday; (ii) the Friday after Thanksgiving; and (iii) the time period commencing on the Saturday before Christmas Day (December 25) and ending on the Sunday after Three Kings' Day (January 6) without incurring in an event of default due to discontinuance of the Work.

15.2.2. If one or more of the events identified in Article 15.2.1 occur, Owner may, after giving Contractor (and the surety, if any) seven (7) days written notice to cure such default, terminate the services of Contractor, exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools and appliances at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion), incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and finish the Work as Owner may deem expedient. In such case, Contractor shall not be entitled to receive any further payment until the Work is finished.

15.2.3. In Lump Sum contracts, if the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor.

15.2.4. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Owner's Representative as to their reasonableness and, when so approved by Owner's Representative, incorporated in a Change Order or Extra Work Order. When exercising any rights or remedies under this paragraph Owner shall not be required to obtain the lowest price for the Work performed, but shall assume all reasonable means to complete the work at a reasonable cost.

15.2.5. When Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

15.2.5.1. Termination of the Contract, as stated above, will not release the Contractor of his responsibilities for the Work completed, nor shall said termination release surety from its obligations.

15.3 Owner May Terminate the Contract For Convenience

15.3.1. Upon seven (7) days written notice to Contractor and Architect/Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, elect to terminate the Contract for convenience.

15.3.2. After receipt of notice of termination for convenience from the Owner, the Contractor shall submit, within sixty (60) calendar days of the effective termination date, a Claim for compensation damages and/or costs. In such Claim, if presented, Contractor shall be paid, without duplication of any items, the following:

15.3.2.1. In lump sum contracts, the work performed and accepted by the Owner shall be paid in accordance with the schedule of values approved by the Owner.

15.3.2.2. The actual cost of all acceptable materials for which orders have been placed by the Contractor for use under this Contract, provided that, if required by the Owner, the Contractor shall make every reasonable effort to cancel such orders. If said orders can be canceled, the Owner shall pay for all restocking, or other charges, associated with said cancellation.

15.3.2.3. The actual cost of acceptable raw material ordered or purchased for fabrication, or materials already fabricated, whether those materials are located in the shop, the project, or in transit.

15.3.2.4. The actual amounts paid by the Contractor for construction equipment rentals up to the time of termination, plus any amounts accrued, or payable, under written contracts for the rental of such equipment. Contractor shall make every possible effort to cancel any such contracts. In the event that the rental contracts can be canceled by the Contractor, the Owner shall pay for all reasonable costs incurred directly caused by the rental cancellation. If the equipment is owned by the Contractor, he will be paid the cost (depreciation) of said equipment.

15.3.2.5. The actual costs disbursed by to the Contractor of bonds, insurance, taxes, and deposits required under the Contract, unless previously paid by Owner.

15.3.2.6. Contractor's overhead and profit in the amount equivalent to fifteen percent (15%) of all payments made under Articles 15.3.2.2 to 15.3.2.5.

15.3.2.7. Contractor shall exert his best effort to mitigate the costs mentioned in Articles 15.3.2.2 to 15.3.2.5.

15.3.2.7.1. From the total sum of all the costs indicated in Articles 15.3.2.2 to 15.3.2.6. there shall be deducted all payments therefore previously made and all proper charges to the Contractor in relation therewith.

15.3.3. In the event that the Work is suspended under Article 15.1, thereby stopped for a period of time, and after said suspension is cancelled, the amounts due to the Contractor under the Contract will be first calculated for the suspension period as per Article 15.1 hereunder and then calculated for the cancellation afterwards as per Article 15.3, hereunder. The total amount due the Contractor will be the sum of both.

15.3.4. If the Contract is terminated for convenience, the Owner shall assume all security, and insurance of the project on the effective date of the termination, or cancellation.

15.3.5. Termination of the Contract for convenience, as stated above, will not release Contractor from his responsibilities for the Work completed, nor shall it release his surety of its obligations.

15.3.6. Contractor shall not be entitled to payment on account of loss of anticipated or expected profits or revenues or other economic loss arising out of or resulting from such termination for convenience under this Article 15.3.

15.4 Contractor's Right to Terminate the Contract

15.4.1. The Contractor has the right to Terminate the Contract and recover from the Owner payment for all work executed as specified in Article 15.3.2, herein, if the Owner:

15.4.1.1. substantially stops the work for any reason whatsoever through no act, or fault, of the Contractor for a period of ninety (90) days starting from the written stoppage notice of the Owner and/or the Owner's Representative, or

15.4.1.2. fails to pay the duly approved Request for Payments within eighty (80) calendar days after the same was due.

15.4.2 The foregoing provisions are in addition to, and not in limitation of the rights of the Contractor under any other provisions of the Contract.

ARTICLE 16 - DISPUTE RESOLUTION

16.1 Disputes

16.1.1. In case of any timely Claim, Dispute or other matter involving the interpretation of the Contract Documents, a change in the Contract Sum, and or an Extension of Contract Time, and other matters in question arising out of, or relating to this Contract or the breach thereof, except for Claims which have been waived by the acceptance of final payment, shall be submitted to and decided first by the Owner's Representative as provided in Article 11.5.

16.1.2. If the Dispute submitted to the Owner's Representative as provided for in Article 11.5 is not decided by him within the thirty (30) day period established therein, the Claim shall be deemed rejected.

16.1.3. If the party establishing the Claim is not satisfied with the decision or automatic rejection by the Owner's Representative, the party will have fifteen (15) days to appeal the decision to the Chief of Construction, or equivalent division head, of the Owner.

16.1.4. The Chief of Construction shall have a period of thirty (30) days from the date of receipt of the notice of appeal during which he must render a decision.

16.1.4.1. However, if the Chief of Construction requires additional time to review the Claim, because of the nature or complexity of the Claim or if additional documents and/or information are needed from the Contractor to make a determination, the Chief of Construction shall submit, within five (5) calendar days of receipt of the notice of appeal, a written notice with an estimate of the additional time needed to review said claim and its justification. This additional time, shall not exceed thirty (30) days, unless more time is agreed upon by the parties.

16.1.4.2. If the Chief of Construction does not render a decision within the time allotted, including extensions, then the Claim shall be deemed rejected.

16.1.5. If the Contractor is not satisfied with the decision or automatic rejection by the Chief of Construction, the Claim shall be referred to the Owner and the Contractor. The parties will meet for negotiations within ten (10) working days of the notice of referral of said Claim. If the Dispute has not been resolved within thirty (30) days after said referral (which may be extended by mutual agreement) and subject to any rights to injunctive relief and unless otherwise specifically provided for herein, the parties shall proceed in accordance with Article 16.2.

16.1.6 Contractor shall carry on the Work and adhere to the progress schedule during all Disputes or disagreements with Owner. The Owner will continue making payments under the Contract for Work performed that is not in Dispute.

16.1.7. No Work shall be delayed or postponed pending resolution of any Disputes or disagreement unless Owner and Contractor otherwise agree in writing.

16.2 Remedies

16.2.1. All Disputes not resolved by the method indicated in Article 16.1, upon written agreement of the parties, shall be submitted to non-binding mediation as indicated in Article 16.3. Either party may, at any time, give written notice to the other party that it does not wish to mediate or to continue to mediate a Dispute. Such notice shall conclude the mediation process.

16.2.2. If the parties fail to agree to submit the Dispute to mediation, or one party decides to cancel the mediation after the mediation has started, or if the mediation process does not resolve all Disputed matters, then the remaining Disputes shall be decided by arbitration, upon timely demand for arbitration, notified by one party to the other within ten (10) days after the mediation process has concluded, if the amount of the claim does not exceed the limits established in Article 16.4.1. The mediation process shall conclude on the date notice is delivered by one party to the other stating that the party does not wish to mediate or to continue to mediate. Any undecided Disputes that exceed the limits established in Article 16.4.1, will be decided by the General Court of Justice of Puerto Rico.

16.3 Mediation

16.3.1. If the parties agree to mediate the Dispute they may chose between:

16.3.1.1. a mutually agreed mediation procedure; or

16.3.1.2. a mediation procedure under the supervision of the Bureau of Claim Resolution by Alternate Methods the Office of the General Court of Justice; or

16.3.1.3. a mediation procedure administered by the American Arbitration Association under its Construction Industry Mediation Rules.

16.3.2. All costs incurred as a result of the mediation shall be borne equally by the parties, unless the mediator orders otherwise in accordance to Article 16.3.4.

16.3.3. The parties will be required to exchange their positions as to the Dispute, fully and in good faith, with a detailed description of the facts and of the applicable law and shall fully exchange supporting documents. If after agreeing to mediate a Dispute a party is substantially unprepared to participate in the proceedings, or fails to participate in good faith, the Mediator at his discretion may require said party to pay all or part of the costs of the mediation incurred by the other party due to the non-compliance with this Article.

16.4 Arbitration

16.4.1. Disputes to be arbitrated shall be limited to those Disputes, which when all sums claimed therefore under the Contract are added, total an aggregate sum of five percent (5%) or less of the Contract Price or $500,000.00 or less, whichever is lower. Only such Disputes where the aggregate amount claimed is below said threshold shall be resolved through the arbitration procedures established in this Article 16.4. The aggregate sum shall be determined on the date of the notice of the demand for arbitration taking into consideration all pending Disputes regarding the Contract submitted by the Contractor pursuant to Articles 11.5 and 16. In order to qualify for resolution thru arbitration, all issues and Claims regarding liability and damages relating to a particular Dispute must be submitted together, within the same arbitration proceeding. The parties are specifically prohibited from submitting the issue of liability to arbitration and thereafter submitting the issue of damages (regarding the same Dispute) to another arbitration proceeding or to the court.

16.4.1.1. The $500,000.00 threshold will be adjusted every five (5) years. The adjustment will be based on the Consumer Price Index (CPI) published by the Government of Puerto Rico. The base year for such adjustment shall be the year 2010.

16.4.1.2. If Contractor invokes the provisions of this Article 16.4, but at a later date submits additional Claims to the Owner under the same Contract, pursuant to Article 11.5 and/or Article 16, for an additional sum which, if added to the amount claimed under the original Dispute(s), surpasses the threshold amount established in Article 16.4.1, then said additional Disputes that surpass the threshold may not be submitted to arbitration and shall be decided by the General Court of Justice of Puerto Rico. Nevertheless, the already pending arbitration proceedings under Article 16.4 shall continue until concluded. If additional Disputes are submitted after the arbitration proceedings are concluded and final award has been entered, then the amounts of the original Claims that were arbitrated and concluded shall not count towards the threshold stated in Article 16.4.1.

16.4.2. **Procedure For Binding Arbitration.**

16.4.2.1. Contractor shall submit to the Owner, together with the notice of demand for arbitration of a Dispute, a list of no less than five (5) proposed arbitrators, together with their respective curriculum vitae and a disclosure statement from each as to possible conflicts of interest.

16.4.2.2. Within five (5) working days of receipt of the notice of demand for arbitration, Owner shall either: (i) select one (1) arbitrator from the Contractor's list, or (ii) if all arbitrators proposed by Contractor are unacceptable to Owner, submit to Contractor a list of no less than five (5) proposed arbitrators, together with their respective curriculum vitae and a disclosure statement from each as to possible conflicts of interest.

16.4.2.3. Within five (5) working days of receipt of the Owner's list, contractor shall either: (i) select one (1) arbitrator from such list or (ii) reject all arbitrators from the Owner's list. If within the following ten (10) days the parties cannot agree as to an arbitrator or a panel of arbitrators, then each party within the following five (5) days will unilaterally appoint and notify to the other one arbitrator, and the two (2) arbitrators so appointed shall within ten (10) days after the appointment of both arbitrators select a third arbitrator and notify the Owner and the Contractor of said selection, and the three (3) arbitrators shall constitute the panel of arbitrators that shall decide the Dispute. The arbitrators so appointed or selected need not be on the original lists of arbitrators. Within ten (10) days of the selection of the third arbitrator, each arbitrator shall notify Owner and Contractor their respective curriculum vitae and statement as to possible bias or conflict of interest.

16.4.2.4. The arbitration proceedings shall be conducted under the provisions of the Puerto Rico Arbitration Act, Act No. 376 of May 8, 1951, as amended.

16.4.3. **Award**

16.4.3.1. The award entered need not include written determinations of fact and conclusions of law and the award shall be final and not be reviewable or appealable due to errors of fact or of law. Nevertheless, the arbitrators will endeavor to ascertain the facts and follow the law.

ARTICLE 17 -MISCELLANEOUS

17.1 Governing Law. The Contract Documents, and all questions relating to their validity, performance, interpretation and enforcement, shall be governed by and construed in accordance with the laws of the

Commonwealth of Puerto Rico. Any legal action brought concerning the above shall be brought in accordance with the contract and thereafter exclusively in the courts of the Commonwealth of Puerto Rico.

17.2 Federal Funds

17.2.1. When the United States government or any of its agencies finances or pays for all or any portion of the cost of the Work, federal laws and the applicable rules and regulations must be observed by the Contractor. The Owner will identify in the bid documents the program providing such funds.

17.2.2. If the Contract Documents include a specific provisions issued by such federal funding agency in case of conflict with other provisions of the Contract Documents, said federally issued provisions shall govern.

17.2.3. Unless specified elsewhere in the Contract Documents, the funding federal agency is not a party to this Contract.

17.2.4 When the United States government funds Work covered by the Contract Documents, the Work shall be under the supervision of the Owner but subject to the inspection by the appropriate Federal agency and in accordance with the applicable Federal statutes and rules and regulations.

17.2.4.1. Such inspection shall in no way make the Federal Government a party to this Contract and will in no way interfere with the rights of either party hereunder.

17.2.4.2. The Contractor shall extend the same courtesies to the representatives of the Federal government as required to be extended to representatives of the Commonwealth government.

17.3 Notice

17.3.1. Unless otherwise specified in the Agreement or in the Contract Documents, written notice shall be deemed to have been duly served if delivered:

17.3.1.1. to Contractor if delivered in person to the individual, to a member or partner of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

17.3.1.2. to Owner if delivered in person to the Owner's Representative or to the Project Inspector; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice with the requirements established in Article 17.3.2.

17.3.2. All notices whereby a consent, approval or action is required to be performed by the recipient within a specific period shall include, in bold and capitalized font, at the top of the transmittal communication the following legend: "IMPORTANT RIGHTS MAY BE LOST BY FAILURE OF [NAME OF PARTY] TO ACT PROMPTLY. SPECIFIC ACTION(S) AND/OR APPROVAL(S) ARE HEREIN REQUESTED. IN CASE OF AUTOMATIC APPROVAL DUE TO FAILURE TO ACT BY THE RECIPIENT THE NOTICE MUST STATE: THIS SUBMISSION WILL BE DEEMED APPROVED _____ BUSINESS DAYS AFTER RECEIPT BY [NAME OF PARTY] IF REJECTION IS NOT NOTIFIED TO [NAME OF SENDER]."

17.4 Computation of Time. When a period of time is to be computed for any purposes under the Contract Documents, the number of days within such period will exclude the first and include the last day. If the last day of

any such period falls on a Saturday, a Sunday or on a Holiday listed in Article 1.1.1.41, such day will be excluded from the computation.

17.5 Ownership of Documents. Any reports, information, findings, data, or any other documents prepared or assembled by the Contractor regarding the Contract will be the sole property of the Owner and shall not be made available by Contractor to any individual or organization without the prior written approval of the Owner, unless required by court order.

17.6 Personal Liability of Public Officials. In exercising rights or carrying out duties under the Contract, the Owner's Representative, the Contracting Officer, and their authorized representatives shall not be personally liable, it being understood that they act as the agents and representatives of Owner.

17.7 No Waiver of Legal Rights

17.7.1. In Unit Price Contracts, the Owner shall not be precluded or stopped by any measurement, estimate, or certificate made either before or after the completion and acceptance of the Work (and payment made therefore), from showing the true amount and character of the Work performed and materials furnished by the Contractor, nor from showing that any such measurement, estimate or certificate is untrue or is incorrectly made, nor from showing that the work or materials do not in fact conform to the Contract.

17.7.2. The Owner shall not be precluded or stopped, notwithstanding any such measurement, estimate or certificate and payment in accordance therewith, from recovering from the Contractor or his sureties, or both, such damage as Owner may have sustain by reason of his failure to comply with the terms of the Contract. Neither the acceptance by the Owner or any representative of the Owner nor any payment for or acceptance of the whole or any part of the Work, nor any extension of time, nor any possession taken by the Owner, shall operate as a waiver by Owner of any right hereunder.

17.7.3. A waiver by the Owner, or Contractor, of any breach of the Contract shall not be held to be a waiver as to any other breach.

17.7.4. The Contractor, shall be liable to the Owner for latent defects, fraud, (or such gross mistakes as may amount to fraud), and every contractual warranty or guaranty.

17.8 Cumulative Remedies. The duties and obligations imposed by these General Conditions and the rights and remedies available thereunder are in addition to, and are not to be construed in any way as a limitation of any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents, and the provisions of this Article will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.9 Successors and Assigns. The Owner and the Contractor each binds himself, his partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him hereunder, without the previous written consent of the Owner.

17.10 Survival of Obligations. All representations, indemnifications, warranties, and guarantees made in,

required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work and termination or completion of the Agreement.

17.11 Language. These Uniform General Conditions were enacted by the Secretary and approved by the Governor of Puerto Rico in the English language, according to the Legislative authorization found in Law No. 1 of January 28, 1993.

17.12 Amendments. These Uniform General Conditions shall be amended whenever the Secretary deems it necessary in order to fulfill its purpose.

PART C. ADDITIONAL PROVISIONS

ARTICLE 1: SEPARABILITY CLAUSE; EFFECTIVENESS

1.1 Separability Clause. If any provision authorized in these regulations is declared unconstitutional or void by a Court of Competent jurisdiction, the remaining provisions of this Uniform General Conditions shall continue in effect.

1.2 Effectiveness. These Uniform General Conditions shall enter into effect thirty (30) days after having been filed and enacted by the Department of State, except with regard to Contracts whose Contract Price is paid by one or more Federal Agency in which case these Uniform General Condition, with regard to such Contracts, shall enter into effect immediately after said Federal Agencies, which provide such funds, consent in writing to their use as part of the Contract Documents. At the time of said effectiveness and from that moment forward, general conditions used and issued by a government agency, department, public corporation and instrumentality, may no longer be validly incorporated in Contracts for public works, with the exception of these Uniform General Conditions.

APPROVED ON February 22, 2011, IN SAN JUAN, PUERTO RICO.

Eng. Rubén Hernández Gregorat, MEM, PE
Secretary
Department of Transportation and Public Works

GOVERNMENT OF PUERTO RICO

CERTIFICATION

Pursuant to Law No. 198 of May 15, 1943, as amended, and Law No. 1 of January 28, 1993 and after compliance with the Puerto Rico Uniform Administrative Procedure Act, Law No. 170 of August 12, 1988, as amended, I hereby approve the final version of the Uniform General Conditions for Public Contracts of the Government of Puerto Rico, as prepared by the Secretary of Transportation and Public Works and submitted for my consideration on February 22, 2011.

In San Juan, Puerto Rico, this 23rd -day of February of 2011.

Luis G. Fortuño
Governor

OFICINA DEL PROCURADOR DEL CIUDADANO

OMBUDSMAN
1977
Gobierno de Puerto Rico

Hon. Iris Miriam Ruiz Class
Procuradora

8 de febrero de 2011

Hon. Rubén A. Hernández Gregorat
Secretario
Departamento de Transportación y Obras Públicas
PO Box 41269
San Juan, Puerto Rico 00940-1269

Re: **NEG-11-00061**
Proyecto de Condiciones Generales Uniformes para Obras Públicas

Estimado secretario Hernández Gregorat:

La Procuraduría de Pequeños Negocios, luego de analizar y hacer varias recomendaciones para el ***Proyecto de Condiciones Generales Uniformes para Obras Públicas***, presentado por el Departamento de Transportación y Obras Públicas, entiende que el mismo no tiene impacto sustancial que pueda afectar a los pequeños negocios.

Por otra parte, le recordamos que el Artículo 5 de la Ley Núm. 454 del 28 de diciembre de 2000, según enmendada, Ley de Flexibilidad Administrativa y Reglamentaria para el Pequeño Negocio (LFAR), impone a las agencia a deber de hacer públicas las copias del Análisis de Flexibilidad Reglamentaria en el Registro de Reglamentos del Departamento de Estado.

La falta de publicación del Análisis de Flexibilidad podría inducir que cualquier asociación de comerciantes y/o dueño de negocio radique en el Tribunal la impugnación del reglamento por no cumplir con los aspectos procesales establecidos en la LFAR. Este tipo de acción judicial requeriría que el pequeño negocio demuestre al Tribunal el impacto negativo que le puedan causar tanto el nuevo reglamento como la falta de un Análisis de Flexibilidad. El término para impugnar el referido reglamento es de un (1) año a partir de la fecha en que el mismo entre en vigor.

Por lo cual, la Procuraduría de Pequeños Negocios da un aval condicionado al reglamento propuesto y exhorta que el nuevo reglamento sea promulgado cumpliendo con todas las disposiciones en ley. Le exhortamos también a comunicarse con nuestra Procuraduría de tener alguna duda al respecto.

Respetuosamente,

Lcdo. Edison Negrón Ocasio
Procurador de Pequeños Negocios

Minillas Station PO Box 41088 San Juan, Puerto Rico 00940-1088
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GOBIERNO DE PUERTO RICO
DEPARTAMENTO DE TRANSPORTACIÓN Y OBRAS PÚBLICAS

ANALISIS DE FELIXIBILIDAD ADMINISTRATIVA Y REGLAMENTARIA PARA PEQUEÑOS NEGOCIOS

UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACTS

10 DE DICIEMBRE DE 2010

ANÁLISIS SOBRE FLEXIBILIDAD ADMINISTRATIVA Y
REGLAMENTARIA PARA PEQUEÑOS NEGOCIOS

UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS

I. BASE LEGAL, NECESIDAD Y OBJETIVOS DEL REGLAMENTO PROPUESTO

A. Base legal y necesidad de adoptar reglamentación

La Ley Núm. 198 del 15 de mayo de 1943, según enmendada, 22 L.P.R.A. §59, et seq., autorizó y ordenó al Secretario de Transportación y Obras Públicas preparar un pliego de condiciones generales para la contratación de obras públicas en Puerto Rico. Mediante esta Ley se creó el marco jurídico aplicable a la contratación de toda obra pública y se estableció un procedimiento para su promulgación.

Habiendo transcurrido ya varios años desde la aprobación del último pliego de condiciones generales, el Departamento de Transportación y Obras Públicas (DTOP) y la Autoridad de Acueductos y Alcantarillados (AAA), con el insumo y cooperación del Asociación de Contratistas Generales (AGC), Capítulo de Puerto Rico, se dieron a la tarea de confeccionar un nuevo pliego de condiciones generales mediante el cual se pretendió cobijar uniformemente a todas las agencias gubernamentales que realizan obra pública, además de crear unas nuevas reglas que se atemperaran a la experiencia adquirida colectivamente por las distintas agencias gubernamentales a través de años de contratación.

Para canalizar el proceso y poder alcanzar las metas resultó indispensable enmendar la referida Ley Núm. 198. A estos efectos se preparó un ante proyecto de Ley el cual luego de ser evaluado por distintas Comisiones (Comisión de Gobierno, Urbanismo e Infraestructura) y aprobado por el Senado y la Cámara de Representantes, fue aprobado por el Gobernador, convirtiéndose en la Ley Núm. 131 del 2 de septiembre de 2010.

Las enmiendas que trajo la referida Ley 131 fueron, en esencia, las siguientes:

(a) la actualización de conceptos contenidos en la Ley 198 para conformarlos a la realidad jurídica actual;

(b) la inclusión de disposiciones específicas para establecer que el Pliego de Condiciones Generales Uniformes regiría las relaciones contractuales en la construcción de toda obra pública que realicen las agencias, departamentos, corporaciones públicas y demás instrumentalidades gubernamentales con excepción de los Municipios; y

(c) disponer que el proceso de aprobación del las condiciones generales uniformes se haría de conformidad con las disposiciones de la Ley de Procedimiento Administrativo Uniforme, Ley Núm. 170 de 12 de agosto de 1988, según enmendada.

Las enmiendas realizadas a la Ley 198 sentaron las bases legales que permiten la aprobación de este pliego de Condiciones Generales Uniformes.

La contratación, coordinación y supervisión de obras públicas presenta problemas y situaciones de carácter recurrentes tanto para las agencias como para los contratistas. Para atender estos problemas era necesaria la creación y aprobación de un conjunto de disposiciones que especificaran cuales son las responsabilidades, obligaciones y poderes de cada una de las partes contratantes y sus competencias en los campos de actuación respectivos.

B. Propósito del reglamento

El Pliego de Condiciones Generales Uniformes pretende uniformar la contratación y administración de toda la obra de construcción pública en Puerto Rico y eliminar el desfase que existe en la contratación en las diferentes agencias. Por ser el resultado de un esfuerzo común y de la experiencia de las partes contratantes, el nuevo pliego de Condiciones Generales Uniformes busca proveer soluciones o avenidas de acción a problemas contractuales, administrativos y legales comunes o similares y sirve de instrumento para nivelar el terreno para todas las partes de manera que se protejan adecuadamente los intereses de cada uno de los contratantes.

II. APLICABILIDAD

Las disposiciones contenidas en el Pliego de Condiciones Generales Uniformes son de aplicación a cualquier persona natural o jurídica que suscriba un contrato con cualquier agencia de gobierno, departamento, corporación pública o cualquier instrumentalidad del Gobierno de Puerto Rico en el cual el objeto del contrato sea la consecución de obra pública. Sin embargo, las Condiciones Generales Uniformes no sólo son de aplicación al contratista principal de la obra que contrata con una agencia sino que existen clausulas que son aplicables a los subcontratistas y materialistas que trabajan en dicha Obra. El trabajo que un subcontratista o suplidor realice para el contratista general del Proyecto deberá ser de conformidad a un acuerdo en el que se le obligue al Subcontratista a cumplir con los términos y condiciones de seguridad, y otros de las Condiciones Generales y de los Documentos Contractuales que le sean aplicables.

III. POSIBLES IMPACTOS DE LA REGLAMENTACIÓN

A. Pequeños negocios impactados

Este Reglamento tiene un impacto en toda entidad que contrate para la ejecución de una obra pública sin importar el tamaño que tenga esa operación comercial. El factor determinante no es el tamaño del negocio sino el objeto del contrato, o sea que el contrato conlleve la ejecución de una obra pública incluyendo pero sin limitarse a trabajos de construcción, restauración y reparación de edificios o construcciones existentes o nuevas, así como la conservación y mantenimiento de los elementos construidos y los proveedores de diferentes servicios contratados para trabajar en Obras.

Para que un contratista principal pueda hacer negocios con el Gobierno Federal de Los Estados Unidos y con el Gobierno de Puerto Rico este debe estar inscrito en el Registro Único de Licitadores. Este requisito no es de aplicación a los sub-contratistas y materialistas del contratista principal del Proyecto ya que la relación contractual de los materialistas o subcontratistas no es con el gobierno o la agencia, sino que su relación contractual es con el Contratista Principal. El Registro de Licitadores o proveedores le brinda la oportunidad legítima a las corporaciones o entidades de participar del proceso de compra gubernamental "procurement" y la participación de las subastas como contratista principal. En Puerto Rico existen varios

registros de licitadores o proveedores siendo el más importante el Registro Único de Licitadores que es dirigido por la Administración de Servicios Generales (ASG). Este Registro es respaldado por la Ley 85 de Junio 2002, mejor conocida como "Ley Registro Único de Licitadores". Uno de los propósitos principales de este Registro es que el Gobierno puede asegurarse de lo siguiente: Adquirir bienes y servicios de empresas que cumplan con todas las requisiciones fiscales; Contratar empresas bonafides debidamente autorizadas para hacer negocios en Puerto Rico; Contratar Individuos que estén al día en sus obligaciones fiscales; Contratar individuos y empresas que cumplan con solvencia ética y moral; Contratar empresas que puedan cumplir con los bienes o servicios solicitados.

Muchos de los contratistas registrados en el Registro Único de Licitadores no cualifican como pequeños negocios ya que emplean a más de quince (15) personas, por tanto estos contratistas, aunque están impactados por el Reglamento de Condiciones Generales Uniformes, no están dentro del marco de los negocios cubiertos por este análisis. No empece lo anterior, existen algunos contratistas que sí cualifican como pequeños negocios, estos contratistas en su mayoría son corporaciones dedicadas a proyectos de construcción que envuelven construcción de carreteras, puentes edificios y otros. Por otro lado, los sub-contratistas y materialistas de los proyectos de construcción de obra pública si son usualmente pequeños negocios, sin embargo, a estos no les aplica el requisito de pertenecer al Registro Único de Licitadores pues su relación contractual no es con el gobierno o la agencia sino con el contratista general de la obra.

A pesar de no requerir que el sub contratista pertenezca al registro único de licitadores las Condiciones Generales Uniformes si establecen que el dueño podrá objetar la contratación de un subcontratista o materialista si existen razones validas. Las Condiciones Generales Uniformes le requieren al Contratista Principal de la obra presentarle al gobierno o agencia con la cual contrata un listado en el que se detallen el nombre de los subcontratistas y materialistas principales que pretende utilizar en las porciones principales del Proyecto. Por su parte la agencia o gobierno tiene el deber de investigar y notificar al Contratista si objeta alguno de los subcontratistas o suplidores contenidos en la lista provista por el contratista principal. La objeción por parte de la agencia no podrá ser arbitraria, la misma deberá ser una razonable y los fundamentos para la misma deberán constar por escrito. Las causas para objetar a un subcontratista, suplidor o materialista pueden incluir, entre otras: record de incumplimientos previos de un subcontratista o materialista con la agencia, record flagrante de violaciones de seguridad o desempeño insatisfactorio en pasados Proyectos con la agencia. Este procedimiento tiene el propósito de garantizar algún control sobre los contratistas o suplidores de Proyectos de manera que se evite que subcontratistas o materialistas ineficientes y de alto riesgo trabajen en la obra retrasándola y aumentando los costos los cual al fin y al cabo termina siendo pagado con fondos públicos. Por ende, esta es una medida de control que pretende asistir a la mejor utilización de fondos públicos.

B. Impacto económico al pequeño negocio

Las Condiciones Generales Uniformes son el resultado de un esfuerzo interagencial dirigido por el DTOP y la AAA, agencias que por su vasta experiencia en la contratación de obras públicas tomaron la iniciativa de crear un conjunto de disposiciones que regularan y uniformaran la contratación de Obra. Durante la redacción de las Condiciones Generales Uniformes se contó con la participación y colaboración activa de la ACG, Capítulo de Puerto Rico. La ACG es una asociación que agrupa a más de 350 compañías que generan un 80% de la construcción en nuestra Isla. Entre los propósitos y objetivos de la ACG se encuentra el combatir las prácticas injustas, apoyar al contratista y sus asociaciones para verificar condiciones insatisfactorias y estimular métodos de contratación que no expongan al contratista a riesgos.

El proceso de redacción de la Condiciones Generales Uniformes incluyó la celebración de innumerables reuniones para la discusión de las disposiciones. En dichas reuniones las partes presentaban sus posiciones en cuanto a cada disposición. Por ende el borrador que resultó del ejercicio contó con la aprobación del ACG. Debido a que la participación de la ACG en este proceso fue esencial para la redacción de las Condiciones Generales Uniformes, los derechos de los contratistas al igual que impacto económico de estas condiciones generales fueron escuchados para que dicho impacto a los contratistas fuera mínimo.

No obstante, por tratarse de fondos públicos que van a ser desembolsados para la construcción de obras públicas, el Gobierno tiene que tener unas garantías de que dicho dinero será invertido de manera eficiente. Por tal razón siempre que la agencia suscribe un contrato con un contratista general para construcción de obra pública a este se le requiere la prestación de ciertas fianzas y seguros que garanticen que los fondos resultaran en la construcción de la obra. Las Condiciones Generales Uniformes también exigen la prestación de estas garantías, sin embargo, las mismas fueron redactadas para nivelar el campo del juego y salvaguardar los derechos de todas las partes envueltas.

C. Zonas geográficas de mayor impacto

Las disposiciones de las Condiciones Generales Uniformes impactan directamente a los contratistas principales que contratan con el gobierno o agencia. Estos contratistas, los cuales tienen que ser licitadores autorizados, se encuentran ubicados a través de todo Puerto Rico. Las estadísticas de la ASG demuestran que la mayoría de los licitadores autorizados se encuentran ubicados en la zona metropolitana. Sin embargo, como mencionamos anteriormente la mayoría aunque no todos estos contratistas principales no se consideran pequeños negocios. La mayoría de los pequeños negocios que están en alguna manera impactados por la Condiciones Generales son los subcontratistas, suplidores o materialistas los cuales se encuentran distribuidos por toda la Isla aunque en su mayoría también están ubicados en el área metropolitana.

IV. CUMPLIMIENTO CON EL REGLAMENTO

A. Personal que fiscalizará su cumplimiento

El personal encargado de hacer cumplir las disposiciones Condiciones Generales Uniformes consiste de los funcionarios de las agencias o instrumentalidades de gobierno contratantes que están a cargo de la contratación, supervisión y sobreseimiento de la construcción de la obra.

B. Sanciones y penalidades

El incumplimiento con las disposiciones del Reglamento de Condiciones Generales Uniformes puede conllevar la imposición de daños líquidos, cancelación de contratos, radicación de demanda por incumplimiento, imposición de multas y cancelación de autorizaciones o licencias.

Las Condiciones Generales Uniformes disponen que en caso de que el contratista o su aseguradora no completen el trabajo dentro del tiempo especificado por el contrato o según extendido se le impondrá al contratista una suma de daños líquidos por cada día calendario que el trabajo no sea completado en tiempo. Los daños líquidos fluctúan desde $300.00 dólares diarios en Contratos de $0 hasta $99,999.99 hasta $8,000.00 diarios en proyectos de $50 Millones en adelante (aunque esto puede variar según la

Provisión Especial que se incluya en el contrato. Por otro lado, las Condiciones Generales Uniformes también disponen de un incentivo equivalente a la mitad de los daños líquidos estipulados por cada día que la obra este sustancialmente completada antes de la fecha de terminación estipulada en el Contrato.

Lo anterior no impide que el Gobierno de Puerto Rico pueda, por los mismos hechos, iniciar un procedimiento criminal contra cualquier contratista que se identifique que ha cometido delitos relacionados con fraude en la construcción o cualquier otro delito tipificado en el Código Penal de Puerto Rico.

C. <u>Otros requisitos para cumplimiento</u>

Las Condiciones Generales Uniformes son un conjunto de disposiciones que definen los deberes y derechos del contratista principal y de las agencias en el proceso de contratación y construcción de obras públicas. Estas Condiciones Generales Uniformes también disponen los términos para actuar o presentar reclamaciones. Debido a su carácter regulador las Condiciones Generales Uniformes establecen múltiples requisitos a los contratistas a quienes se les adjudica la construcción de una obra pública y discutirlos todos seria vertir el contenido de las condiciones generales en este escrito. Sin embargo, entendemos que los requisitos más significativos en cuanto al impacto económico del Reglamento en aquellos pocos contratistas principales que cualifican como pequeños comerciantes es el asunto de la obtención de las fianzas y pólizas de seguros requeridas en el Articulo 3 de las Condiciones Generales Uniformes.

La Condiciones Generales Uniformes disponen que el contratista principal que haya recibido la buena pro en una subasta y contraté con el gobierno o agencia para la construcción de una obra pública no podrá comenzar trabajos hasta no haber obtenido ciertas pólizas de seguros y fianzas requeridas en las Condiciones Generales Uniformes. En el caso de las agencias que no tienen un "Owner's Controlled Insurance Program" el contratista principal de la obra deberá, dentro de los diez (10) días de haber recibido la notificación de adjudicación de subasta, proveer lo siguiente: (1) fianza de pago y fianza de cumplimiento en una suma de al menos 50% hasta 100% del monto del contrato; (3) pólizas del Fondo de Seguro de Estado y todas las pólizas de seguros social y laborales necesarias; (4) seguro de responsabilidad general; (5) póliza choferil para negocios; (6) builders risk; (7) instalation floater policy; (8) "contractors liability insurance" con un límite agregado general de $1 Millón, límite agregado de productos o operación de $1,000.00, límite de "advertising and injury", limite por ocurrencia de $5,000,000.00 limite de daños por fuego $50,000.00 límite de gastos médicos de $5,000.00. Estos requisitos son aplicables al contratista general porque su relación contractual es con la agencia pero no al subcontratista o suplidor ya que relación contractual es con el contratista general. A pesar de lo antes expresado al subcontratista le aplican algunas clausulas de las condiciones generales sobre calidad de trabajo, seguridad y otros relacionados al trabajos que contrate.

Otro requisito de impacto económico para aquellos contratistas generales que sean pequeños negocios es que el contratista general vendrá obligado al pago de todos los impuestos incluyendo impuesto de ventas, consumo, uso y otros de carácter similar necesarios para la consecución de de la Obra. Estos impuestos deben pagarse de acuerdo con las leyes, reglamentos y ordenanzas del lugar donde ubique la Obra que sean aplicables durante el periodo en de duración de la Obra y que estuvieran en efecto al momento de la subasta. Estos impuestos incluyen los impuestos municipales. Véase Art. 6.10.

Las pólizas de seguros y fianzas así como los impuestos y otros costos son gastos que el contratista general toma en consideración al momento de someter su propuesta ante la agencia o sea al momento de

licitar. Por tanto, estos gastos se encuentran absorbidos en el precio de licitación que el contratista general somete, a saber, en el Precio del Contrato. Los requisitos para las diferentes fianzas y seguros tienen el propósito de garantizarle a la agencia que el contratista principal será responsable. Estas disposiciones garantizan la ejecución de la obra y la mejor utilización de los fondos públicos que se desembolsan para pagar la Obra.

Por otro lado el impacto que tiene el Reglamento de Condiciones Generales Uniformes en los subcontratistas, materialistas y suplidores no es un impacto de carácter económico sino un impacto de carácter regulatorio ya que algunas disposiciones de las Condiciones Generales Uniformes como las de seguridad y otras que no son las de fianzas se incorporaran a los contratos que estos suscriben con el contratista general.

V. RELACIÓN CON OTROS REGLAMENTOS

Este Reglamento guarda relación con todos los reglamentos relacionados a las subastas, compras y contrataciones en obras de gobierno y con la ley y reglamentación de agencias federales que proveen subsidio a varias obras, este Reglamento deberá contar con la anuencia de esas agencias federales. Por tal razón las agencias que reciben ayuda federal notificarán el reglamento a las agencias federales concernidas y obtendrán su posición en cuanto al mismo.

VI. SEÑALAMIENTOS DEL PROCURADOR DE PEQUEÑOS NEGOCIOS

Los representantes del Departamento de Transportación y Obras Publicas se reunieron con el Procurador de Pequeños Negocios y el personal que analizó las disposiciones del propuesto Reglamento con el propósito de recibir el insumo y recomendación del Procurador y discutir y aclarar dudas sobre las clausulas del Reglamento. Las partes discutimos la sección 3.2.1. y 3.2.2 del propuesto Reglamento. Estas Clausulas en esencia requieren (i) que el contratista principal provea lo siguiente antes de dar comienzo a la obra: (1) fianza de cumplimiento; (2) fianza de pago; (3) póliza de compensación a trabajadores; (4) Fondo de Seguro de Estado y seguro social; (5) Seguro de Responsabilidad General; (6) Póliza de Chóferil; (7) Builders Risk; (8) Installation Floater (cuando sea aplicable); y (ii) que el contratista le conceda a las agencias y al gobierno discreción para eximir o solicitar pólizas o seguros de otra naturaleza a las antes mencionadas, según lo entienda necesario. Luego de analizar las disposiciones del Reglamento sobre este particular y atender las preocupaciones determinamos que la discreción que el Reglamento le concede a la agencia es razonable y necesaria. La clausula que permite se exima de algunas pólizas o seguros o que se requieran pólizas o seguros adicionales (sección 3.2.2) ya había sido previamente considerada y discutida el AGC. Precisamente con el propósito de atender la preocupación de posibles decisiones arbitrarias por parte de las agencias en cuanto a eximir o requerir más seguros se creó la Sección 3.2.2.1. Dicha sección obliga a la agencia a exponer por escrito y hacer formar parte del expediente del Proyecto las razones para no solicitar ciertas pólizas o para solicitar pólizas de diferente naturaleza. El propósito de la clausula 3.2.2 es darle cierto grado de flexibilidad al gobierno y agencias que construyen obras públicas para atender casos que ameriten que en bienestar de la consecución de la obra o para la protección de los fondos públicos haya que hacer modificaciones en las pólizas requeridas o en la naturaleza de las mismas. La flexibilidad que provee esta sección es necesaria toda vez que los proyectos de construcción de obra pública varían en complejidad y naturaleza. A pesar de que en general las pólizas requeridas son las mencionadas en la clausula 3.2.1 existen Proyectos que por su alto riesgo, peligrosidad o tecnicismo pueden requerir una modificación en el tipo de póliza. También existen Proyectos de Obra Pública tan sencillos que solicitar todas las pólizas nombradas en la clausula 3.2.1

resultaría innecesario y oneroso para el contratista lo cual haría la obra más costosa para el gobierno o la agencia. La construcción de obra pública requiere la flexibilidad de pólizas que se ajusten a la obra que se construye. El Reglamento pretende que no se haga más costosa una obra sencilla o que se que al descubierto una obra altamente compleja solo por la rigurosidad de una clausula. En fin el propósito es proteger y asegurar los fondos públicos y lograr la construcción de obras de manera rápida y eficaz pero segura. No empece lo anterior, el propio reglamento limita la flexibilidad de la agencia al tomar esta determinación requiriéndole que si se modifican las pólizas solicitadas en la seccion3.2.1.1 para eximir o aumentar de alguna póliza la agencia presente su justificación por escrito y haga que la misma obre en el expediente.

La segunda recomendación del Procurador de Pequeños Negocios se refiere al grado de control que la agencia o entidad gubernamental contratante tiene sobre la elección de los suplidores, materialistas y/o subcontratistas que se contrataran para el Proyecto. Para atender esta recomendación revisamos las disposiciones de la sección 6.21 del Reglamento y sus subincisos. De la sección antes mencionada surge que el Contratista general del Proyecto u Obra es quien determina cuales serán los subcontratistas, suplidores y materialistas que trabajaran en la Obra. En esa determinación inicial de quienes serán los que trabajaran la agencia no tiene ninguna intervención. Una vez el contratista principal hace su selección, entonces el Reglamento le requiere notificarle a la Agencia un listado de los subcontratistas y suplidores principales que el contratista ha escogido para las porciones principales del Proyecto. Nótese que solo se requieren los subcontratistas y suplidores principales de porciones principales del Proyecto o sea que el contratista no tiene que notificar a la agencia todos los subcontratistas sino solo los principales. La agencia hará una investigación y de tener una objeción justificada y razonable a los suplidores o subcontratistas principales que se le notificaron, entonces, lo expresará por escrito y ese subcontratista no podrá ser contratado para la Obra. Entre las razones que la agencia puede levantar para objetar la contratación de un subcontratista o suplidor se encuentra: (1) que el subcontratista haya incurrido en incumplimientos previos con la agencia; (2) que haya tenido record de violaciones de seguridad; o (3) que tenga historial de desempeño deficiente en sus funciones. Las razones que la agencia exprese para objetar tienen que ser razonables no pueden ser arbitrarias, injustas o ilegales. Esta clausula va dirigida a velar porque se logre la construcción rápida y eficiente de obras y sin exponer a la agencia o gobierno a riesgos innecesarios por subcontratistas riesgosos e ineficientes. Las objeciones de la agencia deberán estar fundamentadas en una investigación y constar por escrito y formar parte del expediente de modo que los derechos de un subcontratista o suplidor que quiera impugnar esta decisión pueda llevar la acción que en derecho estime. Por tanto, de lo anterior surge que la agencia no escoge los subcontratistas o materialistas de un Proyecto sino que si luego de una investigación surge que alguno de los que el contratista general pretende utilizar tiene un historial que puede afectar la obra, la agencia puede rechazarlo por el bienestar de la obra y la protección de los fondos.

VII. CONCLUSION

Luego de este análisis, se puede concluir que el reglamento de las Condiciones Generales Uniformes no tendrá un impacto económico adverso en los pequeños negocios que contraten con las diferentes agencias gubernamentales o corporaciones públicas para la construcción de obras públicas.

SUPPLEMENTARY CONDITIONS

Dated July 29, 2026

Attachment 9: SUPPLEMENTARY CONDITIONS

The following definitions and terminology will be replaced and shall read as follows:

1.1.1.1. Agreement (or Contract) - The written instrument, which is evidence of the agreement between Owner and Contractor covering the Work. For purposes of this Contract is the agreement entitled "Public Private Partnership Contract: ASEM - Design/Build/ Infrastructure Conservation Agreement" by and between the Design/Build/Conservation Contractor and ASEM.

1.1.1.3. Architect/Engineer - The Architect or Engineer, referred to herein as Architect/Engineer, is the professional licensed to practice architecture or engineering in the Commonwealth of Puerto Rico and is referred to throughout the Contract Documents. It is the Architect or Engineer authorized by the Contractor for the preparation of all construction documents, plans and specifications and to submit such documents for the approval of the related public agency. The Architect/Engineer may designate an authorized representative. The Architect/Engineer is the individual or duly authorized legal entity named as such in the Agreement.

1.1.1.4. Architect/Engineer's Consultant - An individual or duly authorized legal entity having a contract with the Architect/Engineer to furnish services as Architect/Engineer's independent professional and collegiate consultant with respect to the Project.

1.1.1.14. Contract Documents - The Contract Documents establish the rights and obligations of the parties and include: (i) the Agreement, (ii) addenda (which pertain to the Contract Documents), (iii) Contractor's bid or proposal (including documentation accompanying the Request for Sealed Proposal and any post Request for Sealed Proposal documentation submitted prior to the Notice of Award), (iv) the Notice to Proceed, (v) the Bonds, (vi) the General Conditions, (vii) the Supplementary Conditions, (viii) the Special Provisions, (ix) the Specifications, (x) the Drawings as the same are more specifically identified in the Agreement, including Standard Drawings, if applicable and (xi) Instructions to Bidders. It shall also include: (i) all Written Amendments, (ii) Change Orders and Extra Work Orders, (iii) Work Change Directives, (iv) Field Orders and (v) Owner's written interpretations and clarifications issued on or after the Effective Date of the Agreement. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents. Only printed or hard copies of the items listed in this Article are Contract Documents. Files in electronic media format of text, data, graphics, and the like that may be furnished by Owner to Contractor are not Contract Documents, unless otherwise specified in the bid documents.

1.1.1.19. Contract Time or Time - It is the period of time allotted in the Contract Documents.

1.1.1.37. Final Acceptance - Shall mean the acceptance of the Design-Build portion of the Work by the Owner after the final inspection as evidenced by the executed Certificate of Final Acceptance sent to Contractor by Owner.

1.1.1.53. Owner - The Owner is the Department, Agency, Public Corporations, or any other instrumentality of the Commonwealth of Puerto Rico as identified in the Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Owner means the Owner or his authorized representative. It shall also mean any person, or entity, named as such in the Contract Documents. For purposes of this contract, Owner shall mean and assigns ASEM, its successors and assign.

1.1.1.79. Substantial Completion - The time at which the Design-Build portion of the Work (or a specified part thereof) has progressed to the point where, in the opinion of the Owner, or its authorized representative, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Design-Build portion of the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

1.1.1.90. Work Change Directive - A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by the Owner and recommended by the Owner's Representative ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Time but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Time.

The following definitions and terminology will be added as follows:

1.2.1 OTHER DEFINITIONS

1.2.1.1 Conditional Acceptance (or conditionally accepted) - The action taken by OWNER, through the Contracting Officer or OWNER's Representative depending upon the particular Submittal involved, by which the Contracting Officer or OWNER's Representative, as the case may be, makes a determination with respect to a particular Submittal, that the Submittal appears to be satisfactory. Conditional Acceptance of a Submittal shall not, however, relieve the Contractor of its sole responsibility for its (a) accuracy and completeness, (b) coordination with other elements of the Work, (c) compliance with requirements of the Contract Documents, or (d) for errors and omissions in the Submittal.

1.2.1.2 Contractor Certification - A notarized affidavit signed by the Contractor's Project Executive or the Contractor's Project Manager certifying, with respect to a Contractor Change Request, a Contractor Change Proposal, or a notice given under the provisions of Subsection 9.3.3.1.6.4 (each a "Claim Submission"), that he or she has personally reviewed the documentation submitted in support of the Claim Submission, that he or she is satisfied that the Claim Submission is true, accurate and complete, that the dollar amounts and time extensions claimed accurately reflect the adjustments in the Contract Price or the Contract Time for which the Contractor reasonably believes OWNER is liable under the terms and conditions of the Contract, and that the Claim Submission is made in good faith.

1.2.1.3 Delay Bank - The net number of Days accumulated, from time to time, as a result of deposits of Days into the Delay Bank (made pursuant to Clause .4 and Clause .5 of Subsection 9.3.3.1.6.2), and withdrawals of Days from the Delay Bank (made pursuant to Subsection 9.3.3.1.6.5).

1.2.1.4 Delay Day - Any Day of delay affecting Critical Path Activities resulting from a Delay Event.

1.2.1.5 Excusable Delay - Any act, omission, event or condition which delays performance of Critical Path Activities for which the Contractor is entitled, under applicable provisions of the Contract, to an extension of the Contract Time.

1.2.1.6 Executive Director - OWNER's Executive Director.

1.2.1.7 Good Industry Practices - Practices, procedures, methods and standards that (i) are consistent with current industry practices and standards established for, or employed by, leading participants in the construction industry in the United States and in Puerto Rico; (ii) comply with Applicable Laws and applicable industry technical standards, and underwriters' and fire and life safety codes and standards; and (iii) promote the highest standards of reliability, efficiency, safety and security. Good Industry Practices require, without limitation, that reasonable steps be taken to assure that sufficient personnel are employed and available to perform the Work, and that such personnel are adequately skilled, experienced and trained to construct and install the Work properly and efficiently, and that appropriate coordination, monitoring and testing is performed to assure that all elements of the Work are constructed and installed so as to function as required by the Contract Documents.

1.2.1.8 Hazardous Waste - Any substance or material that is defined as a hazardous substance, hazardous material, hazardous waste or Special Waste under Applicable Laws, and that is required by Applicable Laws to be removed, remediated, or disposed of in a regulated waste facility (*i.e.*, a waste facility, other than a sanitary landfill, which is permitted to receive Special Waste or other hazardous waste).

1.2.1.9 Special Waste - Any discarded product or material generated by or resulting from industrial, commercial, mining or agricultural operations, or household or community activities, that contains asbestos, lead, oils, greases, regulated biochemical waste, industrial waste or polychlorinated biphenyl (PCB) waste, as defined in 40 C.F.R., Part 762, and that, under Applicable Laws, must be disposed of in a non-hazardous waste facility that is permitted to receive Special Waste. Special Waste also includes any other non-hazardous solid wastes which the Puerto Rico Environmental Quality Board determines, due to their quantity, concentration or physical or chemical characteristics, require special handling to prevent imminent danger to human health or the environment, and which must be so disposed of.

1.2.1.10 Taxes - Any (i) fees or assessments imposed by governmental authorities for building permits, and other permits in the nature of building permits, that the Contractor is required to pay as a condition precedent to the performance of the Work, (ii) fees imposed by the Puerto Rico Engineer and Land Surveyor Association ("Colegio de Ingenieros y Agrimensores de Puerto Rico") for internal revenue stamps, (iii) sales, use, import/excise taxes and municipal or similar taxes (including municipal license ("patente" taxes) imposed upon, or in connection with, the Work, including, but not limited to, municipal construction taxes and the Puerto Rico excise taxes, and (iv) any other taxes or assessments against or on account of services, materials, equipment, processes or operations under, incidental to, or related to performance of the Contract.

1.2.1.11 Weather Delay Day - Any Working Day on which unusually severe weather or conditions resulting from unusually severe weather prevent the Contractor from proceeding with at least seventy-five percent (75%) of the normal labor and equipment force engaged on Critical Path Activities shown on the current conditionally accepted Progress Schedule and under the current Work Plan Schedule for at least fifty percent (50%) of the Working Day.

The following paragraph shall be read as follows:

1.3.1.1. Unless otherwise indicated in the Contract Documents, whenever in the Contract Documents the terms "as allowed," "as approved," or terms of like effect or import are used, or the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of the Owner as to the Work, it is intended that such action or determination will be solely to evaluate, in general, the completed Work for compliance with the requirements of and

information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to Owner any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of these General Conditions and the Contract Documents.

The following paragraph shall be read as follows:

2.1.2 The intent of the Contract Documents is to provide for the design, construction, conservation and completion of the Work described.

The following paragraphs shall be added:

2.1.5 PURPOSE OF CONTRACT DOCUMENTS

The Contractor is responsible for the construction of a complete, fully operational and functional facility in accordance with the Contract Documents and Good Industry Practices. The Contractor shall furnish all management, construction and installation, and all other labor (at staffing and manpower levels sufficient to complete each and every construction activity involved in the Work continuously, expeditiously and efficiently), materials, tools, supplies, equipment and other items necessary for the expeditious, proper execution and completion of the Work in accordance with the Contract Documents and in a manner so as to meet or exceed all standards established by the Contract Documents.

2.1.6 CONTRACTOR'S OBLIGATIONS NOT DIMINISHED

Any review, inspection, approval or acceptance by the Contracting Officer or OWNER's Representative of the Work, any portion thereof, or other services provided by the Contractor, or payment by OWNER for Work performed by the Contractor shall not (i) diminish the Contractor's obligations and responsibilities under the Contract or its warranties, or otherwise relieve the Contractor of any liability, or
(ii) be construed as a waiver of any rights available to OWNER under the Contract or Applicable Laws, or of any cause of action arising out of the Contractor's performance of, or failure of the Contractor to perform, the Contract.

2.1.7 TECHNICAL STANDARDS

The Contractor represents that it is fully familiar with all technical standards applicable to the Work, including, but not limited to, the manuals, standards, guidelines and criteria listed in the Contract Documents. References in the Contract Documents to technical standards shall be construed to refer to the most recent published technical standards of the institute, organization, association, authority, or society specified therein. Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings. Unless otherwise specified to the contrary in the Contract Documents:

1. all references to technical standards shall be construed to include the most recent revisions;

2. all such technical standards shall apply as if incorporated in the Contract Documents; and

3. if any revision of such technical standards occurs after the date when the Permits and Approvals authorizing the Work are issued and prior to completion of the applicable Work, the Contractor shall notify OWNER's Representative and, if directed to do so, shall perform the Work in accordance with the revised requirement.

Where the Contract Documents require materials or apparatus to conform to specified technical standards, the Contractor shall furnish to OWNER the manufacturer's written certification that such materials or apparatus conform to such technical standards. Such certifications shall not, with respect to OWNER, be conclusive as to such requirements, and failure of OWNER to request or reject any certification shall not release the Contractor from full responsibility for the accurate and complete performance of the Work in accordance with the Contract Documents.

2.1.8 LIABILITY FOR JOINT VENTURE

If the entity constituting the Contractor is a joint venture, each principal member of the Contractor is and shall be jointly and severally responsible and liable for all obligations, responsibilities and liabilities of the Contractor under the Contract.

2.1.9 DISCLAIMER OF OWNER'S LIABILITY

In no event shall OWNER be liable to the Contractor except for obligations expressly assumed by OWNER under the Contract Documents, nor shall OWNER ever be liable to the Contractor for indirect, special, incidental or consequential damages resulting from, arising out of, or in connection with, the Work, the Contract or its rescission, cancellation, termination or suspension or the acceleration of its expiration. No representative of OWNER, nor any officer, agent, consultant or employee of OWNER (including OWNER's Representative) shall be charged personally by the Contractor with any liability, or be held liable to it, under any term or provision of the Contract, or because of any breach of the Contract by OWNER, or otherwise in connection with performance under the Contract.

The following paragraphs shall be read as follows:

2.2.1. The Contract Documents for each Project shall specify the order of precedence among the diverse documents that form the Contract Documents, except for the order of precedence of the General Conditions which may not be altered unless allowed to be altered by means of the Special Conditions as described in Article 1.1.1.72. If no such order of precedence is established in the Contract Documents for the Project, the following order shall be followed:

2.2.1.1 any Contract Amendments;

2.2.1.2 any Change Orders – those of a later date taking precedence over those of an earlier date;

2.2.1.3 the Notice to Proceed;

2.2.1.4 the Agreement (including the Scope of Work and Attachments)

2.2.1.5 the Special and Supplementary Conditions (if any);

2.2.1.6 the General Conditions;

2.2.1.7 the Scope of Services (including the General Requirements);

2.2.1.8 the Schematic Drawings provided by Owner;

2.2.1.9 the Contractor Proposal;

2.2.1.10 the Contractual Exhibits and any other documents specifically identified and incorporated into any of the Contract Documents by reference – those of a later date taking precedence over those of an earlier date;

2.2.1.11 the Bonds;

2.2.1.12 the Tax Certifications;

2.2.1.13 the Contractor Insurance Policies; and

2.2.1.14 the Notice of Award.

2.3. WRITTEN INTERPRETATIONS

2.3.1. Provided reasonable time is granted to Owner, written interpretations necessary for the proper execution or progress of the Work in the form of drawings, or otherwise, will be issued with reasonable promptness by the Owner or its designated representative so as not to adversely affect the critical path of the Project Schedule.

2.3.2. Contractor may make written request to the Owner or Owner's Representative for such interpretations, when deemed necessary for the proper progress of the Work.

The following paragraph will be added as follows:

2.5.2.4 Notwithstanding the previous paragraphs in this Section 2.5, any conflict, ambiguity, errors, omissions or defects on plans, drawings and specifications developed by the Contractor are the full responsibility of the Contractor and shall not constitute grounds for a Change Order.

The following paragraphs shall be read as follows:

2.6.2.3. Owner's or his authorized representatives' written interpretation or clarification.

2.7.1. The Contractor will be furnished, free of charge, four (4) complete copies of the Contract Documents. Additional copies will be furnished upon request at the cost of reproduction. If Contractor so requests it, Owner will also furnish, free of charge, if available, an electronic file in PLT format (plot to File) so that the Contractor may make the copies of plans and/or drawings that he needs to build the Project and perform the Work. If such electronic files are not available, the Owner shall allow the Contractor to prepare electronic files and to print, at Contractor's cost, but without additional payment to Owner, those copies needed for use by Contractor.

2.7.2. All Drawings, Specifications and copies thereof furnished by the Owner, or Owner's Representative are, and shall remain, property of the Owner.

2.7.2.1. The Contractor can make copies of all the Drawings, Specifications, and other Contract Documents without permission, and without the payment of any fees or royalties, to the Owner, or Owner's Representative as long as they are necessary for use in the execution of the Work.

2.7.3.1. The Contractor shall not have or acquire any title to or Ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Owner, including electronic media editions; and

The following paragraph will be added as follows:

2.7.5 During the Design Phase portion of the Work Contractor shall furnish to Owner copies of the plans, drawings and specifications for each deliverable as required in the General Design Criteria.

The following paragraphs shall be read as follows:

4.2 SUBSURFACE AND PHYSICALCONDITIONS

4.2.1. Reports and Drawings. The Scope of Work atthe Agreement identify:

4.2.1.1. Delete this Section.

4.2.1.2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) used in preparing the Contract Documents.

4.2.2. Limited Reliance by Contractor on Technical Data Provided. On lineal type projects, Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not part of the Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data", Contractor may not rely upon or make any Claim against Owner, or any of its Consultants with respect to:

4.2.3. Reliance by Contractor on Technical Data Provided. On building construction projects, Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, and such reports and drawings are part of the Contract Documents. Such "technical data" is identified in the Scope of Work in the Agreement. Except for such reliance on such "technical data", Contractor may not rely upon or make any Claim against Owner or any of its Consultants with respect to:

4.3.1.4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents; then Contractor, shall promptly, in no event later than 3 working days, after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Article 6.16), notify Owner's Representative and Owner in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

4.3.2. Owner's Representative Review. After receipt of written notice as required by the preceding Article, Owner's Representative will promptly review the pertinent condition. Determine the necessity of Owner's obtaining additional exploration or tests with respect thereto and advise Owner in writing of Owner's Representative findings and conclusions.

4.5. UNDERGROUND FACILITIES

4.5.1. Contractor is responsible for identifying in drawings and specifications existing Underground Facilities at or contiguous to the Site. Unless it is otherwise expressly provided in the Scope of Work:

4.5.1.1. Contractor shall be responsible for the reasonable accuracy or completeness of any such information or data; and

4.5.1.2. the costs of all the following will be included in the Contract Price, and Contractor shall have full responsibility for:

4.5.1.2. 1. reviewing and checking all such information and data;

4.5.1.2.2. locating all Underground Facilities shown or indicated in the drawings and specifications to be developed by Contractor;

4.5.1.2.3. coordination of the Work with the Owners of such Underground Facilities, including Owner, during construction; and

4.5.1.2.4. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

4.5.2. Deleted.

4.5.2.1. and **4.5.2.2.** Deleted.

4.5.2.3. Deleted.

4.5.2.4. Deleted.

4.5.2.4.1. and **4.5.2.4.2.** Deleted.

4.6.1. In projects requiring construction of buildings, at the beginning of the project, the Owner will set construction stakes establishing sufficient project limits lines, baseline and a benchmark. These stakes and marks will constitute all the surveying work the Owner will provide for the use of the Contractor. From the afore-mentioned stakes and marks, the Contractor shall develop and establish all necessary marks and controls to perform his work. The Contractor will be held responsible for the preservation of original stakes and marks provided by the Owner at the beginning of the project, and if any of these stakes or marks are carelessly or willfully destroyed or disturbed by the Contractor, the cost of replacing them will be at Contractor's expense. The Owner will be responsible for the accuracy of the original lines and marks furnished to the Contractor.

4.6.1.1. Deleted.

4.6.2. Contractor shall be responsible thereafter for establishing the reference points and project monuments in accordance with the survey provided by Owner and laying out the Work, shall protect and preserve the reference points and project monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall be responsible for replacing the established reference points and project monuments, if affected during construction.

4.6.3. Contractor shall report to Owner's Representative whenever any reference point or project monument is lost or destroyed or requires relocation because of necessary changes in grades or locations and shall be responsible for the accurate replacement or relocation of such reference points or project monuments by professionally qualified personnel.

4.7.1. Reports, Studies and Drawings. Reference is made to the Scope of Work at the Agreement for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site.

4.7.2. Limited Reliance by Contractor on Technical Data Provided. On lineal type projects, Contractor may rely upon the general accuracy of the 'technical data" contained in such reports and drawings, but such reports and drawings are not part of the Contract Documents. Such "technical data" is identified in the Technical Specifications. Except for such reliance on such "technical data", Contractor may not rely upon or make any Claim against Owner, or its Consultants with respect to:

4.7.3. Reliance by Contractor on Technical Specifications Provided. On building construction projects, unless otherwise indicated in the Contract Documents, Contractor may rely upon the general accuracy of the "technical data" contained in such Technical Specifications and/or Plans and Drawings. Except for such reliance on such "technical data", Contractor may not rely upon or make any Claim against Owner, its Consultants with respect to:

4.7.4. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site that was not identified in the Contract Documents to be within the scope of the Work.

4.7.6.3. Contractor shall notify Owner's Representative and Owner promptly thereafter confirm such notice in writing, no later than 24 hours after the condition has been encountered. Failure to do so shall constitute a waiver of any claim in connection thereto.

4.7.9.1. was not indicated in the Contract Documents to be included within the scope of the Work, and

4.7.10. To the fullest extent permitted by Laws or Regulations, Contractor shall indemnify and hold harmless Owner's Representative, Owner, and the officers, directors, partners, employees, agents, other consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible.

<u>The following paragraphs shall be read as follows:</u>

5.2.2. Before commencement of the Work, as specified in the Order to Proceed, the Owner shall inform the Contractor writing the name of the Owner's Infrastructure Area Director, Contracting Officer and Owner's Representative, if applicable. Owner reserves the right to change, from time to time, the designated persons or entities and any other designated representative who will perform the functions of the Owner.

5.6.1. If a dispute arises between the separate contractors in the Project as to their responsibility for cleaning up as required by these General Conditions, the Owner may, after written notice to Contractor, clean up and charge the cost thereof to the several contractors in the proportion that the Owner's Representative, determines equitable. If the Contractor is not in agreement with the cost distribution, he may make a claim as provided in Article 11.5.

The following paragraphs will be added as follows:

5.9 OWNER'S REPRESENTATIVE

5.9.1 Owner's Representative, through its authorized representatives, will provide general administration of the Contract, and will review and take other action as specified in the Contract Documents with respect to Submittals, and will monitor Construction of the Work.

5.9.2 Owner and Owner's Representative, and their respective authorized representatives, shall always have access to the Work wherever it is in preparation and progress. The Contractor will provide, at no cost to Owner, field facilities to the satisfaction of the Contracting Officer so that the Contracting Officer and Owner's Representative may perform their functions under the Contract Documents.

5.9.3 Owner's Representative will have authority to reject Work which does not conform to the Contract Documents. Whenever, in its reasonable opinion, it considers it necessary or advisable to ensure the proper implementation of the intent of the Contract Documents, Owner's Representative will have authority to require special inspection or testing of the Work, whether such Work shall be then fabricated, installed or completed. However, neither the authority of Owner's Representative to act under this Subsection 5.9.3, nor any decision made by it in good faith whether to exercise such authority, shall give rise to any duty or responsibility of Owner's Representative to the Contractor, any Subcontractor, or any Sub-Subcontractor, or any of their agents or employees, or any other person performing any of the Work, nor will the Contractor be relieved from any of its obligations under the Contract.

5.9.4 Owner's Representative will conduct inspections to determine the dates on which Substantial Completion and Final Completion occur and will receive and review written guarantees and other documents required as conditions precedent to Substantial Completion and Final Completion.

5.9.5 Owner's Representative will not be responsible for any acts or omissions of the Contractor, any Subcontractor or any Sub-Subcontractor, or any of their agents or employees, or any other persons performing any of the Work.

5.9.6 Owner's Representative shall have the right to stop the Work, in whole or in part, in an emergency or when such stoppage is necessary to insure safety or security of people or property; provided, however, the right of Owner's Representative to stop the Work in these circumstances shall not give rise to a duty on the part of Owner's Representative to exercise this right for the benefit of the Contractor or any person, nor to relieve the Contractor of its sole responsibility for safety and security at the Site.

The following paragraphs shall be read as follows:

6.1.1.1. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall be responsible for its negligence in the design or specification

of a specific means, method, technique, sequence, or procedure of construction, which is shown or indicated in and expressly required by the drawings and specifications developed by Contractor.

6.1.1.1.1. When the drawings and specifications developed by Contractor and approved by Owner specify the use of a specific means, method, technique, sequence, or procedure of construction, which is shown or indicated in and expressly required by them, such means, method, technique, sequence, or procedure of construction shall be used unless others are authorized by the Owner's Representative.

6.1.2.1.1. All communications given or received from the Project Manager shall be binding on Contractor. All communications related to the Contract directed to the Contractor and/or proceeding from the Owner, Owner's Representative and other representatives of the Owner shall be made thru the Project Manager.

The following paragraphs will be added as follows:

6.1.2.1.2 MANAGEMENT PERSONNEL

Simultaneously with the execution of the Contract by the Contractor, the Contractor shall designate and describe, in writing to the Contracting Officer, the name, title, qualifications and experience of the proposed Contractor's Project Executive (who shall be the Contractor's Project Executive named in the Contractor Proposal unless otherwise directed or approved by the Contracting Officer). The Contractor's Project Executive shall have supervisory control over the Contractor's Project Manager and full authority to represent, bind and act for the Contractor with respect to any matters arising under the Contract. OWNER shall have the right, in its sole discretion, to approve, reject or to require replacement of the Contractor's Project Executive at any time.

The Contractor shall notify Owner's Representative, in writing, if the Contractor desires to change the Contractor's Project Manager, the Contractor's Project Executive or any senior staff member, and shall provide information in writing to the Contracting Officer as to the experience and qualifications of the proposed new Contractor's Project Manager, Contractor's Project Executive or any senior staff member, as the Contracting Officer may request. No change in the Contractor's Project Manager or Contractor's Project Executive or senior staff shall be made, however, without the Contracting Officer's prior written approval.

The Contractor shall employ a competent construction superintendent and necessary assistants who shall always attend the Site during Construction. The superintendent shall have full authority to act on behalf of the Contractor. The Contracting Officer may require the replacement of such personnel at any time. The Contractor shall coordinate and supervise the work of all Subcontractors and Sub-Subcontractors to the end that the Work is carried out without conflict between trades and so that no trade, at any time, causes delay to the general progress of the Work. The Contractor's Project Manager and, in his absence, the superintendent shall represent the Contractor, and communications given to the Contractor's Project Manager or the superintendent shall be as binding as if given to the Contractor directly. Communications may be confirmed in writing by PRDOH. Other communications shall be similarly confirmed on written requests in each case.

6.1.3 GENERAL

6.1.3.1 STANDARD OF PERFORMANCE

The Contractor shall perform all of the management, quality control, scheduling, procurement, construction,

installation and all other obligations set forth in, required by, or reasonably inferable from, the Contract Documents, in order to deliver a complete, fully operational and functional facility that meets or exceeds the requirements of Good Industry Practices and the standards established by, and other requirements of, the Contract Documents. The Contractor shall be solely responsible for constructing and installing all elements of the Work.

The following paragraphs shall replace Section 6.4.3 Scheduling Format as follows:

6.4.3 SCHEDULING

Contractor's Construction Scheduler

6.4.3.1 The Contractor shall employ or retain the services of a Construction Scheduler. The Construction Scheduler shall have at least five (5) years of verifiable experience as the person primarily responsible for preparing and maintaining detailed CPM schedules on projects of the same or similar size and nature as the Work. The Construction Scheduler shall attend all meetings pertaining to the scheduling and progress of the Work and any other meetings as may be scheduled by Owner.

6.4.3.2 Within five (5) Days after the date of issuance of the Notice to Proceed, the Contractor shall provide a written statement to Owner's Representative setting forth the following information:

1. identification, qualifications, and experience of the proposed Contractor's Construction Scheduler and all other members of the Contractor's scheduling staff; and

2. references of not less than two (2) previous projects on which the Contractor's Construction Scheduler has utilized CPM scheduling.

6.4.3.3 Owner's Representative reserves the right to reject any identified or proposed candidate for the Construction Scheduler and to require the Contractor to select another candidate acceptable to OWNER's Representative.

6.4.3.4 General Requirements for Progress Schedule. The Contractor shall prepare and submit for Owner's Representative's review and Conditional Acceptance a Contractor's Progress Schedule for the Work as previously described. The Progress Schedule shall show the full detail for the entire Work and once conditionally accepted by Owner's Representative, will become the baseline Project Schedule. The Progress Schedule shall be based upon a Work Breakdown Structure ("WBS") Level 6 and shall be a resource and cost-loaded schedule using the Critical Path Method of scheduling, providing monthly and long-term scheduling and cost control. It also should provide a basis for determining amounts of Progress Payments. The Progress Schedule shall be developed to provide for Progress Payments to be made on a schedule intended to compensate the Contractor for its costs incurred in performance of the Work on a reasonably current basis (sometimes referred to in the industry as "cash-flow neutral"), subject to the delays inherent in the payment process.

The Progress Schedule shall (a) include Scheduled Weather Delay Days, (b) be consistent with all milestone dates and completion dates specified in the Contract Documents, (c) be revised at the times required herein and at other appropriate intervals as required by the conditions of the Work, and (d) provide for expeditious and practicable execution of the Work. Owner's Representative's Conditional Acceptance of the Progress Schedule for the Work shall not constitute acceptance of construction means, methods,

techniques, sequences or procedures, for which the Contractor shall have sole responsibility. The Progress Schedule shall indicate the order, sequence, and interdependence of all activities that the Contractor plans to follow to accomplish the Work within the Contract Time, including authorized adjustments thereto. The Progress Schedule shall be comprehensive, orderly, and realistic, and shall cover activities onsite and offsite and activities of the school and other agencies that affect the Project.

The Contractor shall conform to the most recent Progress Schedule. The Contractor shall furnish sufficient forces, plant and equipment as may be necessary to insure the progress of the Work in accordance with the Progress Schedule. Without limiting OWNER's rights under Section 9.4.3, if the Contractor falls behind the Progress Schedule, the Contractor shall promptly submit to Owner's Representative an Updated Progress Schedule, demonstrating the manner in which the rate of progress shall be increased and shall take such steps as may be necessary to meet the Progress Schedule. The Contractor shall maintain its schedule so as not to delay the progress of the Work or the scheduled work of Other Contractors.

The Contractor shall, with each Application for Payment, submit an Updated Progress Schedule indicating the progress and sequence of the Work, in form acceptable to Owner's Representative.

The Contractor shall always provide adequate rates of progress for the various parts of the Work to properly advance the Work and so that the Work always meets the requirements of the Progress Schedule. Whenever Critical Path Activities fall behind the planned schedule of construction as shown on the Progress Schedule, or when activities which were not critical become critical, Owner's Representative shall be notified by the Contractor and advised of action being taken to return the Work to its original schedule and such action shall be indicated on an Updated Progress Schedule demonstrating the manner in which the rate of progress shall be increased and identifying the steps to be taken to recover lost time as may be necessary to meet the Progress Schedule.

6.4.3.5 Work Breakdown Structure (WBS)

The Contractor shall submit to Owner 's Representative for approval a detailed organized hierarchical division of the WBS for completing each portion of the Work. The WBS shall be the basis for organizing all Work under the Contract, and shall be used to structure the Progress Schedule, Submittal Schedule, and Schedule of Values and other cost control systems. The WBS shall be broken down into the following levels:

WBS Level 1 PROJECT
Work breakdown of the Project.

WBS Level 2 CONTRACT COMPONENT
Work breakdown into major components of the Contract.

WBS Level 3 SUBCOMPONENT
Work breakdown of the Contract components.

WBS Level 4 PHASE
Work breakdown into major phases of Work.

WBS Level 5 DISCIPLINES OF WORK
Work breakdown into Construction Disciplines.
Schedule of Values (Payment Schedule) Level.

WBS Level 6 DETAIL
Work breakdown defined by Contractor.

Progress Schedule Level.
Resource and Cost-Loaded.
Rolling 6 Month Schedule - To provide monthly schedule control.
Progressed and submitted on a monthly basis.

6.4.3.6 Scheduling System. The Contractor shall use Oracle Primavera P6 (Professional Project Management), and a hardware system commensurate with the size of the Project (the "Scheduling System"). The Scheduling System shall use the Critical Path Method and be capable of handling, processing, printing, and plotting data to satisfy all Owner's requirements. The Contractor shall maintain the Scheduling System, the Progress Schedule and Updated Progress Schedules, and the scheduling staff onsite or at a location approved by Owner's Representative.

6.4.3.7 Contents of Progress Schedule. The Progress Schedule shall:

6.4.3.7.1 Begin on the date of issuance of the Notice to Proceed and conclude with the date of Final Completion;

6.4.3.7.2 Identify Work on a calendar basis using Days as a unit of measure;

6.4.3.7.3 Show complete interdependence and sequence of construction and Work-related activities reasonably required to complete the Work;

6.4.3.7.4 Identify Work of separate stages and other logically grouped activities, and clearly identify the critical path of activities;

6.4.3.7.5 Reflect sequences of Work, restraints, delivery windows, review times, the Contract Time and Project Milestones as set forth in the Agreement.; and

6.4.3.7.6 Include, as applicable, the following activities:

6.4.3.7.6.1 Design deliverables

6.4.3.7.6.2 Time for obtaining permits, submittals for early product procurement and long lead time items.

6.4.3.7.6.3 Mobilization and other preliminary activities.

6.4.3.7.6.4 Initial site work.

6.4.3.7.6.5 Specified Work sequences, constraints, and Milestones, including date of Substantial Completion and trade Work.

6.4.3.7.6.6 Interfaces with Other Contractors.

6.4.3.7.6.7 Major equipment design, fabrication, factory testing, and delivery dates.

6.4.3.7.6.8 Site work.

6.4.3.7.6.9 Concrete work.

6.4.3.7.6.10 Structural steel work.

6.4.3.7.6.11 Architectural features work.

6.4.3.7.6.12 Conveying systems work.

6.4.3.7.6.13 Equipment work.

6.4.3.7.6.14 Mechanical work.

6.4.3.7.6.15 Electrical work.

6.4.3.7.6.16 Instrumentation and control work.

6.4.3.7.6.17 Interfaces with Owner -furnished equipment.

6.4.3.7.6.18 Other important work for each major facility.

6.4.3.7.6.19 Equipment and system startup and test activities.

6.4.3.7.6.20 Project closeout and cleanup.

6.4.3.7.6.21 Demobilization.

6.4.3.8 Progress Schedule Graphical Display. The graphical display for the Progress Schedule shall be furnished to OWNER's Representative on a Primavera P3 diskette and shall:

6.4.3.8.1 Plot or print on paper not greater than 30 inches by 42 inches or smaller than 22 inches by 34 inches, unless otherwise approved.

6.4.3.8.2 Include a title block indicating the name of the Project, Owner, date submitted, revision or update number, and the name of the scheduler. Updated Progress Schedules shall indicate data date.

6.4.3.8.3 Identify horizontally across the top of the schedule the time frame by year, month, and day.

6.4.3.8.4 Identify each activity with a unique number and a brief description of the Work associated with that activity.

6.4.3.8.5 Indicate the Critical Path.

6.4.3.8.6 Show, at a minimum, the controlling relationships between activities.

6.4.3.8.7 Plot activities on a time-scaled basis, with the length of each activity proportional to the current estimate of the duration.

6.4.3.8.8 Plot activities on an early start basis unless otherwise requested by OWNER's Representative.

6.4.3.8.9 Provide a legend to describe standard and special symbols used.

6.4.3.9 Progress Schedule Report. The Contractor shall submit a Progress Schedule Report with the Progress Schedule and with each Updated Progress Schedule. The Progress Schedule Report shall be printed on 8-1/2 inches by 11-inch white paper, unless otherwise approved by Owner's Representative. The Progress Schedule Report shall provide information for each activity in tabular format, including, at a minimum:

6.4.3.9.1 Activity Identification Number.

6.4.3.9.2 Activity Description.

6.4.3.9.3 Original Duration.

6.4.3.9.4 Remaining Duration.

6.4.3.9.5 Early Start Date (actual start on Updated Progress Schedules).

6.4.3.9.6 Early Finish Date (actual finish on Updated Progress Schedules).

6.4.3.9.7 Late Start Date.

6.4.3.9.8 Late Finish Date.

6.4.3.9.9 Total Float.

6.4.3.10 Float Time. Float time (whether identified in the initial Progress Schedule or in any Updated Progress Schedule) is a Project resource available to both the Contractor and to Owner to meet Milestones and the Contract Time. Use of float suppression techniques such as preferential sequencing or logic, special lead/lag logic restraints, and extended activity times are prohibited.

The use of float time disclosed or implied using alternate float suppression techniques shall be shared to the proportionate benefit of Owner and the Contractor.

6.4.3.1 Review and Conditional Acceptance of Progress Schedule. Not later than thirty (30) Days after the date of issuance of the Notice to Proceed, the Contractor shall submit to Owner's Representative for review, comment and Conditional Acceptance a Progress Schedule for the entire Contract Time. The proposed Progress Schedule shall be reviewed for purposes of determining (a) compliance with applicable provisions of the Contract Documents, (b) whether the logic of the proposed Progress Schedule is sound and consistently developed and demonstrates a logical sequencing and interdependence of activities required for the timely and orderly achievement of all Work activities and Milestones, including Substantial Completion and Final Completion of the Work within the Contract Time, and (c) whether float suppression techniques have been employed by the Contractor. Upon its Conditional Acceptance, such Progress Schedule will be employed by the Contractor in its scheduling and performance of the Work.

When conditionally accepted, the Progress Schedule shall become the schedule against which all progress and revisions shall be measured. The Contractor shall revise the Progress Schedule to reflect actual progress and the Contractor's current plan for completion of the Work for the remainder of the Contract Time and submit the Updated Progress Schedule to Owner's Representative for review, comment or Conditional Acceptance. As a condition precedent to Final Completion, the Contractor shall prepare and furnish to Owner's Representative a final as- built Progress Schedule.

The following paragraphs shall be read as follows:

6.4.4.5.1. Unless otherwise provided in the Contract Documents, at least ten (10) days before submission of the Application for Payment, a conference, to be attended by Contractor, Owner's Representative and others as appropriate, will be held to review for purposes of acceptability to Owner's Representative, as provided below, the progress schedules submitted in accordance with Article 6.4.4.1.

6.5.1.1. The Contractor shall submit all submittals already approved by its Architect/Engineer for approvals of Materials, Shop Drawings and Samples to the Owner's Representative. The Owner's Representative will either perform the review and approval or forward the Contractor's submittal to the Owner for his review and approval, in accordance with the accepted itinerary for Shop Drawings and Sample submittals.

6.5.1.4. The Owner's Representative shall have the following deadlines within which to approve, request additional information or reject any Submittal for Approval of Materials, Shop Drawings and Samples:

6.5.1.4.1. For Materials, Shop Drawings or Samples which are the ones specified in the Contract Documents or are, in the opinion of the Owner's Representative, non-complex Shop Drawings or Materials, the Owner's Representative shall have a period of ten (10) working days.

6.5.1.4.3. If no comment by the Owner's Representative is made within said period, the Contractor will have the right to Claim if said delay impacts the critical path.

6.5.1.4.4. The above-mentioned deadlines can be extended if requested in writing by the Owner's Representative if approval is made within a period that does not alter the critical path. Such request for extension shall not be unreasonably denied.

6.5.2. Where approval of Materials, Shop Drawing or Samples is required by the Contract Documents or the schedule of Shop Drawings and Sample submittals, any related Work performed, including materials purchases, prior to Owner and Owner's Representative review and approval of the pertinent submittal will be at the sole responsibility of Contractor.

6.5.4 OWNER OR OWNER'S REPRESENTATIVE'S REVIEW

6.5.4.1. Owner's Representative, either himself or through the Owner, will perform a timely review, evaluation and comment on Shop Drawings and Samples in accordance with the schedule of Shop Drawings and Sample submittals acceptable to Owner's Representative.

6.5.4.1.1. Owner or the Owner's Representative review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and approved drawings and specifications developed by Contractor and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

6.5.4.1.2. Owner or the Owner's Representative's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents or approved drawings and specifications developed by Contractor) or to safety precautions or programs incident thereto.

6.5.4.1.3. Owner or the Owner's Representative's review and approval of Shop Drawings or Samples shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has in writing called the Owner's Representative attention to each such variation at the time of each submittal as required by Article 6.17 and the Owner's Representative has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample approval; nor will any approval by the Owner's Representative relieve Contractor from responsibility for complying with the requirements of Article 6.17.

6.5.5. RE-SUBMITTAL PROCEDURES

6.5.5.1. Contractor shall make corrections required by the Owner's Representative and shall return the required copies of materials, submittals, the required number of corrected copies of Shop Drawings and submit as required new Samples for review and approval.

6.5.8.1. Owner's Representative will be allowed a reasonable time, which will not unreasonably delay the critical path of the Work, within which to evaluate each proposal or submittal made pursuant to Article 6.5.

6.6.1. The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner and shall at once report to the Owner and Owner's Representative any error, inconsistency or omission he may discover.

6.6.1.1. The Contractor shall not be liable to the Owner for any errors, inconsistencies or omissions in the Contract Documents but is liable to any conflict, ambiguity, errors, omissions or defects on drawings and specifications developed by the Contractor.

6.7.2. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

6.7.3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner, Owner's Representatives, and the officers, directors, partners, employees or agents, and other consultants of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges or engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent

rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.9.1.1. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner, nor Owner's Representative shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

6.11.1.1.3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold Owner, Owner's Representative and the officers, directors, partners, employees, agents, and other consultants of each and any of them harmless from and against all claims, costs, losses, and damages (including but not limited to all fees and charges or engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such Owner or occupant against Owner, Owner's Representatives or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

6.12.1.1 Said documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to the Owner's Representative.

6.13.1. The Contractor shall be fully responsible for initiating, maintaining enforcing and supervising all safety and security precautions and programs in connection with the performance of the Contract, including, but not limited to, compliance by the Contractor, all Subcontractors and Sub-Subcontractors with all occupational safety standards and regulations required by the Occupational Safety and Health Act, other Applicable Laws, the Contract Documents, and any insurance carrier providing insurance coverage for Owner or the Contractor in connection with the Project. Without limiting the generality of the foregoing, the Contractor shall, prior to commencement of Construction, prepare a written Construction Safety and Security Plan which shall be submitted to Owner and issued to all Subcontractors and all forces employed on the Work. Such program shall include weekly safety meetings with employees and subcontractors, and the Contractor shall prepare, circulate and maintain on file at the Site minutes and attendance of all safety meetings and comply with the program. The Construction Safety Program besides the Occupational Safety and Health Act, shall include responsibility levels and disciplinary action for employees and Subcontractors not following the Safety Program. Such programs shall include but not limited to, job hazard analysis, fall protection program, excavation safety program, scaffolds safety program, electrical safety program, lock out tag out program, confined spaces entry program, stairs and ladder safety program, cranes safety, hand powered tools safety, housekeeping and hygiene program, hazard communication program, emergency and fire prevention program, personal protective equipment program, employees and subcontractors disciplinary action program or other safety program as required by the applicable construction activities, OSHA regulations in 29 CFR 1926, 1910, and the Puerto Rico Occupational Safety and Health Act. Contractors shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.13.1.1. all people, subcontractors, sub-subcontractors on the Site who may be affected by the Work;

The following paragraphs shall be read as follows:

6.13.2.2. All damage, injury, or loss to any property referred to in Articles 6.13.1.2 or 6.13.1.3 caused, directly or indirectly, in whole or in part, by Contractor any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Owner's Representative, or

anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

The following paragraphs will be added as follows:

6.13.4 The general contractor shall submit the safety program to the Owner to verify if it contains the minimum OSHA 29 CFR 1926, 1910 and the Puerto Rico Occupational Safety and Health Act requirements applicable to the Project or other codes or regulations by reference.

The following paragraphs shall be read as follows:

6.14.1 Contractor shall designate a qualified experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and maintaining and supervising safety precautions and programs. The Safety representative main activity shall be the implementation of the Contractor safety program.

The following paragraphs will be added as follows:

6.14.1.1 The Contractor shall designate a member of the Contractor's organization assigned at the Site, experienced in OSHA construction safety standards by formal training and safety, who shall be present at the Project during days of construction work activities, who shall report directly to the Contractor's Project Executive, and who will have as his primary responsibility, implementation of the Contractor's safety plan, and the implementation of a security program to provide for, at a minimum:

6.14.1.1.1 security requirements and procedures to address responding to, and protecting against, acts of crime, trespassing and vandalism, and lost or stolen equipment and materials from the Site;

6.14.1.1.2 procedures for Site safety; employee and visitor Site security and in-progress construction security; and

6.14.1.1.3 implementation of security perimeters and implementation of security measures at the Site, such as fencing, and lighting.

6.14.1.1.4 the designated safety and security member shall have a minimum of 3 years of experience and documented safety education similar to the OSHA 30 hours training for construction.

6.14.1.1.5 the designated safety and security representative can perform other activities only at the project site or premises. Neither the Owner nor the project engineer maybe designated as the safety representative.

The following paragraphs shall be read as follows:

6.16.1.1. The detailed Plans and Specifications for the Project have been prepared by licensed and collegiate competent Architect/Engineer exercising reasonable care and are intended to show as clearly as is practicable the Work required to be performed. Contractor will be responsible on the accuracy of said drawings, specifically and their compliance with all applicable codes and regulations in effect on the bid opening date.

6.19.2.1. observations by Designated Inspector and/or Owner's Representative;

6.20.1. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner, Owner's Representative, and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out or relating to the performance of the Work, provided that any such claim, cost, loss, or damage:

6.20.2, 6.20.2.1 and **6.20.2.2** Deleted.

6.21.1.1.3.2. No acceptance by Owner's Representative of any such Subcontractor, Supplier, or other individual or entity, whether initially, or as a replacement, shall constitute a waiver of any right of Owner's Representative or Designated Inspector to reject defective Work.

6.21.5. Contractor shall be fully responsible to Owner's Representative and Owner for all acts and omissions of the Subcontractors, Suppliers, and other such individuals or entities performing or furnishing any of the Work.

6.21.5.1. Nothing in the Contract Documents shall create for the benefit of any Subcontractor or Supplier a contractual relationship between Owner's Representative or Owner, nor shall it create any obligation on the part of Owner's Representative or Owner to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws or Regulations.

6.21.8.1. Whenever any such agreement is with a Subcontractor who is listed as an additional insured on the property insurance provided in section 3.6, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights (including subrogation) against Owner, Contractor, Owner's Representative, and all other individuals or entities identified in the Contract Documents to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, and other consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to Work.

The following paragraphs will be added as follows:

6.22 UTILITY WORK

6.22.1 UTILITY FACILITIES

Owner makes no representation or warranty that the utility facilities ("utilities" or "utility facilities") shown or otherwise referred to in the Contract Documents are in the locations indicated or are the only utility facilities that may be encountered. Prior to commencing the Work, the Contractor shall visit the Site and shall confirm the existence and location of all utility facilities and shall, during the course of the Work, make diligent and continuous efforts to confirm the locations of all utility facilities at and adjacent to the Site. The Contractor shall make necessary arrangements with, and obtain approvals from, utility companies for the design, protection, alteration and relocation of utility facilities which may be necessary in connection with performance of the Work, as hereafter provided, and shall notify all municipal departments and utility companies concerned of the time and location of any work which may affect them. The Contractor shall be responsible for all costs and all claims, damages and liabilities arising directly or indirectly from any

damage to utility facilities or any intentional or unintentional interruption of service occurring in connection with the Work or other operations of the Contractor.

6.22.2 RESPONSIBILITY FOR RELOCATION OF UTILITIES

Except as expressly otherwise provided below, the Contractor shall be solely responsible for the temporary or permanent relocation of all existing utilities, public and private, located on, over, under or adjacent to the Site, which conflict with, or are affected by, the construction and installation of the Work, and for obtaining all related approvals required from utility companies.

The utilities to be relocated, replaced or rehabilitated shall include, without limitation, all electric power, telephone, cable television, telecommunication, gas, petroleum products, water, sewer, storm drain, irrigation, steam, and similar lines and facilities located within the Site, whether located on the surface, underground or overhead, and whether indicated in the Contract Documents, Drawings and Specifications developed by Contractor or discovered during performance of the Work.

The Contractor shall use its best efforts to relocate or cause the existing utilities to be relocated in the most expeditious manner, with the least damage to existing trees and shrubbery and the operations of the affected utility company and its customers. The Contractor shall comply with all Applicable Laws, easements or other agreements governing or relating to the existing utilities, and with any provisions thereof relating to relocation of such utilities. The Contract Price includes all the Contractor's costs, expenses, overhead and profit for all private utility relocation Work and public utility relocation work. The Contractor shall be responsible for informing and reporting the list of existing public utilities in the Project area. If Contractor should interrupt or cause damage to any public utility, he shall be held responsible or accountable for such interruption or damages and the full cost of repairing and restoring the same. The Contractor shall be responsible for overviewing and receiving all claims as stated in Section 6.22.2.

6.22.3 PRIVATE UTILITIES

With respect to cable television, telephone and other privately-owned utilities, the Contractor shall notify such utility company of the need to relocate such utility at the private utility company's expense, the acceptable locations for the relocated utility and the necessary timetable for such relocation for the Work to proceed in accordance with the Contractor's Progress Schedule. The Contractor shall cooperate and coordinate with the private utility company to cause the relocation work for such company to occur in accordance with the Contractor's Progress Schedule. If necessary, the Contractor, himself, shall relocate the utilities. The Contractor shall be responsible for informing and reporting the list of existing private utilities in the Project area. If Contractor should interrupt or cause damage to any private utility, he shall be held responsible or accountable for such interruption or damages and the full cost of repairing and restoring the same. The Contractor shall be responsible for the overview of and receiving of all claims as stated in Section 6.22.3.

With respect to the relocation of telephone lines, the Contractor shall be responsible for all construction and installation work required to relocate the telephone utility lines and all related work using contractors approved by the telephone company, except for work involving splicing of fiber optic cables (which shall be performed by the telephone company). The Contractor shall be responsible for causing the telephone company to perform all work necessary to splice fiber optic cables.

The Contractor shall be responsible for obtaining reimbursement from the private utility companies for all costs, equipment rental, labor or other charges or fees incurred by the Contractor, any Subcontractor or Sub-Subcontractor and any mark-up or profit of the Contractor, any Subcontractor or Sub-Subcontractor in

connection with such relocation ("relocation costs") and in no event shall such relocation costs be charged to Owner.

6.22.4 PUBLIC UTILITIES

With respect to electric power, water, sewer, storm drains, and other publicly owned utilities, the Contractor shall be solely responsible for all costs of the design, construction, installation and relocation of such utilities.

6.22.5 LOCATION OF RELOCATED UTILITIES

The Contractor shall cause to be provided to Owner, any affected utility companies, all governmental agencies having jurisdiction, and any affected landowners or other lawful occupants, a survey, plot plan, legal description or other documentation providing a sufficient description to enable the recipient to accurately and precisely identify the "as-built" location of temporarily and permanently relocated utilities on the Site or other adjacent parcels of land. Such documentation of the "as-built" location of relocated utilities shall be provided whether the utilities have been relocated permanently or temporarily.

6.22.6 INSPECTION RIGHTS

Owner or its agents may inspect any utility relocation work in progress on or adjacent to the Site, regardless of whether the Contractor or the affected utility company is performing the work.

6.23 RESPONSIBILITY FOR THOSE PERFORMING THE WORK

6.23.1 In case of a temporary suspension of the Work, from any cause whatsoever, the Contractor shall be responsible for the Work and shall take such reasonable precautions as may be necessary to prevent damage to the Work, provide suitable drainage and erect necessary temporary structures, signs or other facilities, at its expense.

6.23.2 The Contractor shall be responsible to Owner for the acts and omissions of all its employees, agents, Subcontractors, and Sub-Subcontractors (and their respective agents and employees) and all other persons performing any of the Work or supplying any materials or equipment for the Work under a contract with the Contractor. The Contractor shall rebuild, repair, restore and make good any damages to any portion of the Work before its final completion and acceptance, and shall bear the expense thereof.

6.24 RECORD DOCUMENTATION

The Contractor shall keep complete and accurate field records of all changes and deviations from the Drawings and Specifications indicating the actual placement and condition of all elements of the Work as actually constructed or installed. All such deviations and changes shall be made on a regular and current basis and shall be neatly and accurately indicated on the Drawings affected, or in the Specifications, with appropriate supplemental notes. The Contractor shall keep at the Site field office a copy of the as-built Contract Documents which shall always be available for use and inspection by the Contracting Officer and Owner's Representative. At the conclusion of the Work, the Contractor shall prepare as-built "Record Drawings" on a set of Drawings and shall deliver the final as-built Record Drawings and other Record Documentation to Owner's Representative for approval before, and as a condition precedent to, Final Payment.

6.25 DESIGN SERVICES AND RESPONSIBILITIES

6.25.1 GENERAL

When applicable law requires that services be performed by licensed professionals, the Contractor shall provide those services through the performance of qualified persons or entities duly licensed to practice their professions. OWNER understands and agrees that the services performed by the Contractor's Architect and the Contractor's other design professionals and consultants are undertaken and performed in the sole interest of and for the exclusive benefit of the Contractor.

The agreements between the Contractor and Architect or other design professionals identified in the Agreement, and in any subsequent Modifications, shall be in writing. These agreements, including services and financial arrangements with respect to this Project, shall be promptly and fully disclosed to OWNER upon OWNER's written request.

The Contractor shall be responsible to OWNER for acts and omissions of the Contractor's employees, Architect, Contractors, Subcontractors and their agents and employees, and other persons or entities, including the Architect and other design professionals, performing any portion of the Contractor's obligations under the Contract Documents.

The Contractor shall carefully study and compare the Contract Documents, materials and other information provided by OWNER pursuant to Article.3.5, shall take field measurements of any existing conditions related to the Work, shall observe any conditions at the site affecting the Work, and report promptly to OWNER or OWNER's Representative any errors, inconsistencies or omissions discovered.

The Contractor shall provide to OWNER for OWNER's written approval design documents sufficient to establish the size, quality and character of the Project; its architectural, structural, mechanical and electrical systems; and the materials and such other elements of the Project to the extent required by the Construction Documents. Deviations, if any, from the Construction Documents shall be disclosed in writing.

Upon OWNER's written approval of the design documents submitted by the Contractor, the Contractor shall provide construction documents for review and written approval by OWNER. The construction documents shall set forth in detail the requirements for construction of the Project. The construction documents shall include drawings and specifications that establish the quality levels of materials and systems required. Deviations, if any, from the Construction Documents shall be disclosed in writing. Construction documents may include drawings, specifications, and other documents and electronic data setting forth in detail the requirements for construction of the Work, and shall:

1. be consistent with the approved design documents;
2. provide information for the use of those in the building trades; and
3. include documents customarily required for regulatory agency approvals

The Contractor shall meet with OWNER or OWNER's Representative periodically to review progress of the design and construction documents.

Upon OWNER's written approval of construction documents, the Contractor, with the assistance of OWNER, shall prepare and file documents required to obtain necessary approvals of governmental authorities having jurisdiction over the Project.

6.25.2 RESPONSIBILITY OF THE CONTRACTOR FOR THE DESIGN

The Contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and other non-construction services furnished by the Contractor, its Architect and any other Contractor's Design Professionals under this contract. The Contractor shall, without additional compensation, correct or revise any errors or deficiency in its designs, drawings, specifications, and other non-construction services and perform any necessary rework or modifications, including any damage to real or personal property, resulting from the design error or omission. Detailed design objectives and instructions shall be obtained from the Design Criteria Document (Design Scope of Work) provided as part of the Contract Documents.

The standard of care for all design services performed under this agreement shall be the care and skill ordinarily used by members of the architectural or engineering professions practicing under similar conditions at the same time and locality. Notwithstanding the above, if the contract specifies that portions of the Work be performed in accordance with a performance standard, the design services shall be performed so as to achieve such standards.

Neither the Government's review, approval or acceptance of, nor payment for, the services required under this Contract shall be construed to operate as a waiver of any rights under this Contract or of any cause of action arising out of the performance of this contract. The Contractor shall be and remain liable to the Government in accordance with applicable law for all damages to the Government caused by the Design/Builder/ Conservation Contractor's negligent performance of any of these services furnished under this contract.

The rights and remedies of the Government provided for under this contract are in addition to any other rights and remedies provided by law.

If the Contractor is comprised of more than one legal entity, each entity shall be jointly and severally liable hereunder.

6.25.3 CONSTRUCTOR'S ROLE DURING DESIGN

The Contractor's construction management key personnel shall be actively involved during the design process to effectively integrate the design and construction requirements of this contract. In addition to the typical required construction activities, the constructor's involvement includes, but is not limited to actions such as: integrating the design schedule into the Master Schedule to maximize the effectiveness of fast-tracking design and construction (within the limits allowed in the contract), ensuring constructability and economy of the design, integrating the shop drawing and installation drawing process into the design, executing the material and equipment acquisition programs to meet critical schedules, effectively interfacing the construction QC program with the design QC program, and maintaining and providing the design team with accurate, up-to-date redline and as-built documentation. The Contractor shall require and manage the active involvement of key trade subcontractors in the above activities.

The following paragraphs shall be read as follows:

7.1.3. The Owner may from time to time change the person or entity designated as Owner's Representative or may assume and/or change the functions of the Owner's Representative and the Designated Inspector by notifying the Contractor in writing.

7.2.1.1.1. Based on on-Site observations, the Architect/Engineer will endeavor to safeguard the Owner against defects and deficiencies in the Work.

7.2.1.1.2. Deleted.

7.2.1.1.3. The Architect/Engineer will clarify plans and specifications and will provide recommendations to the Owner as requested.

7.2.1.1.4. The Owner's Representative and Designated Inspector will not be responsible for the acts or omissions of the Contractor, or any Subcontractor and vice versa, or any of their agents or employees, or any other persons performing any of the Work.

7.2.2.1. Deleted.

7.2.2.2.2. Inspectors employed by the Owner and/or the Owner's Representative are authorized to inspect all work done and materials furnished, including the preparation, fabrication or manufacture of the materials to be used.

7.2.2.4.1. Deleted.

7.2.5.1. However, neither the Owner's Representative's authority to act under this Article, nor any decision made by him in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Owner or Owner's Representative to the Contractor, any Subcontractor, any of their agents or employees, or any other person performing any of the Work, nor will the Contractor be released from any of his obligations under the Contract.

9.1.2. The time limit for the execution of this Contract has been figured out based on the approved Contractor's proposal.

9.1.4.1. Time under the Contract for the Design-Build portion of the Work will stop running on the date of Substantial Completion.

The following paragraphs will be added as follows:

9.2.3 TIME IMPACT ANALYSIS FOR CHANGE MODIFICATIONS, DELAYS, AND CONTRACTOR REQUESTS

9.2.3.1 When change modifications are indicated and delays are experienced, by Owner's request or the Contractor desires to revise the Project Schedule, the Contractor shall submit to the OWNER's Representative a written Time Impact Analysis illustrating the influence of each modification, delay, or Contractor request on the contract time. The preparation of Time Impact Analysis is considered part of the construction process and will be performed at no additional cost to OWNER. Each Time Impact Analysis shall include a Fragmentary Network (Network analysis) demonstrating how the Contractor proposes to incorporate the modification, delay or Contractor request into the Project Schedule. The Time Impact Analysis shall demonstrate the time impact based on the date the modification is given to the Contractor or the date the delay occurred; the status of construction at that point in time; and the event time computation of all affected activities. The event times used in the Time Impact Analysis shall be those included in the latest Project Schedule Update or as adjusted by mutual agreement.

9.2.3.2 Activity delays shall not automatically mean that an extension of the Contract time will be warranted or due the Contractor. It is possible that modification or delay will not affect existing critical activities or cause non-critical activities to become critical. A modification or delay may result in only absorbing a part of the available total float that may exist within an activity chain of the Network, thereby not causing any effect on the Contract time.

9.2.3.3 Float is not for the exclusive use or benefit of either OWNER or the Contractor. Extension of the Contract time will be considered in the review/evaluation process only to the extent the equitable time adjustments to the activity or activities affected by the modification or delay, exceeds the total float of an activity; and forces the activity onto the critical path; and extends the contract time set forth in Contract Conditions.

9.2.3.4 Four (4) copies of each Time Impact Analysis shall be submitted as follows:

9.2.3.4.1 Along with the proposal for any requested change.

9.2.3.4.2 Within seven (7) calendar days after receipt of a written modification under Contract Conditions.

9.2.3.4.3 Within seven (7) calendar days after the furnishing of a written notice by OWNER's Representative as set forth under Contract Conditions.

9.2.3.4.4 Within seven (7) calendar days from the beginning of a delay from unforeseeable causes as set forth in Contract Conditions.

9.2.3.5 In cases where the Contractor does not submit a Time Impact Analysis within the time stated above it is mutually agreed that the modification, delay or the Contractor request does not require an extension of the contract time.

9.2.3.6 Approval or rejection of each Time Impact Analysis by OWNER's Representative shall be made after receipt of each Time Impact Analysis, unless subsequent meetings and negotiations are necessary. Upon approval, a copy of the Time Impact Analysis signed by OWNER shall be returned to the Contractor and incorporated into the Project Schedule at the next monthly Schedule Update.

9.2.3.7 Time Impact Analysis related to an extension of the Contract time and/or change modification work shall be incorporated into and attached to the applicable Change Order.

9.3.4 TYPES OF DELAY EVENTS

9.3.4.1 "Delay Event" means any of the following acts, omissions, events or conditions which delays completion of the Work or prevents performance of the Contractor's obligations under the Contract and which could not be prevented by the Contractor even though the Contractor were to take all appropriate care to avoid or diminish the adverse consequences of the Delay Event:

1. Fire or explosion;
2. Act of war, civil disorder, riot or similar occurrence;
3. Order, legislation, judgment, or other official action, of any governmental body, agency or official (other than OWNER) having jurisdiction over the Project;
4. Any act or omission of OWNER or OWNER's Representative, such as a temporary stoppage or suspension of Work, not resulting from the act or omission of the Contractor, any Subcontractor or Sub-Subcontractor or any other person or entity for whom the Contractor is responsible;
5. Excess Weather Delay Days for which the Contractor is entitled to an extension of the Contract Time pursuant to Subsection 9.3.4.2; or
6. Strikes or work shutdowns caused by labor disputes and lockouts (other than lockouts caused by the Contractor, Subcontractors or Sub-Subcontractors), subject to the provisions of Subsection 9.3.4.3.

The financial difficulties of the Contractor (or any Subcontractor, Sub-Subcontractor, supplier or other party for whom the Contractor is responsible) or the consequences thereof, shall not constitute a Delay Event.

9.3.4.2 WEATHER DELAY DAYS

In order to assist in managing issues relating to the Contractor's entitlement to adjustments of the Contract Time resulting from unusually severe weather conditions (including, without limitation, hurricanes), the Contractor shall include in its Progress Schedule, for each calendar month during the Contract Time, the same number of Weather Delay Days as are set forth, for each calendar month, in **Table 9.1**, below ("Scheduled Weather Delay Days").

Table 9.1

January	February	March	April	May	June
1	0	0	1	2	1

July	August	September	October	November	December
1	2	2	2	2	2

As is more particularly described below, the Contractor shall be entitled to seek an extension of the Contract Time on account of the occurrence of Weather Delay Days only if the number of Weather Delay Days experienced by the Contractor exceeds the number of Scheduled Weather Delay Days. The specific requirements and procedures for administering, calculating and determining Weather Delay Days and the Contractor's entitlement to an extension of the Contract Time on account thereof are as follows:

1. *Notice from the Contractor.* If the Contractor believes that a Weather Delay Day has occurred, the Contractor shall provide to OWNER's Representative with a written notice no later than five (5) Work Days following the occurrence of each claimed Weather Delay Day. The notice shall (a) describe the weather event, (b) set forth the number of Weather Delay Days claimed, and (c) include sufficient documentation to establish that, on each claimed Weather Delay Day, the weather or conditions

resulting therefrom prevented the Contractor from engaging at least seventy-five percent (75%) of the labor force and equipment that was scheduled (under the current Progress Schedule and Work Plan Schedule) for engagement on Critical Path Activities for at least fifty percent (50%) of that Work Day. The Contractor shall also furnish such other supporting documentation as OWNER's Representative or the Contracting Officer may request, including an Updated Progress Schedule or schedule impact (fragnet) analysis worksheet. The submission of such written notice within the specified time period shall be a condition precedent to any extension of the Contract Time.

2. *Monthly Determination.* Based upon information provided to OWNER's Representative under Clause .1, the Contracting Officer shall make a monthly determination as to the number of Weather Delay Days during the preceding calendar month and shall furnish to the Contractor a written monthly statement stating the number of Weather Delay Days that the Contracting Officer shall have initially determined to have occurred during that calendar month.

3. *Resolution of Disagreements.* If the Contractor disagrees with the Contracting Officer's initial determination of Weather Delay Days set forth in such a monthly statement, the Contractor may pursue, in negotiations with OWNER, a resolution of the issue during the thirty (30) Day period following the furnishing to the Contractor of the Contracting Officer's monthly statement. If no agreement is reached on the issue by the expiration of such thirty (30) Day period, the Contracting Officer's initial determination of Weather Delay Days as set forth in his monthly statement shall, automatically and without further action by the Contracting Officer or the Contractor (effective on the Day after expiration of such thirty (30) Day period), become a Claim Determination, and shall be final and binding upon OWNER and the Contractor unless, not later than thirty (30) Days after the effective date of such Claim Determination, the Contractor files with OWNER's Representative a written notice disputing the Claim Determination and informing OWNER of the Contractor's intention to seek judicial resolution of the issue.

4. *Extensions of the Contract Time on Account of Weather Delay Days for the First Year.* With respect to the period from the date of issuance of the Notice to Proceed through the end of the twelfth full calendar month thereafter, the Contracting Officer shall determine the total number of Weather Delay Days that have occurred during that period as of the anniversary of the date of issuance of the Notice to Proceed (or if the Notice to Proceed was issued on a date other than the first Day of any calendar month, on the anniversary of the first Day of the calendar month next following the date of issuance of the Notice to Proceed). The Contracting Officer's annual determination shall be based upon those monthly determinations made by the Contracting Officer pursuant to Clause .2, above, which have become final and binding upon OWNER and the Contractor and any negotiated resolutions of monthly determinations achieved under Clause .3, above (collectively, "included calendar months"). If the number of Weather Delay Days determined to have occurred by the Contracting Officer during the included calendar months during such period exceeds the Scheduled Weather Delay Days for the included calendar months, then the Contractor shall be granted an extension of the Contract Time equal in duration to the difference between (a) the actual Weather Delay Days experienced during the included calendar months and (b) the Scheduled Weather Delay Days during the included calendar months, with the result multiplied by 1.46 and rounded to the nearest integer. A Change Order reflecting such time extension will be furnished to the Contractor within a reasonable period after such annual determination. Such Change Order shall provide for a retroactive adjustment of the Progress Schedule, allowing the Contractor to consider Weather Delay Days (for which the Contractor is entitled to an extension of the Contract Time) on the Days when such Weather Delay Days, in fact, occurred. If the number of Weather Delay Days determined to have occurred by the Contracting Officer during the included calendar months during such period is less than the Scheduled Delay Days

for the included calendar months, OWNER shall be entitled to deposit into the Delay Bank that number of Days equal to the difference between (y) the actual Weather Delay Days experienced during the included calendar months and (z) the Scheduled Weather Delay Days during the included calendar months, with the result multiplied by 1.46 and rounded to the nearest integer. Any months as to which the Contractor shall have filed with OWNER's Representative a written notice disputing a Claim Determination shall be excluded from the Contracting Officer's annual determination, and, when the determination of Weather Delay Days for such months is resolved, an appropriate adjustment of the Contract Time or of the Delay Bank shall be made.

5. *Annual Determination in Later Years.* For each subsequent annual period, the Contracting Officer shall make an annual determination identical to that set forth in Clause .4, except that if the number of Weather Delay Days determined to have occurred exceeds the corresponding Scheduled Weather Delay Days, the Contractor shall be granted an extension of the Contract Time equal in duration to the difference between (a) the actual Weather Delay Days experienced and (b) the sum of the Scheduled Weather Delay Days plus the number of Days in the Delay Bank, with the result multiplied by 1.46 and rounded to the nearest integer.

6. *Partial periods.* With respect to any partial years or partial calendar months pro rata calculations shall be made in making the foregoing determinations.

9.3.4.3 STRIKES

No strike or work shutdown caused by a labor dispute shall be a Delay Event if:

1. It is found by a court of competent jurisdiction or by the National Labor Relations Board that such strike or work shutdown was principally caused by the Contractor's breach of its collective bargaining agreement, or by the Contractor's refusal to negotiate or bargain in good faith; or

2. Such strike or work shutdown was fomented or perpetrated by the Contractor for the purpose of interfering with, delaying or influencing a decision about the Contractor's performance under the Contract.

9.3.5 NOTICE AND PROCEDURES AS TO DELAY EVENTS

9.3.5.1 Initial Notice. The Contractor shall provide Owner's Representative with an initial written notice of any occurrence, event or condition which the Contractor claims (or intends to claim) constitutes a Delay Event, except that any such claim that a Weather Delay Day shall have occurred shall be governed by the provisions of Subsection 9.3.4.2, and not this Subsection 9.3.5.1. Such initial written notice shall be submitted and delivered to OWNER's Representative within five (5) Working Days of the commencement of such occurrence, event or condition, and shall:

1. State in detail the circumstances which form the basis of the Claim, and the current and probable future effects on the Contractor's performance; and

2. State the date of commencement of the delay and the duration or expected duration of the delay with respect to each affected portion of the Work.

The submission of such initial written notice within the time provided above shall be a condition precedent to any extension of the Contract Time. Neither OWNER's Representative nor any other agent, consultant

or employee of OWNER shall have authority to modify or waive, expressly or by implication, such condition precedent or the corresponding condition precedents set forth in Subsection 9.3.4.2 and 9.3.5.2, and any action or statement by OWNER's Representative or such other person to such effect shall not be binding upon OWNER.

9.3.5.2 Second Notice. Following submission of the initial written notice, not later than fifteen (15) Work Days of the commencement of any occurrence, event or condition which the Contractor claims (or intends to claim) constitutes a Delay Event, the Contractor shall submit to OWNER's Representative written notice of such occurrence, event or condition. This written notice shall (i) state that an extension of the Contract Time is claimed; (ii) state in detail the circumstances which form the basis of the delay; (iii) identify Work activities alleged to have been delayed; (iv) state the calendar dates on which the Work activities were delayed and are anticipated to be further delayed; (v) state the number of calendar Days by which the Contractor is requesting the Contract Time to be extended; (vi) fully complete and state the CPM analysis justifying the request, including a schedule impact (fragnet) analysis worksheet prepared in a time-scale to graphically illustrate the effect of the alleged delay on affected activities; and (vii) state the time, the date of commencement and duration or expected duration of the delay and its effect on the various portions of the Work, and such notice shall be accompanied by a Contractor Certification. OWNER shall have no obligation to act upon any such notice if the same is not accompanied by a Contractor Certification. The

Contractor shall provide such supporting documentation as OWNER may require, including, where appropriate, an Updated Progress Schedule indicating all of the activities affected by the circumstances which form the basis for the Claim. The submission of such written notice within the time period provided above shall be a condition precedent to any extension of the Contract Time. Because the possible necessity for an extension of the Contract Time might materially alter the scheduling, plans and other actions of OWNER and Other Contractors and because, with sufficient opportunity, OWNER might (if it knew of the Contractor's claim) attempt to mitigate the effect of a delay for which an extension of the Contract Time was to be claimed, and only oral notice might cause disputes as to the existence or substance of such Claim, and because delayed notice seriously hinder or prevent OWNER's investigation of the pertinent facts, the giving of written notice within the time periods stated above in Subsections 9.3.4.2, 9.3.5.1 and 9.3.5.2 shall be of the essence of the Contractor's obligations, and failure of the Contractor to comply with these requirements shall be a conclusive waiver of a claim for extension of the Contract Time. It shall in all cases be presumed that no extension or further extension of the Contract Time is due unless the Contractor shall affirmatively demonstrate the Contractor's entitlement to an extension of the Contract Time under all applicable terms and conditions of the Contract Documents. To this end, the Contractor shall maintain clear and precise records supporting any claim for an extension of the Contract Time, and in the absence of such records, the foregoing presumption shall be conclusive.

9.3.5.3 Procedures for Review and Resolution. Claims for an extension of the Contract Time by reason of a Delay Event shall be reviewed and resolved subject to, and in accordance with, Clauses .3 through .6 of Subsection 11.9.2 and Subsection 11.9.3, except that Claims based upon Weather Delay Days shall be reviewed and resolved pursuant to Subsection 9.3.4.2.

9.3.6 LIMITATIONS ON DELAY COMPUTATION

Whenever the Contractor claims an extension of the Contract Time as a result of an Excusable Delay, only the unavoidable delay caused to completion of the Work as a whole shall be considered in measuring or evaluating the extent of the delay. If, for example, extra work can be (or could have been) performed along with the regular Work called for by the Contract Documents so as to reduce or eliminate a delay in the progress of the Work or some portion thereof, without causing necessary delay to such regular work, no

claim for extension of the Contract Time shall be granted. An extension of the Contract Time shall be granted only for delays affecting Critical Path Activities. In any event, even though a cause of delay meets all of the above conditions, any extension shall be granted only to the extent that the effect of such cause cannot be (or could not have been) avoided or mitigated by the exercise of all reasonable precautions, efforts and measures (including planning, scheduling and rescheduling, re-sequencing Work activities, and reallocating and redeploying work forces), whether before or after the occurrence of the cause of delay. If a concurrent delay occurs (*i.e.*, either a single delay resulting from two or more causes where at least one delay is the responsibility of the Contractor, or multiple delays, where at least one delay is the responsibility of the Contractor), no extension of the Contract Time shall be granted to the Contractor during the period of any such delay for which the Contractor is responsible.

No extension of the Contract Time shall be allowed unless the number of Days of extension of the Contract Time to which the Contractor would otherwise be entitled is reduced, on a Day-for-Day basis, by the number of Days, if any, then in the Delay Bank. Days in the Delay Bank so applied to reduce the duration of an extension of the Contract Time shall, upon such application, be withdrawn from the Delay Bank.

9.3.7 SOLE REMEDY

Subject only to Subsection 9.3.8, the Contractor assumes the risk of all delays of any kind or duration, whether or not within the contemplation of either OWNER or the Contractor and whether foreseeable or unforeseeable. The Contractor shall have no right to rescind, cancel or terminate the Contract except as expressly provided herein, and the Contractor shall have no cause of action under any theory of quasi-contract or *quantum meruit*, by reason of any such delay. The Contractor agrees that extensions of the Contract Time shall be the Contractor's sole and exclusive remedy against OWNER, except to the extent otherwise provided in Subsection 9.3.8, below.

9.3.8 ADJUSTMENT OF THE CONTRACT PRICE AS A RESULT OF CERTAIN DELAYS

If and to the extent that the Contractor establishes that all the following have occurred:

1. The Contractor is entitled to an extension of the Contract Time pursuant to this Section 9.3,

2. The Contractor suffered Compensable Losses (as defined below) as a result of the delay, and

3. The Contractor could not have avoided or mitigated such Compensable Losses despite having taken all reasonable precautions, efforts and measures to avoid or reduce the amount thereof, including, without limitation, mitigating delays by re-sequencing Work activities, and reallocating and redeploying work forces of the Contractor, Subcontractors and Sub-Subcontractors to the maximum extent practicable, then OWNER shall adjust the Contract Price by an amount equal to the Contractor's Compensable Losses directly attributable to the Delay Event giving rise to the extension of the Contract Time. A Change Order affecting the adjustment to the Contract Price will be furnished to the Contractor within a reasonable period after such determination.

   "Compensable Losses" include only the reasonable verified amounts of necessary direct costs of idle time of equipment, necessary direct costs for idle time of workers and professional and technical personnel, and necessary direct costs of moving of equipment and extended field office overhead expenses. No mark-up of Compensable Losses will be allowed for home office overhead or profit. For purposes of the Contract, "extended field office overhead" expenses shall mean those indirect costs incurred at the Site (sometimes also referred to as general conditions costs or jobsite overhead costs) (i) which cannot reasonably be allocated to any specific work item within the Work, and (ii)

which increase or decrease as a function of the duration of the Contract Time. Examples of extended field office overhead items include project manager, superintendent, temporary utilities and temporary facilities, clerical staff, office equipment and supplies and project trucks and automobiles.

The following paragraph shall be read as follows:

9.4.1. In no event shall Owner or Owner's Representative be liable to Contractor, any Subcontractor, any Supplier, or any other person or organization, or to any surety for or employee or agent of any of them, for damages arising out of or resulting from:

The following paragraph will be added as follows:

9.4.3 RECOVERY MEASURES

If OWNER determines that the performance of the Work has not progressed to, or reached, the level of completion required by the current Progress Schedule, OWNER shall have the right to direct the Contractor to take all the necessary measures and steps to recover any lost time and return the Work to the level of progress or completion required by the current Progress Schedule ("Recovery Measures"). In such event, the Contractor shall, within five (5) Working Days of receiving OWNER's direction to take Recovery Measures, notify OWNER's Representative in writing of the steps and measures which the Contractor proposes to take to remedy the situation, and furnish OWNER's Representative with an Updated Progress Schedule reflecting such Recovery Measures, and implement such steps promptly and without further delay. Performance of such Recovery Measures may include steps such as working six days per week, lengthening the Working Day, double shifts, and increasing work forces and construction equipment employed on the Work. Such Recovery Measures shall continue until the progress of the Work is returned to the stage of completion required by the current Progress Schedule. OWNER's right to require Recovery Measures is solely for the purpose of ensuring the Contractor's compliance with the Progress Schedule. If the Contractor disputes OWNER's direction to the Contractor to take Recovery Measures, the Contractor shall, nonetheless, promptly and diligently perform the Recovery Measures and shall have no right whatsoever to fail or refuse to take such Recovery Measures. If the delays giving rise to a direction from OWNER to the Contractor to take Recovery Measures are not Excusable Delays, the Contractor shall not be entitled to an extension of the Contract Time or an adjustment of the Contract Price in connection with taking Recovery Measures. The Contractor acknowledges that if any delay giving rise to a direction from OWNER to implement Recovery Measures is, in fact, an Excusable Delay, the Contractor shall be entitled to be compensated therefore under Art. 9 and11. The Contractor's only recourse, if the Contractor disputes OWNER's order to take Recovery Measures, shall be to submit a Contractor Change Request subject to, and in accordance with, the provisions of Section 11.9. The Contractor acknowledges the critical importance of achieving completion of the Work within the Contract Time and maintaining the progress of the Work consistently with the Progress Schedule.

9.6 EARLY COMPLETION INCENTIVE

Articles 9.6 and 9.6.1 are hereby eliminated from the Uniform General Conditions for Public Works Contracts. OWNER shall not pay the Contractor an incentive of any kind for completion of contract work before the expiration of the contract time, or at any other circumstances, therefore.

The following paragraph will be read as follows:

10.2.1.3.1. If required by Owner's Representative, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then

determine which bids, if any, will be acceptable.

10.2.1.5.3. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner's Representative and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof.

10.2.4. Documentation: Whenever the Cost of the Work for any purpose is to be determined pursuant to Articles 10.2.1 and 10.2.2, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Owner's Representative, an itemized cost breakdown together with supporting documentation and data.

The following paragraphs will be added as follows:

11.6 Change Notice

OWNER may, at any time, initiate a Change Order by causing a Change Notice to be issued to the Contractor. A Change Notice shall be the standard method employed to notify the Contractor of OWNER's intent to implement a Change Order. A Change Notice will indicate one of the following:

1. That the proposed Change Order involves no adjustment of the Contract Price or the Contract Time;

2. That the proposed Change Order involves only items for which there are changes in quantities of items for which unit prices are specified in the Contract Documents;

3. That the proposed Change Order involves an adjustment of the Contract Price or the Contract Time, and the Change Notice proposes the basis for adjusting the schedule or the compensation, or both; or

4. That the proposed Change Order may involve an adjustment in the Contract Price or the Contract Time and will require that the Contractor submit a Contractor Change Proposal in accordance with Section 11.8.

Following the issuance of a Change Notice under the provisions of Clauses .1, .2 or .3 of this Subsection 11.6, if the Contractor agrees with the Change Notice, the Contractor shall sign a copy of the Change Notice, indicating "agreed" next to its signature, and return it to OWNER's Representative within five (5) Working Days after receipt. A Change Order will then be issued pursuant to Section 11.1, and the Contractor shall proceed with the Work indicated in the Change Order. If the Contractor disagrees with the Change Notice, the Contractor shall sign the Change Notice, indicating "protested" next to its signature, return it to OWNER's Representative within five (5) Working Days, and follow the protest procedure set forth in Section 11.5.

Following receipt of a Change Notice under the provisions Clause .4 of this Subsection 11.6, the Contractor shall sign the Change Notice, acknowledge its receipt, and return it to OWNER's Representative within fifteen (15) Working Days, together with a Contractor Change Proposal prepared in accordance with Section 11.8.

The Contractor shall not perform any Work which is the subject of a Change Notice unless and until a Change Order is executed implementing the Change Notice, or a Change Directive is issued pursuant to Section 11.7. The Contracting Officer may withdraw a Change Notice without incurring any liability to the Contractor at any time prior to the execution of a Change Order implementing such Change Notice, or the

issuance of a Change Directive implementing such Change Notice.

11.7 Deleted

11.7.1 Deleted

11.7.2 Deleted.

11.7.3 Deleted.

11.7.4 Deleted.

11.8 CONTRACTOR CHANGE PROPOSAL

Following issuance of a Change Notice for which the Contractor has been requested to submit a Contractor Change Proposal, the Contractor shall submit to OWNER's Representative a Contractor Change Proposal to submit the proposed changes within fifteen (15) Work Days after the receipt of such Change Notice; provided, however, that if the nature and extent of the proposed Change Notice requires a longer period of time for the Contractor to prepare a Contractor Change Proposal, the submission period may be extended by OWNER's Representative. The Contractor Change Proposal shall be accompanied by a Contractor Certification. The Contractor Change Proposal shall contain a detailed cost/time breakdown of any proposed adjustment to the Contract Price and, if applicable, the Contract Time attributable to such Change Notice, as follows:

1. The cost breakdown shall include separate estimates of all costs of the proposed added (or deleted) Work for labor, materials, equipment rental, overhead and profit and Work to be performed by Subcontractors, in such detail as OWNER's Representative may require to permit a thorough analysis of such cost breakdown. To the extent that cost items, overhead amounts or profit identified in such cost breakdown are addressed in, or limited by, the provisions of Section 11.11, the cost estimates for such items, overhead amounts or profit shall not exceed the limitations on compensation specified or referred to in Section 11.11. The Contractor shall review all quotations from Subcontractors and Sub-Subcontractors to assure that pricing is fair and reasonable before forwarding such proposed pricing to OWNER. The Contractor shall submit to OWNER a Contractor Certification at the time of submitting its Contractor Change Request, and OWNER shall have no obligation to act upon a Contractor Change Proposal if not accompanied by a Contractor Certification.

2. Any proposed adjustment of the Contract Time shall be made in accordance with Art. 9 and shall include a schedule impact analysis (fragnet) worksheet prepared in a time-scale to graphically illustrate the effect of the proposed change in the Work. The Contractor Change Proposal shall include an Updated Progress Schedule indicating any proposed adjustment of the Contract Time.

OWNER's Representative will consider the Contractor Change Proposal, and the Contractor will cooperate, as necessary, to reach an agreement at the earliest practicable date on the terms of compensation or schedule adjustment for the Change Notice or Change Directive. If an agreement is reached, a Change Order will be issued pursuant to this Art. 11. If a negotiated settlement of the Change Notice or the Change Directive is not reached within thirty (30) Days after the date of receipt by OWNER's Representative of the Contractor Change Proposal, the Contracting Officer will notify the Contractor, in writing, to perform the Work

included in the Change Notice or Change Directive on a Force Account basis, and the Contract Price shall be adjusted in accordance with Section 11.11, below.

11.9 CHANGES REQUESTED BY THE CONTRACTOR

11.9.1 CONTRACTOR CHANGE REQUESTS

The Contractor may initiate a request for a Change in the Work by submission to OWNER's Representative of a Contractor Change Request. Except for Change Orders or Change Directives initiated pursuant to Sections 11.1, 11.2, 11.3 or Section 11.7, the Contractor shall not be entitled to any adjustment of the Contract Price or the Contract Time as a result of any statement, direction, action or failure to act by OWNER's Representative, the Contracting Officer or OWNER, the occurrence of any event or incident, or any other cause, including a change in Applicable Laws after the date of submission of the final Contractor Proposal, unless, subject to the terms of Subsection 7.6.3 of the Agreement, the Contractor shall have first submitted to Owner's Representative a Contractor Change Request, as hereinafter specified, and shall have complied with the other applicable requirements of the Contract. If the Contractor believes that it is entitled to adjust the Contract Price or the Contract Time, or otherwise modify the terms of the Contract Documents, the Contractor must submit to OWNER's Representative a Contractor Change Request, in accordance with the time periods and procedures set forth in Subsection 11.9.2, containing, at a minimum, the information required to be included in a Contractor Change Proposal, as described in Section 11.8.

11.9.2 NOTICES, PROCEDURES AND TIME PERIODS

1. *Initial Notice*. For any proposed change to the Work initiated by the Contractor, the Contractor shall provide an initial written notice of the Contractor's intent to file a Contractor Change Request. Such initial written notice shall be provided to OWNER's Representative not later than five (5) Working Days following the occurrence of the event on which the Contractor Change Request is based and shall contain as much information concerning the event and its effect on the Contract Price or the Contract Time as is reasonably available to the Contractor within such time period.

2. *Second Notice*. The Contractor shall provide OWNER's Representative with a Contractor Change Request, denominated as such, not later than fifteen (15) Working Days following the occurrence of the action, event or cause upon which its Contractor Change Request is based, unless the Contracting Officer agrees in writing to an extension. The Contractor Change Request shall set forth the reasons for which the Contractor believes an adjustment in the Contract Price or the Contract Time is warranted, and the applicable Contract Document references supporting such Claim, the nature of the additional costs or schedule extension involved, the efforts taken and to be taken to prevent or minimize such costs or extensions, and, insofar as possible, the amount of the proposed increase in the Contract Price or extension of the Contract Time.

3. *Contractor Certification*. The Contractor shall submit to OWNER's Representative a Contractor Certification at the time of submitting its Contractor Change Request and neither OWNER's Representative nor the Contracting Officer shall have any obligation to act upon a Contractor Change Request if not accompanied by a Contractor Certification.

4. *Further Information*. All Contractor Change Requests presented by the Contractor shall provide sufficient detail for OWNER's Representative to understand the basis for, and amount of, the adjustment in the Contract Price or the Contract Time requested in the Contractor Change Request. The Contractor shall furnish, within ten (10) Working Days after OWNER's Representative's request in writing, such further information and details including, but not limited to, books of account, records

and other documents of the Contractor and of its Subcontractors, as may be required by OWNER's Representative to determine the facts or issues of contention involved in the Contractor Change Request. The Contractor's failure to deliver such information will be sufficient cause for rejecting any Contractor Change Request, unless such time is extended in writing by OWNER.

5. *Conferences*. The Contractor, if requested by OWNER's Representative, shall meet and confer with OWNER's Representative, the Contracting Officer or any other representative of OWNER involved in evaluating the Contractor Change Request to discuss the issues involved.

6. *Continuation of Work*. The filing of a Contractor Change Request shall not postpone or alter in any respect the Contractor's duty to complete the Work diligently and without delay.

11.9.3 REVIEW OF CONTRACTOR CHANGE REQUEST

The Contracting Officer shall act on a Contractor Change Request within thirty (30) Working Days after all information and data requested by OWNER's Representative in connection with such Contractor Change Request has been received by OWNER's Representative. If the Contracting Officer fails or refuses to act on a Contractor Change Request within such time, the Contractor Change Request shall be deemed to have been rejected by the Contracting Officer and shall constitute, on the last Day of the period within which the Contracting Officer was required to act upon the Contractor Change Request, the Contracting Officer's Claim Determination with respect to the Contractor Change Request. If the period within which the Contracting Officer was required to act is extended by written agreement of OWNER and the Contractor, the last Day of the period within which the Contracting Officer is required to act shall be the last Day of the period specified in such extension agreement. If the Contractor Change Request is granted, a Change Order will be issued in accordance with Section 11.1. If the Contractor Change Request is rejected, or deemed to have been rejected, in whole or in part, the deemed rejection or written rejection by the Contracting Officer shall constitute a Claim Determination, as provided in Subsection 11.5.

11.9.4 ADJUSTMENTS IN THE CONTRACT PRICE

Any adjustment in the Contract Price as a result of a Contractor Change Request, except for adjustments in the Contract Price resulting from costs incurred as a result of delay, (which adjustments shall be determined in accordance with the provisions of Section 9.3.8), shall be determined in one or more of the following ways:

1. By mutual acceptance of a lump sum; or

2. By cost to be determined in a manner agreed upon by OWNER and the Contractor.

If the methods set forth above cannot be agreed upon, any adjustment of the Contract Price as a result of a Contractor Change Request shall be treated as Force Account Work, and the amount by which the Contract Price shall be adjusted shall be on a Force Account basis in accordance with Section 11.11. The Contractor agrees to be bound by the markups at the rates specified in Subsection 11.11.8 regardless of the method of adjustment selected.

11.9.5 ADJUSTMENT OF THE CONTRACT TIME

Any adjustment of the Contract Time as a result of a Contractor Change Request shall be determined in accordance with, and shall be subject to, the provisions of Subsections 9.3.6 through 9.3.8.

11.9.6 STRICT COMPLIANCE, WAIVER OR BAR

Failure of the Contractor to comply strictly with the notice requirements, procedures and time periods set forth in this Section 11.9 shall constitute a waiver by the Contractor of any right to an adjustment of the Contract Price or the Contract Time with respect to any Contractor Change Request.

11.10 TWO-PART CHANGE ORDERS

In those instances when negotiations between OWNER and the Contractor have not resolved the pricing of all items of a Change Order, but nonetheless the pricing of significant portions of the Change Order have been agreed upon by such parties, at the option of OWNER, a two-part Change Order may be issued to expedite payment to the Contractor for Work completed. Part one of the Change Order shall be issued for those items of the Change Order as to which agreement has been reached on price, which shall include the following:

1. A detailed description of the items of the agreed-upon Change Order;

2. A specific description of the items as to which no agreement has been reached; and

3. A statement on compensation which shall read as follows: "This Change Order includes compensation in full to the Contractor and all of its Subcontractors for all direct and indirect costs, overhead, and profit attributable to the Work described herein, except for the specific unresolved elements or items listed above."

When the unresolved elements of the Change Order have been agreed upon by OWNER and Contractor, then part two of the Change Order shall be issued by OWNER.

11.11 FORCE ACCOUNT WORK

When Work to be performed under a Change Order is to be paid for on a Force Account basis, the labor, materials and equipment used in the performance of Force Account Work shall be subject to verification by OWNER's Representative, based upon its determination that the compensation sought by the Contractor is in compliance with the requirements of this Section 11.11. Compensation for Force Account Work will include only those items as specified below in this Section 11.11.

11.11.1 Cost of Labor

11.11.1.1 *Labor Rates*. The cost of labor used in performing the Force Account Work shall not exceed prevailing standard rates paid in the San Juan area in the case of Force Account Work involving construction, installation or other activities at the Site and, for all other Force Account Work, shall not exceed prevailing standard rates paid in the area where the Force Account Work is performed, and shall include only the following:

11.11.1.2 *Actual Wages of Workers.* Wages of workers involved in performance of construction, installation or other activities at the Site, or with the Contracting Officer's written approval, at off-Site locations. The charges for construction labor shall include all classifications up to foremen and shall include foremen only when foremen are engaged in the actual and direct performance of the Work at the Site. Labor charges for workers shall not include charges for assistant superintendents, superintendents, office personnel, timekeepers, and maintenance mechanics, all of which are included in the authorized mark-ups set forth in Subsection 11.11.8.

11.11.1.3 *Supervisory Personnel*. To the extent involved directly with the Force Account Work, wages or salaries of supervisory personnel, when stationed at the Contractor's field office at the Site. Personnel engaged at factories, shops or on the road, in inspecting, testing or expediting the production or transportation of materials and equipment for use in the Work, shall be considered as stationed at the field office, but only for that portion of their time when so engaged at factories, shops or on the road.

11.11.1.4 *Benefits*. Costs paid or incurred for employee benefits (not including bonuses) such as taxes, insurance, pension contributions and other benefits required by law or collective bargaining agreements, and for personnel not covered by collective bargaining agreements, customary employee benefits (not including bonuses) such as sick leave, medical and health benefits, holidays, vacations and pensions, which are payable on account of wages and salaries included in Force Account Work under Subsections 11.11.1.2 and 11.11.1.3.

11.11.2 TRAVEL AND SUBSISTENCE

Deleted.

11.11.3 MATERIALS AND EQUIPMENT

The cost of materials and equipment used for the accomplishment of the Work will be the delivered cost to the Contractor from the supplier, except to the extent the following are applicable:

1. If a cash or trade discount by the actual supplier is offered or available to the Contractor, it shall be credited to OWNER notwithstanding the fact that such discount may not have been taken.

2. If materials or equipment are procured by any method which is not direct purchase from, and a direct billing by, the actual supplier to the Contractor, the cost of such materials or equipment shall be deemed to be the price paid to the actual supplier as determined by OWNER's Representative. No mark-up, except for actual costs incurred in the handling of such materials or equipment, will be permitted.

3. If the materials or equipment are obtained from a supply or source owned wholly or in part by the Contractor, payment therefore will not exceed the price paid by the Contractor for similar materials furnished from an independent source or the current wholesale price for such materials delivered to the Site, whichever price is lower.

4. If the cost of such materials or equipment is, in the opinion of OWNER's Representative excessive, then the cost of such materials or equipment shall be deemed to be the lowest current wholesale price at which such materials or equipment are available in the quantities concerned, delivered to the Site, less any discounts as provided in Clause .1 above.

5. If the Contractor does not furnish satisfactory evidence of the cost of such materials or equipment from the actual supplier thereof, the cost shall then be determined in accordance with Clause .4 above.

The Contractor shall have no claims for costs and mark-ups on materials or equipment furnished by OWNER, if any.

11.11.4 RENTAL EQUIPMENT

The Contractor will be paid for the use of equipment in an amount equal to the lesser of (i) actual costs, or (ii) eighty-five percent (85%) of the rental rates listed for such equipment in the most recent and applicable publication at that time of the Rental Rate Bluebook published by Machinery Information Division of K-III Directory Corporation of San Jose, California, as adjusted for the rate adjustment factor applicable to Puerto Rico, regardless of Ownership and any rental or other agreement for the use of such equipment entered into by the Contractor. If it is necessary to use equipment not listed in the Rental Rate Bluebook, a suitable discounted rental rate for such equipment will be established by OWNER based upon similar available rate information. The Contractor shall furnish all cost data required for OWNER to establish such rental rate. If at any time, the Rental Rate Blue Book is no longer published, OWNER and the Contractor will mutually agree on the applicable rental rate to be utilized under this Subsection 11.11.4.

Operators of rented equipment will be paid for as provided under Subsection 11.11.1.2. All equipment shall be in good working condition and suitable for the purpose for which the equipment is to be used. Unless otherwise specified, manufacturer's ratings and manufacturer-approved modifications shall be used to classify equipment for the determination of applicable rental rates. Equipment which has no direct power unit shall be powered by a unit of at least the minimum rating recommended by the manufacturer. Individual pieces of equipment or tools having a new value of Three Hundred Dollars ($300.00) or less, whether or not consumed by use, shall be small tools included in Contract Price and no additional payment will be made, therefore.

11.11.5 EQUIPMENT FOR THE WORK

The rental time to be paid for equipment otherwise in use on the Work shall include only the time the equipment is in operation on the Force Account Work being performed and the time required to move the equipment to the location of the Force Account Work and return it to the original location, or to another location requiring no more time than that required to return it to its original location. Moving time will not be paid for, however, if the equipment is used on other work at the site of the Force Account Work. Loading and transporting costs will be allowed, in lieu of moving time, when the equipment is moved by means other than its own power, except that no payment will be made if the equipment is used at the site of the Force Account Work on Work other than such Force Account Work.

11.11.6 EQUIPMENT NOT ON THE WORK

For the use of equipment moved to the Site and used exclusively for Force Account Work, the Contractor will be paid the rental rates agreed to in Subsection 11.11.4 and for the cost of transporting the equipment from the equipment lessor's usual storage facilities to the location of the Work and back to its original location, all in accordance with the following provisions:

1. The original location of the equipment to be hauled to the location of the Work shall be agreed to by OWNER in advance.

2. Payment of the costs of loading and unloading such equipment shall be made in accordance with Subsection 11.11.1.

3. The cost of transporting equipment shall not exceed the applicable rates customarily applied in the San Juan area.

4. The rental period shall begin at the time the equipment is unloaded at the Site, shall include each working Day that the equipment is at the Site and any other Days on which the Force Account Work

is performed, and shall terminate when the Work it was hired to perform is completed or at the end of the Day on which OWNER's Representative directs the Contractor to discontinue the use of such equipment. The maximum rental time to be paid per Day will not exceed eight hours unless the equipment is in operation for a longer time. The minimum rental time to be paid for the entire rental period shall not be less than eight hours. If the entire rental period to be paid for exceeds eight hours, the rental time which will be paid per Day will be in accordance with the following:

Hours Equipment is in Operation	*Hours to be Paid*
0.5 and over, up to and including 2	2
over 2 and up to and including 4	4
over 4 and up to and including 6	6
over 6 and up to and including 8	8

5. Rented equipment shall not be billed to OWNER at rates exceeding those described below:

Actual Usage	*Payment Rate Category*
8 hours or less	Hourly Rate
One to Six Days	Daily Rate
One Week but less than one Month	Weekly Rate
One Month or more	Monthly Rate

6. For equipment not reasonably available in Puerto Rico, the rental period shall begin at the time the equipment leaves the rental storage facility and shall terminate at the time the equipment is returned to the rental storage facility. For such specialty equipment, the Contractor shall provide a certificate that the most effective rate (weekly, monthly, yearly) has been obtained.

7. Should the Contractor request the return of the equipment to a location other than its original location, OWNER will pay the cost of transportation in accordance with the above provisions, provided that such payment shall not exceed the cost of moving the equipment to the Work from the original location.

8. Payment for transporting and loading and unloading equipment, as above provided, will not be made if the equipment is used on any Work in addition to Force Account Work paid for on a Force Account basis.

11.11.7 SUBCONTRACTORS

The cost for Work under a Subcontract will be the actual cost to the Contractor for Work performed by a Subcontractor. The Contractor shall include in each Subcontract provisions corresponding to the provisions of this Section 11.11 with respect to Force Account Work performed by Subcontractors and Sub-Subcontractors and each Subcontractor or Sub-Subcontractor shall compute its compensation for Force Account Work as set forth in Subsections 11.11.1 through 11.11.6 and its overhead and profit shall be payable in accordance with Clause .1 of Subsection 11.11.8.2.

11.11.8 Mark-ups

The mark-ups contained in this Subsection 11.11.8 shall apply to all Change Orders.

11.11.8.1 Contractor Force Account Work Mark-up. For adjustments in the Contract Price based upon Force Account Work performed by the Contractor, the Contractor shall be compensated in full for all indirect costs, overhead and profit associated with such Force Account Work, in an amount equal to the following percentages of the direct costs of such Force Account Work:

Labor	Fifteen percent (15%).
Materials and Equipment	Ten percent (10%).
Equipment Rental	Ten percent (10%).
Other	Ten percent (10%).

The Contractor's mark-ups for overhead and profit set forth above and in Subsection 11.11.8.2 below, shall include compensation in full to the Contractor for:

1. Profit.

2. Payroll costs and other compensation of personnel employed by the Contractor whether at the Site or in the Contractor's principal office or a branch office for management and administration or in support of the performance, management and administration of the Work, including, but not limited to, the Contractor's officers, executives, principals, general managers, construction managers, office personnel, estimators and schedulers, detailers, claims consultants, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, engineers, architects, timekeepers and clerks.

3. Expenses of the Contractor's principal and branch offices other than the Contractor's office at the Site.

4. Any part of the Contractor's capital expenses, including interest on the Contractor's capital employed for the Work involved and charges for delinquent payments.

5. Costs of small tools used but not consumed which remain the property of the Contractor.

6. Costs associated with the preparation of Change Orders (whether or not ultimately authorized), cost estimates, or the preparation or filing of claims.

7. Anticipated lost profits or lost revenues and lost income or earnings.

8. Costs are attributable to home office overhead.

9. Fees and costs of consultants or attorneys, whether or not in the direct employ of the Contractor, employed for services specifically related to the resolution of a claim, dispute, or other matter relating to the acceptability of the Work.

10. Other administrative expenses or contingent costs of any kind.

In no event shall any of the foregoing expenses be included as costs of Force Account Work pursuant to Subsections 11.11.1 through 11.11.7, above.

11.11.8.2 *Subcontractor Force Account Work Mark-up*. For adjustments in the Contract Price based upon Force Account Work performed by a Subcontractor or Sub-Subcontractor, the following amounts shall be added to the total of the payments for such Force Account Work:

1. An amount representing compensation to the Subcontractor or Sub-Subcontractor in full for all overhead and profit associated with such Force Account Work, not exceeding ten percent (10%) of the Subcontractor's or Sub-Subcontractor's costs, exclusive of overhead and profit, attributable to the Force Account Work; and

2. An amount representing compensation to the Contractor in full for all overhead and profit associated with Force Account Work performed by such Subcontractor or Sub- Subcontractor, not exceeding five percent (5%) of the payments for such Force Account Work.

The Subcontractor's or Sub-Subcontractors mark-ups for overhead and profit set forth above shall include compensation in full to the Subcontractor for all the items and costs set forth in Clauses .1 through .10 of Subsection 11.11.8.1.

11.11.8.3 *Limit on Mark-ups*. The aggregate amount of all mark-ups for overhead and profit, for the Contractor and all Subcontractors and Sub-Subcontractors, regardless of the number of tiers of Subcontractors or Sub-Subcontractors involved or the amount of the Force Account Work, shall not exceed twenty-five percent (25%).

11.11.8.4 *Combined Changes*. When both additions and credits are involved in any single Change Order, the allowances for overhead and profit shall be computed based upon the net increase, if any.

11.11.8.5 *Insurance and Bond Mark-up*. To the amounts computed above shall be added the increased bonding and insurance costs, if any, directly attributable to the Force Account Work, representing compensation in full for the additional costs of such bonds and insurance.

11.11.8.6 Exclusion from Compensation for Force Account Work. In no event shall the Contractor be compensated for costs due to the fault or negligence of the Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including, but not limited to, deposits lost, costs to correct defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property, or for overtime or premium pay, unless approved in advance by OWNER in writing.

11.11.9 RECORDS AND ACCOUNTS

Whenever the Contractor is to be compensated for Work performed on a Force Account basis, the Contractor shall maintain separate records and accounts of all costs incurred with respect to such Work, specifically identifying all such Work as Force Account Work by a distinct job order number. The Contractor shall segregate all such records and accounts to provide a clear distinction between Force Account Work and all other Work. No compensation shall be due or payable to the Contractor on account of Work performed on a Force Account basis unless such separate records and accounts are maintained to clearly establish the Contractor's entitlement to payment. At the end of each Work Day, the Contractor shall prepare a daily report sheet identifying all Work performed on a Force Account basis on that Day and shall furnish such daily report sheet to OWNER's Representative, in duplicate. The daily report sheet shall identify:

1. The nature of the Work performed and job order number.

2. The name, classification, date, daily hours worked, hourly rate of pay, benefits for each laborer, foreman or other worker.

3. Designation, date, daily hours, rental rate for each item of machinery and equipment employed on such Work.

4. Quantities of materials used, prices and extensions, substantiated by suppliers' invoices.

5. Transportation charges, substantiated by invoices.

6. Insurance, bond and tax costs.

Equipment and material charges shall be substantiated by copies of supplier's invoices. Such invoices shall be submitted with the daily report sheets, or, if not yet available, shall be submitted with subsequent daily report sheets. All such daily report sheets substantiating Force Account Work shall be signed by the Contractor's Project Manager and shall be certified to be correct and complete.

OWNER's Representative will review the daily report sheets furnished by the Contractor, make any necessary adjustment. When these daily reports are agreed upon and signed by OWNER's Representative and the Contractor, they shall become the basis of payment for the Force Account Work performed but shall not preclude adjustment based on a subsequent audit.

The Contractor's original cost records pertaining to Work paid for on a Force Account basis shall be made available for inspection or audit by representatives of OWNER.

11.12 MINOR CHANGES IN THE WORK

OWNER's Representative will have authority to order minor changes in the Work not involving an adjustment in the Contract Price or the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be affected by written order and shall be binding on OWNER and Contractor. The Contractor shall carry out such written orders promptly.

11.13 PROCEDURAL REQUIREMENTS FOR CLAIMS

11.13.1 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim (including negotiation or litigation), the Contractor shall proceed continuously and diligently with performance of the Work, in accordance with the Contract Documents.

11.13.1.1 The exclusive jurisdiction and venue for any legal action or proceeding arising out of, or relating to the Contract or the Work shall be the Court of First Instance of the Commonwealth of Puerto Rico, San Juan District.

The following paragraphs will be read as follows:

12.1.1. Prompt notice of all defective Work of which Owner and Owner's Representative has actual knowledge will be given to Contractor. If no notice is promptly given to Contractor of previously known defective Work, it shall be deemed acceptable to Owner.

12.2.1. Owner, Owner's Representative, other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Said access should be previously coordinated with Contractor.

12.3.3.1. Whenever Contractor is responsible for arranging and obtaining and will pay all costs in connection with any inspections, tests, or approvals required for Owner's Representative's and for Designated Inspector acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

12.3.3.1.1 Unless otherwise indicated in the Contract Documents, such inspections, tests, or approvals shall be performed by organizations acceptable to Owner, Owner's Representative and Designated Inspector, whose acceptance shall not be unreasonably denied.

12.7.1. If both parties agree, instead of requiring correction or removal and replacement of deficient Work, and Owner (prior to Owner's Representative recommendation of final payment) prefers to accept it, Owner may do so.

12.8.1. If Contractor fails within a reasonable time after written notice from Owner's Representative to start correction of deficient Work or to diligently prosecute correction or to remove and replace rejected Work in accordance with Article 12.6.1, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to substantially comply with any other provision of the Contract Documents, Owner may, after seven (7) days written notice to Contractor, correct and remedy any such deficiency.

13.2.3.2. The Owner's Representative will, within seven (7) days of the Contractor's date of submittal or five (5) days from the date of resubmission, if the corrections are acceptable, submit the approved Application for Payment to the Owner with all required documentation and approvals from the Owner's Representative.

13.2.5.2. Failure of the Contractor to comply with any requirements of the Contract Documents. A 10% Application for Payment reduction shall be applied in the monthly breakdown for payment for failure to comply with OSHA regulations and allowing public and general contractor or subcontractors employees to be exposed to unsafe conditions that could result is serious injuries or death.

The following paragraphs will be added as follows:

13.11 DECISIONS TO WITHHOLD CERTIFICATION AND PAYMENT

If OWNER's Representative is unable to recommend payment in the amount of the Application for Payment, OWNER's Representative will notify the Contractor. If the Contractor and OWNER's Representative cannot agree on a revised amount, OWNER's Representative will recommend to the

Contracting Officer that a Certificate for Payment be issued for the amount determined to be properly due. OWNER's Representative and the Contracting Officer may also decide not to certify payment or, because of subsequently discovered evidence or subsequent observations, may nullify the whole or a part of a Certificate for Payment previously issued. OWNER (in addition to and without limitation of any other rights and remedies of OWNER under the Contract Documents) may withhold payment of any amounts claimed to be due by the Contractor and certified for payment, in each case to such extent as may be necessary in order to provide for retention covering the fair value of any Claims, costs, losses or damages OWNER may have against the Contractor, which amounts may include, but shall not be limited to, the fair value of any Claims, costs, losses or damages arising from:

1. Defective Conditions not remedied;
2. third party claims filed or reasonable evidence indicating probable filing of such claims;
3. failure of the Contractor to make payments properly to Subcontractors or otherwise for labor, materials or equipment;
4. reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;
5. damage to OWNER or an Other Contractor;
6. reasonable evidence that the Work will not be completed within the Contract Time, or that interim completion dates will not be met, or that the unpaid balance of the Contract Price would not be adequate to cover actual or liquidated damages for the anticipated delay;
7. failure to carry out the Work in accordance with the Contract Documents or other default by the Contractor under, or failure of the Contractor to comply with any provisions of, the Contract Documents;
8. failure of the Contractor to undertake Recovery Measures;
9. claims for damages for delay; or
10. any lien or attachment not discharged as required by the Contract Documents.

When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld at the time of the next Application for Payment.

13.12 PAYMENT NOT ACCEPTANCE

No Certificate for Payment, nor any Progress Payment made, nor any partial or full use or occupancy of the Work by OWNER, shall constitute an acceptance of any Work not in accordance with the Contract Documents. All Progress Payments will be subject to correction following the discovery of an error, misreported progress, misrepresentation, or unallowable cost in any previous application, with the correction amount applied to reduce the requested amount of one or more subsequent Applications for Payment until full recovery of the correction amount. The making of any Progress Payment shall not in any respect be construed as an acceptance by OWNER of the amount of Work completed, or the release of the Contractor from any of its responsibilities under the Contract.

The following paragraphs will be read as follows:

14.11.1.1. The Contractor for itself, agents, employees, successors and assigns agrees to save harmless the Owner, its Officers, Agents, Employees and Owner's Representative from and against any and all claims, demands and/or suits, except as stated below, whether judicial or extra judicial for any cost whatever arising out or related to the execution of the Contract, and it's insurers shall defend the Owner, its Officers, agents, Employees and Owner's Representative from such claims, demands and/or suits and shall bear all the expenses for such defense contemplated within the coverage limits provided by the Contractor's general liability policy, except where such claims, demands and/or suits are due solely to the negligence of the Owner, its Officers, Agents, employees and Owner's Representative. In case that the amount to be paid exceeds the policy amount, then the Contractor shall be responsible for the exceeding amount.

15.1.1. At any time and without cause, Owner may, with a minimum of seven (7) calendar days written notice, suspend the Work or any portion thereof for a period of not more than ninety (90) consecutive days by notice in writing to Contractor. Said notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be allowed an adjustment in the Contract Price or an extension of the Contract Time, or both, directly attributable to any such suspension if Contractor makes a timely Claim therefore as provided in Article 11.5. Said adjustment shall be computed based on the following factors:

15.3.1. Upon seven (7) days written notice to Contractor, Owner may, without cause and without prejudice to any other right or remedy of Owner, elect to terminate the Contract for convenience.

The following paragraphs will be added as follows:

17.11 Rights and Remedies

17.11.1 Duties and obligations imposed by the Contract Documents and rights and remedies available hereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law or in equity.

17.11.2 OWNER's rights and the Contractor's obligations under this Agreement and provisions of the Contract Documents that contemplate continuing rights and obligations, respectively, shall survive expiration of the Contract Time and expiration or termination of the Contract.

17.11.3 No action or failure to act by OWNER, the Contracting Officer, OWNER's Representative or the Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach hereunder, except as may be specifically agreed in writing.

17.12 MAINTENANCE DURING CONSTRUCTION

17.12.1 The Contractor shall maintain the Work during construction and until the Work is completed in full. This maintenance shall constitute continuous and effective work prosecuted Day by Day, with adequate equipment and forces to the end that all Work covered by the Contract is always kept in satisfactory and acceptable conditions.

17.12.2 All cost of maintenance during construction and before the Work is accepted by OWNER shall be

included in the Contract Price and the Contractor will not be paid an additional amount for such work.

17.12.3 If the Contractor fails at any time to comply with the provisions of Section 17.12, OWNER's Representative may notify the Contractor of such non-compliance. If the Contractor fails to remedy unsatisfactory maintenance within twenty-four (24) hours after receipt of such notice, OWNER may immediately proceed to maintain the Work, and the entire cost of this maintenance will be deducted from monies due or to become due to the Contractor under the Contract.

17.13 DISSEMINATION OF INFORMATION

Certain of OWNER's confidential or proprietary information may come into the Contractor's possession in performing the Contract. The Contractor shall hold such information and all other information that it develops or obtains from or about OWNER or the Project in confidence, shall not use such information other than for performance of its obligations under the Contract, and shall require its employees, agents, Subcontractors and Sub-Subcontractors to be bound to OWNER by the same obligation of confidentiality. OWNER reserves the right to release all information to the public and to the media relating to the Project and the Contract. The Contractor agrees to refer (and to cause its employees, agents, Subcontractors and Sub-Subcontractors to refer) all inquiries about the Project and the Contract to OWNER.

17.14 RECORDS AND AUDIT

17.14.1 The Contractor shall maintain detailed books and records consistent with all applicable requirements of the Contract Documents, sound administration practices of the design and construction of facilities similar to the Project, generally accepted accounting principles consistently applied, and all Applicable Laws, including such records as may be necessary to properly verify costs or substantiate claims for payment under the Contract. The Contractor's books and records shall include all documentation reasonably necessary or desirable for OWNER, or others having audit rights, to verify costs, pricing data, amounts of compensation and schedule adjustments. The Contractor shall keep and maintain all such books and records until six (6) years after the date of achievement of Final Completion (or such longer period as may be required by Applicable Laws), and thereafter until all pending Claims or disputes with OWNER are finally resolved.

17.14.2 OWNER, or its duly authorized representatives, shall have the right to examine and audit the Contractor's books and records, including cost or pricing data, receipts, invoices or other documents, in order to evaluate the accuracy, completeness and currency of cost or pricing data used or included by the Contractor in any Contractor Change Proposal or Contractor Change Request, or in connection with any adjustment to the Contract Price pursuant to Section 11.9.4 or 9.3.8.

In addition, to the extent required by Applicable Laws, OWNER, Puerto Rico and the Comptroller of Puerto Rico, or their duly authorized representatives, shall have the right to inspect the Work and to examine and audit the Contractor's books and records. The books and records subject to such examination and audit shall include all books, correspondence, records, cost or pricing data, receipts, invoices, or other documents necessary to evaluate the accuracy, completeness and currency of cost or pricing data used by the Contractor.

The Contractor's books and records required to be made available for examination and audit pursuant to this Subsection 17.14.2 shall be made available at the Contractor's office at the Site during normal business hours, upon five (5) Working Days' prior notice to the Contractor.

If any audit of the Contractor's books and records discloses an overcharge to OWNER, OWNER may elect to either invoice the Contractor for the Repayment Amount (as hereinafter defined) or to deduct the Repayment Amount from any subsequent payment due to the Contractor, in OWNER's full discretion. If OWNER elects to invoice the Contractor for any Repayment Amount due pursuant to the provisions of this Subsection 17.14.2, the Contractor shall pay the Repayment Amount to OWNER within fifteen (15) Days after receipt of the billing statement.

The "Repayment Amount" shall be an amount equal to the overcharge, together with interest on such amount at the Repayment Rate computed from, and including the date of, issuance of payment to the Contractor of the overcharged amount, but not including the date of repayment to, or deduction by, OWNER, as the case may be.

17.14.3 The Contractor shall insert provisions corresponding to Subsections 17.14.1 and 17.14.2 in each Subcontract, to grant OWNER and its representative's rights to examine and audit the books and records of each respective Subcontractor.

17.15 RIGHTS TO RECORD DOCUMENTATION

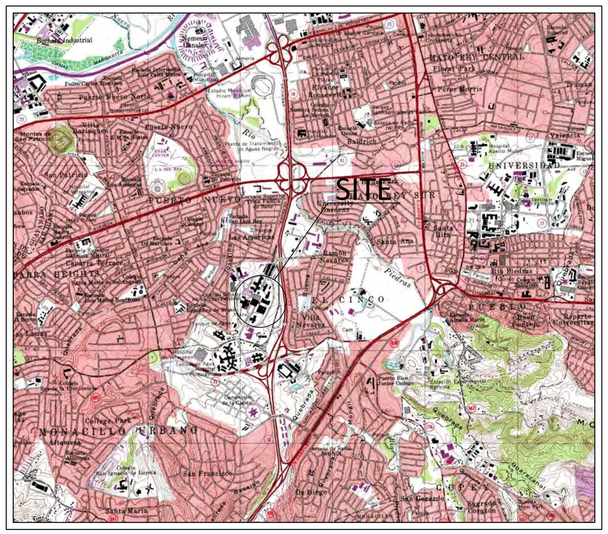
Notwithstanding any other provisions of this Article 17, title to all Record Documentation, and title to all computer data bases developed specifically for, or in connection with the Project, shall vest with OWNER, automatically without further action by either OWNER or the Contractor, upon the earlier of the date of achievement of Final Completion or the date of expiration or termination of the Contract.

17.19 PREFERENTIAL PURCHASE POLICY

In the performance of the Work, the Contractor shall use, whenever available, equipment and materials manufactured, assembled, bottled or packaged in Puerto Rico or distributed by agents established and existing in Puerto Rico, pursuant to the Preferential Policy Act for Purchases by the Government of Puerto Rico, 3 L.P.R.A. §914a *et seq.*

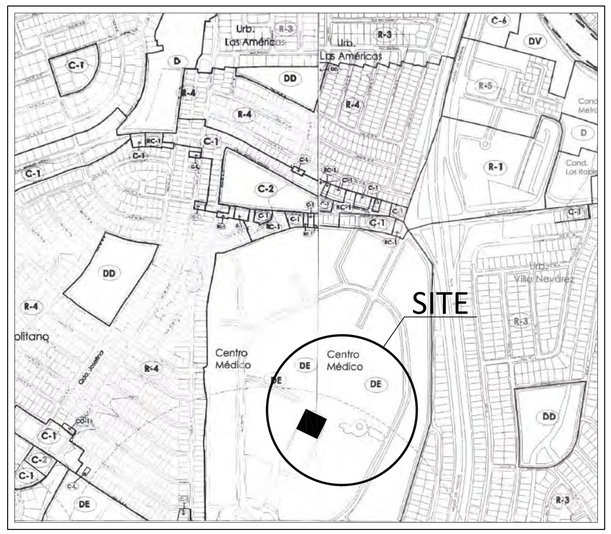
END OF DOCUMENT

Attachment A: Plans



LOCATION MAP

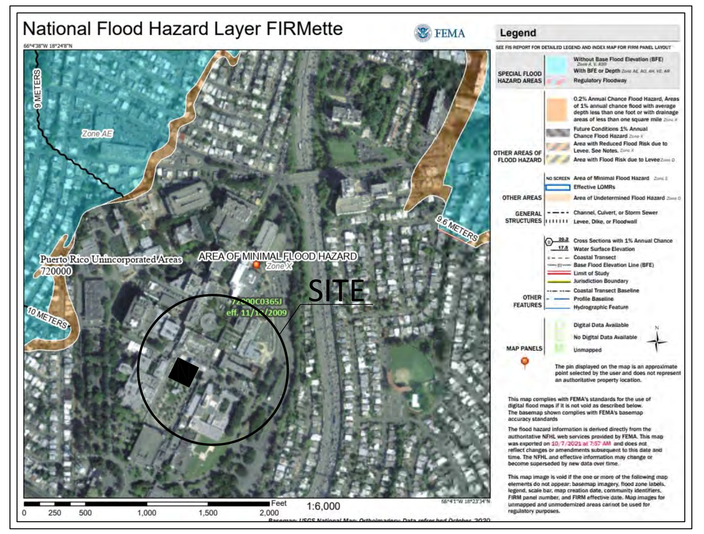
SCALE: 1:20,000



CALIFICATION MAP

SAN JUAN, MAP #8C & 8D VIGENCIA 28 MAYO 2016

SCALE: 1:2,000



FLOOD MAP

#72000C0230J

NOT TO SCALE

PUERTO RICO TRAUMA HOSPITAL

PUERTO RICO MEDICAL CENTER

SAN JUAN, PUERTO RICO

ADVANCED ARCHITECTURAL DESIGN DEVELOPMENT

DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

AUGUST 13, 2026

FINAL REPORT - APPENDIX A

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE–ESTÉVEZ ARCHITECTS AND ARE PROTECTED BY COPYRIGHT LAW. ALL RIGHTS ARE RESERVED. THESE DOCUMENTS ARE ISSUED SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES SPECIFICALLY AUTHORIZED BY DE LA TORRE–ESTÉVEZ ARCHITECTS. NO REPRODUCTION, DISTRIBUTION, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PERMITTED WITHOUT PRIOR WRITTEN CONSENT OF DE LA TORRE–ESTÉVEZ ARCHITECTS. UNAUTHORIZED USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE–ESTÉVEZ ARCHITECTS.



DE LA TORRE - ESTEVEZ

ARCHITECTS & PLANNERS

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EXISTING CONDITIONS, SURVEY, DIMENSIONAL VERIFICATION AND RELIANCE NOTES

1. THESE ADVANCED ARCHITECTURAL DESIGN DOCUMENTS FOR THE PUERTO RICO TRAUMA HOSPITAL HAVE BEEN PREPARED AS PART OF THE BRIDGING DOCUMENTS TO BE USED BY THE ADMINISTRACIÓN DE SERVICIOS MÉDICOS DE PUERTO RICO (ASEM) IN THE REQUEST FOR PROPOSAL (RFP) PROCUREMENT PROCESS FOR THE SELECTION OF A DESIGN-BUILD ENTITY.
2. THESE DRAWINGS ARE INTENDED PRIMARILY TO ESTABLISH AND COMMUNICATE THE OWNER'S PROGRAMMATIC REQUIREMENTS, FUNCTIONAL OBJECTIVES, ARCHITECTURAL DESIGN INTENT, SPATIAL ORGANIZATION, PRINCIPAL BUILDING CHARACTERISTICS, PERFORMANCE EXPECTATIONS, AND GENERAL BASIS OF DESIGN FOR THE PROPOSED PROJECT.
3. THESE ADVANCED ARCHITECTURAL DESIGN DOCUMENTS ARE BRIDGING DOCUMENTS AND ARE NOT FINAL CONSTRUCTION DOCUMENTS. THEY SHALL NOT BE USED DIRECTLY FOR PERMITTING, FABRICATION, PROCUREMENT, INSTALLATION, OR CONSTRUCTION.
4. FOLLOWING AWARD OF THE DESIGN-BUILD CONTRACT, ASEM MAY PROVIDE THE SELECTED DESIGN-BUILD ENTITY AND ITS ARCHITECT OF RECORD WITH ELECTRONIC COPIES OF THESE DRAWINGS, INCLUDING DWG FILES, FOR USE AS REFERENCE INFORMATION AND AS A BASE OR STARTING POINT FOR THE DEVELOPMENT OF THE FINAL ARCHITECTURAL AND ENGINEERING CONSTRUCTION DOCUMENTS.
5. THE FURNISHING OR USE OF DWG OR OTHER EDITABLE ELECTRONIC FILES SHALL NOT CONSTITUTE A REPRESENTATION, CERTIFICATION, OR WARRANTY THAT THE INFORMATION CONTAINED THEREIN IS COMPLETE, FIELD-VERIFIED, SURVEY-ACCURATE, FULLY COORDINATED, OR SUITABLE FOR DIRECT USE IN CONSTRUCTION.
6. THE DESIGN-BUILD ENTITY, THROUGH ITS DULY LICENSED ARCHITECT OF RECORD, ENGINEERS OF RECORD, PROFESSIONAL LAND SURVEYOR, AND OTHER APPROPRIATE DESIGN PROFESSIONALS, SHALL INDEPENDENTLY VERIFY, VALIDATE, COMPLETE, COORDINATE, AND ADAPT ALL INFORMATION REQUIRED FOR THE FINAL DESIGN AND CONSTRUCTION DOCUMENTS.
7. EXISTING SITE AND FIELD CONDITIONS SHOWN ON THESE DRAWINGS ARE BASED UPON INFORMATION REASONABLY AVAILABLE DURING PREPARATION OF THE BRIDGING DOCUMENTS, INCLUDING AVAILABLE RECORD DOCUMENTS, REFERENCE INFORMATION, OBSERVATIONS, AND INFORMATION PROVIDED BY ASEM OR OTHER SOURCES. SUCH INFORMATION IS PROVIDED FOR GENERAL REFERENCE AND DESIGN CONTEXT ONLY AND SHALL NOT BE INTERPRETED AS A CERTIFIED REPRESENTATION OF ACTUAL FIELD CONDITIONS.
8. PRIOR TO COMPLETING THE FINAL DESIGN, THE DESIGN-BUILD ENTITY SHALL CONDUCT ALL FIELD INVESTIGATIONS, MEASUREMENTS, SURVEYS, EXPLORATORY WORK, AND OTHER VERIFICATIONS NECESSARY TO ACCURATELY ESTABLISH THE EXISTING CONDITIONS AFFECTING THE PROJECT.
9. THE DESIGN-BUILD ENTITY SHALL RETAIN A DULY LICENSED PROFESSIONAL LAND SURVEYOR TO PREPARE A CURRENT, ACCURATE, AND GEOREFERENCED EXISTING-CONDITIONS AND BOUNDARY SURVEY OF THE FULL PROJECT LOT AND, TO THE EXTENT REQUIRED FOR DESIGN AND CONSTRUCTION COORDINATION, THE IMMEDIATELY ADJACENT AREAS AFFECTING THE WORK.
10. THE PROFESSIONAL SURVEY SHALL ESTABLISH, AS APPLICABLE, PROPERTY BOUNDARIES, HORIZONTAL AND VERTICAL CONTROL, BENCHMARKS, GRADES, ELEVATIONS, TOPOGRAPHY, BUILDINGS, STRUCTURES, ROADWAYS, CURBS, SIDEWALKS, PAVEMENTS, WALLS, FENCES, ACCESS POINTS, DRAINAGE FEATURES, VISIBLE UTILITIES, UTILITY STRUCTURES, EASEMENTS, AND OTHER PHYSICAL FEATURES REQUIRED FOR THE PROPER DEVELOPMENT OF THE FINAL CONSTRUCTION DOCUMENTS.
11. THE FINAL DESIGN AND CONSTRUCTION DOCUMENTS SHALL BE DEVELOPED USING THE DESIGN-BUILD ENTITY'S VERIFIED FIELD INFORMATION, PROFESSIONAL SURVEYS, AND COORDINATED INVESTIGATIONS AND SHALL NOT RELY SOLELY UPON EXISTING-CONDITION INFORMATION REPRESENTED IN THESE BRIDGING DOCUMENTS.
12. THE LOCATIONS, CONFIGURATIONS, DIMENSIONS, ELEVATIONS, OPENINGS, PROJECTIONS, FOUNDATIONS, CLEARANCES, AND OTHER CHARACTERISTICS OF EXISTING ADJACENT BUILDINGS AND STRUCTURES SHOWN ON THESE DRAWINGS SHALL BE CONSIDERED APPROXIMATE UNLESS EXPRESSLY IDENTIFIED AS HAVING BEEN ESTABLISHED BY A CURRENT CERTIFIED PROFESSIONAL SURVEY.
13. THE DESIGN-BUILD ENTITY SHALL FIELD-VERIFY AND DOCUMENT ALL ADJACENT BUILDING AND SITE CONDITIONS THAT MAY AFFECT THE FINAL DESIGN, DEMOLITION, EXCAVATION, STRUCTURAL WORK, TEMPORARY PROTECTION, ACCESS, CIRCULATION, FIRE SEPARATION, WATERPROOFING, DRAINAGE, UTILITY SERVICES, CONSTRUCTION OPERATIONS, OR THE CONTINUED OPERATION OF ADJACENT ASEM AND PUERTO RICO MEDICAL CENTER FACILITIES.
14. EXISTING UNDERGROUND, ABOVE-GROUND, OVERHEAD, CONCEALED, OR OTHERWISE NON-VISIBLE UTILITIES SHOWN ON THESE DRAWINGS ARE BASED UPON AVAILABLE INFORMATION AND THEIR LOCATIONS, ROUTING, SIZES, DEPTHS, ELEVATIONS, CAPACITIES, AND CONNECTION POINTS SHALL BE CONSIDERED APPROXIMATE UNLESS SPECIFICALLY VERIFIED AND DOCUMENTED OTHERWISE.
15. DE LA TORRE–ESTÉVEZ ARCHITECTS DOES NOT REPRESENT OR WARRANT THAT ALL EXISTING UTILITIES, INCLUDING CONCEALED, ABANDONED, UNDOCUMENTED, PRIVATE, INSTITUTIONAL, OR SUBSURFACE UTILITIES AND SERVICES, ARE SHOWN ON THESE DRAWINGS.
16. THE DESIGN-BUILD ENTITY SHALL VERIFY EXISTING UTILITIES THROUGH APPROPRIATE RECORD RESEARCH, COORDINATION WITH ASEM AND APPLICABLE UTILITY ENTITIES, PROFESSIONAL SURVEYING, UTILITY LOCATING, SUBSURFACE INVESTIGATION, TEST PITS, EXPLORATORY WORK, OR OTHER APPROPRIATE MEANS PRIOR TO UNDERTAKING WORK THAT MAY AFFECT SUCH UTILITIES.
17. ALL EXISTING UTILITIES AND SERVICES REQUIRED TO REMAIN IN OPERATION SHALL BE IDENTIFIED, VERIFIED, PROTECTED, AND MAINTAINED. ANY REQUIRED INTERRUPTION, RELOCATION, TEMPORARY SERVICE, MODIFICATION, OR RECONNECTION SHALL BE COORDINATED IN ADVANCE WITH ASEM AND THE APPLICABLE UTILITY OR FACILITY AUTHORITY.
18. DIMENSIONS INDICATED ON THESE ADVANCED ARCHITECTURAL DESIGN DOCUMENTS ARE INTENDED TO ESTABLISH THE GENERAL CONFIGURATION, PLANNING RELATIONSHIPS, APPROXIMATE SIZES, DESIGN INTENT, AND PRINCIPAL CHARACTERISTICS OF THE PROPOSED PROJECT AT THE LEVEL OF DESIGN DEVELOPMENT REPRESENTED BY THE BRIDGING DOCUMENTS.
19. THE DESIGN-BUILD ENTITY AND ITS ARCHITECT AND ENGINEERS OF RECORD SHALL VERIFY, RECONCILE, COORDINATE, AND ESTABLISH ALL DIMENSIONS, ELEVATIONS, CLEARANCES, DATUMS, AND CONTROL POINTS REQUIRED FOR THE FINAL CONSTRUCTION DOCUMENTS AND FOR THE PROPER EXECUTION OF THE WORK.
20. ALL DIMENSIONS RELATED TO EXISTING CONDITIONS SHALL BE FIELD-VERIFIED. DIMENSIONS SHALL NOT BE ASSUMED TO BE ACCURATE SOLELY BECAUSE THEY APPEAR IN THE BRIDGING DOCUMENTS OR IN THE ASSOCIATED ELECTRONIC DWG FILES.
21. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS, VERIFIED FIELD MEASUREMENTS, PROFESSIONAL SURVEY INFORMATION, AND DIMENSIONAL INFORMATION ESTABLISHED IN THE FINAL CONSTRUCTION DOCUMENTS SHALL GOVERN.
22. GRAPHIC SCALE, LINEWORK, SYMBOLS, DIAGRAMS, DETAILS, BACKGROUNDS, CAD GEOMETRY, AND OTHER GRAPHIC REPRESENTATIONS IN THESE BRIDGING DOCUMENTS ARE INTENDED TO COMMUNICATE DESIGN INTENT AT THE STAGE OF DEVELOPMENT REPRESENTED AND SHALL NOT BE USED AS A SUBSTITUTE FOR VERIFIED DIMENSIONAL INFORMATION.
23. DIMENSIONS, DISTANCES, ELEVATIONS, OR COORDINATES OBTAINED BY SCALING PRINTED DRAWINGS, PDF FILES, DIGITAL IMAGES, CAD FILES, OR OTHER ELECTRONIC INFORMATION SHALL NOT BE USED AS THE SOLE BASIS FOR CONSTRUCTION, FABRICATION, PROCUREMENT, OR INSTALLATION.
24. WHERE A REQUIRED DIMENSION, ELEVATION, CLEARANCE, OR OTHER CONSTRUCTION CONTROL INFORMATION IS NOT SPECIFICALLY INDICATED IN THESE BRIDGING DOCUMENTS, THE DESIGN-BUILD ENTITY SHALL DETERMINE, VERIFY, COORDINATE, AND DOCUMENT SUCH INFORMATION AS PART OF THE DEVELOPMENT OF THE FINAL CONSTRUCTION DOCUMENTS.
25. ELECTRONIC DWG FILES MAY INCLUDE REFERENCE INFORMATION, THIRD-PARTY BACKGROUNDS, PRELIMINARY GEOMETRY, EXTERNAL REFERENCES, NON-PLOTTING INFORMATION, OR OTHER DATA DEVELOPED AT DIFFERENT LEVELS OF ACCURACY AND COMPLETENESS. THE DESIGN-BUILD ENTITY AND ITS ARCHITECT OF RECORD SHALL REVIEW AND VALIDATE ALL SUCH INFORMATION BEFORE INCORPORATING IT INTO THE FINAL DESIGN.
26. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR ALL MODIFICATIONS, ADDITIONS, DELETIONS, TRANSLATIONS, CONVERSIONS, RECONFIGURATIONS, OR OTHER ALTERATIONS MADE TO THE ELECTRONIC FILES AFTER THEIR TRANSMITTAL AND FOR THE PROFESSIONAL AND TECHNICAL CONSEQUENCES OF SUCH MODIFICATIONS.
27. ANY DISCREPANCY BETWEEN THESE BRIDGING DOCUMENTS AND VERIFIED FIELD CONDITIONS, PROFESSIONAL SURVEYS, UTILITY INVESTIGATIONS, APPLICABLE CODES, OWNER-PROVIDED INFORMATION, OR OTHER PROJECT REQUIREMENTS SHALL BE IDENTIFIED, INVESTIGATED, AND RESOLVED BY THE DESIGN-BUILD ENTITY DURING DEVELOPMENT OF THE FINAL CONSTRUCTION DOCUMENTS.
28. WHERE VERIFIED FIELD CONDITIONS REQUIRE A MATERIAL MODIFICATION TO THE PROGRAMMATIC REQUIREMENTS, FUNCTIONAL RELATIONSHIPS, ARCHITECTURAL CHARACTER, OR OTHER OWNER-APPROVED DESIGN INTENT ESTABLISHED BY THE BRIDGING DOCUMENTS, THE CONDITION SHALL BE BROUGHT TO ASEM'S ATTENTION AND RESOLVED IN ACCORDANCE WITH THE DESIGN-BUILD AGREEMENT AND APPLICABLE OWNER REVIEW AND APPROVAL PROCEDURES.
29. USE OF THESE DRAWINGS OR ELECTRONIC FILES AS A BASIS FOR CONTINUED DESIGN DEVELOPMENT SHALL NOT RELIEVE THE DESIGN-BUILD ENTITY, ITS ARCHITECT OF RECORD, ENGINEERS OF RECORD, PROFESSIONAL LAND SURVEYOR, CONTRACTORS, SUBCONTRACTORS, OR OTHER RESPONSIBLE PARTIES OF THEIR INDEPENDENT PROFESSIONAL, CONTRACTUAL, AND CONSTRUCTION OBLIGATIONS TO VERIFY EXISTING CONDITIONS AND TO DEVELOP COMPLETE, ACCURATE, COORDINATED, CODE-COMPLIANT, AND CONSTRUCTIBLE FINAL DOCUMENTS.
30. THE SELECTED DESIGN-BUILD ENTITY, THROUGH ITS DULY LICENSED ARCHITECT OF RECORD AND ENGINEERS OF RECORD, SHALL BE RESPONSIBLE FOR THE DEVELOPMENT, COMPLETION, COORDINATION, TECHNICAL ACCURACY, CODE COMPLIANCE, SIGNING AND SEALING, PERMITTING, AND PROFESSIONAL RESPONSIBILITY FOR THE FINAL CONSTRUCTION DOCUMENTS.
31. TO THE FULLEST EXTENT PERMITTED BY THE APPLICABLE DESIGN-BUILD AGREEMENT AND GOVERNING LAW, DE LA TORRE–ESTÉVEZ ARCHITECTS SHALL NOT BE RESPONSIBLE FOR ERRORS, OMISSIONS, CONFLICTS, OR CONSEQUENCES ARISING FROM RELIANCE UPON UNVERIFIED EXISTING-CONDITION INFORMATION; DIMENSIONS OBTAINED BY SCALING; INACCURATE OR INCOMPLETE THIRD-PARTY INFORMATION; UNDOCUMENTED OR CONCEALED UTILITIES; MODIFICATIONS TO ELECTRONIC FILES BY OTHERS; OR FAILURE BY THE DESIGN-BUILD ENTITY TO INDEPENDENTLY SURVEY, INVESTIGATE, VERIFY, COORDINATE, AND DOCUMENT ACTUAL FIELD CONDITIONS.
32. NOTHING IN THESE NOTES SHALL BE INTERPRETED AS AUTHORIZATION TO DISREGARD OR MATERIALLY ALTER THE OWNER-APPROVED ARCHITECTURAL DESIGN INTENT ESTABLISHED BY THE BRIDGING DOCUMENTS. FIELD VERIFICATION AND FINAL DOCUMENT DEVELOPMENT SHALL BE PERFORMED WHILE PRESERVING THE PROJECT'S ESTABLISHED PROGRAMMATIC, FUNCTIONAL, AND ARCHITECTURAL REQUIREMENTS, EXCEPT WHERE MODIFICATIONS ARE REVIEWED AND ACCEPTED BY ASEM IN ACCORDANCE WITH THE DESIGN-BUILD AGREEMENT.

BRIDGING DOCUMENTS INTRODUCTION

THIS FINAL REPORT FORMS PART OF THE BRIDGING DOCUMENTS PREPARED FOR THE NEW PUERTO RICO TRAUMA HOSPITAL AT THE PUERTO RICO MEDICAL CENTER. THE PURPOSE OF THE BRIDGING DOCUMENTS IS TO ESTABLISH THE PROJECT'S SUGGESTED DESIGN INTENT, TECHNICAL DIRECTION, PERFORMANCE REQUIREMENTS, AND BASELINE CRITERIA FOR USE IN THE PROCUREMENT OF A DESIGN-BUILD ENTITY THROUGH A REQUEST FOR PROPOSALS PROCESS.

THE BRIDGING DOCUMENTS WILL BE USED BY THE OWNER DURING THE REQUEST FOR PROPOSALS PROCUREMENT PROCESS TO SELECT THE DESIGN-BUILD ENTITY RESPONSIBLE FOR COMPLETING THE DESIGN DEVELOPMENT, PREPARING THE FINAL CONSTRUCTION DOCUMENTS, AND CONSTRUCTING THE NEW PUERTO RICO TRAUMA HOSPITAL. THEY ARE INTENDED TO PROVIDE A COORDINATED FRAMEWORK THAT COMMUNICATES THE OWNER'S EXPECTATIONS FOR THE PROJECT WHILE ALLOWING THE DESIGN-BUILD ENTITY TO COMPLETE THE FINAL DESIGN, ENGINEERING COORDINATION, PERMITTING, CONSTRUCTION DOCUMENTS, AND CONSTRUCTION EXECUTION IN ACCORDANCE WITH APPLICABLE CODES, REGULATIONS, HEALTHCARE STANDARDS, AND PROJECT REQUIREMENTS.

THE BRIDGING DOCUMENTS INCLUDE THE FINAL REPORT, THE ADVANCED ARCHITECTURAL DESIGN DEVELOPMENT DOCUMENTS, THE PRELIMINARY TECHNICAL SPECIFICATIONS, SUGGESTED PROBABLE CONSTRUCTION COST, AND SUGGESTED PROJECT ITINERARY. TOGETHER, THESE DOCUMENTS DEFINE THE INTENDED SCOPE, PROGRAMMATIC ORGANIZATION, ARCHITECTURAL AND ENGINEERING OBJECTIVES, RESILIENCE AND OPERATIONAL PERFORMANCE GOALS, SUGGESTED PROBABLE CONSTRUCTION COST, AND SUGGESTED PROJECT ITINERARY. THEY ARE NOT INTENDED TO SERVE AS FINAL CONSTRUCTION DOCUMENTS, BUT RATHER AS THE BASIS FOR THE DESIGN-BUILD PROPOSAL, VALIDATION, DEVELOPMENT, AND FINAL IMPLEMENTATION OF THE PROJECT.

THE FINAL REPORT INCLUDES THE EXISTING AND PROPOSED PROJECT LOT PLACEMENT, ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND ELECTRICAL DESIGN NARRATIVES. THESE COMPONENTS SUMMARIZE THE PRINCIPAL DESIGN ASSUMPTIONS AND REQUIREMENTS THAT SHALL GUIDE THE DESIGN-BUILD ENTITY IN ADVANCING THE PROJECT WHILE PRESERVING THE ESSENTIAL DESIGN INTENT, FUNCTIONAL RELATIONSHIPS, OPERATIONAL OBJECTIVES, AND PERFORMANCE EXPECTATIONS ESTABLISHED FOR THE NEW PUERTO RICO TRAUMA HOSPITAL.

DURING THE PROCUREMENT PROCESS, THE OWNER MAY REQUEST CLARIFICATIONS, REVISIONS, CHANGES, OR DEVIATIONS TO THE FINAL REPORT AND RELATED BRIDGING DOCUMENTS AS MAY BE REQUIRED TO ADDRESS PROCUREMENT OBJECTIVES, PROJECT REQUIREMENTS, FUNDING CONSIDERATIONS, REGULATORY COMMENTS, OR OTHER OWNER-DIRECTED DETERMINATIONS PRIOR TO FINAL SELECTION AND IMPLEMENTATION.

PROPRIETARY RIGHTS, LIMITED AUTHORIZATION, AND RESTRICTIONS ON USE OF BRIDGING DOCUMENTS

THESE DRAWINGS, SPECIFICATIONS, NARRATIVES, CRITERIA, REPORTS, CALCULATIONS, SCHEDULES, DETAILS, AND OTHER MATERIALS COMPRISING THE BRIDGING DOCUMENTS HAVE BEEN PREPARED EXCLUSIVELY TO ESTABLISH THE OWNER'S PROGRAMMATIC REQUIREMENTS, FUNCTIONAL AND OPERATIONAL OBJECTIVES, DESIGN INTENT, PERFORMANCE REQUIREMENTS, MINIMUM QUALITY STANDARDS, AND TECHNICAL BASIS OF DESIGN FOR THE REQUEST FOR PROPOSALS AND DESIGN-BUILD PROCUREMENT PROCESS FOR THE PUERTO RICO TRAUMA HOSPITAL PROJECT.

EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THE APPLICABLE PROFESSIONAL SERVICES AGREEMENT, THESE BRIDGING DOCUMENTS CONSTITUTE INSTRUMENTS OF PROFESSIONAL SERVICE PREPARED BY DE LA TORRE–ESTÉVEZ ARCHITECTS AND SHALL REMAIN SUBJECT TO ALL APPLICABLE PROPRIETARY, COPYRIGHT, INTELLECTUAL-PROPERTY, AND PROFESSIONAL-USE PROTECTIONS. NO OWNERSHIP INTEREST, COPYRIGHT, OR UNRESTRICTED RIGHT OF USE IS TRANSFERRED BY THE ISSUANCE, DISTRIBUTION, REPRODUCTION, OR AUTHORIZED USE OF THESE DOCUMENTS.

SUBJECT TO THE PRIOR WRITTEN CONSENT OF DE LA TORRE–ESTÉVEZ ARCHITECTS AND THE TERMS AND CONDITIONS ESTABLISHED BY THE OWNER, THE MEDICAL SERVICES ADMINISTRATION OF PUERTO RICO ("ASEM"), A LIMITED, NONEXCLUSIVE, AND NONTRANSFERABLE AUTHORIZATION IS GRANTED SOLELY TO ASEM AND TO THOSE DESIGN-BUILD ENTITIES FORMALLY AUTHORIZED BY ASEM TO PARTICIPATE IN THE PROCUREMENT PROCESS. SUCH AUTHORIZATION IS LIMITED EXCLUSIVELY TO REVIEWING, EVALUATING, INTERPRETING, AND USING THE BRIDGING DOCUMENTS FOR THE PREPARATION AND SUBMISSION OF PROPOSALS AND, FOLLOWING AWARD, AS REFERENCE DESIGN GUIDANCE FOR THE DEVELOPMENT OF THE PROJECT'S FINAL DESIGN AND CONSTRUCTION DOCUMENTS.

THESE BRIDGING DOCUMENTS ARE NOT FINAL DESIGN DOCUMENTS, PERMIT DOCUMENTS, BID DOCUMENTS FOR CONVENTIONAL CONSTRUCTION PROCUREMENT, FABRICATION DOCUMENTS, SHOP DRAWINGS, OR CONSTRUCTION DOCUMENTS. THEY SHALL NOT BE USED, IN WHOLE OR IN PART, FOR PERMITTING, FABRICATION, ORDERING OR PROCUREMENT OF CONSTRUCTION MATERIALS OR SYSTEMS, INSTALLATION, CONSTRUCTION, OR ANY OTHER PURPOSE UNRELATED TO THE AUTHORIZED DESIGN-BUILD PROCUREMENT PROCESS. DIRECT USE OF THESE DOCUMENTS FOR CONSTRUCTION IS EXPRESSLY PROHIBITED.

THE SELECTED DESIGN-BUILD ENTITY, ACTING THROUGH ITS DULY LICENSED ARCHITECT OF RECORD, ENGINEER(S) OF RECORD, SPECIALTY CONSULTANTS, DELEGATED-DESIGN PROFESSIONALS, CONTRACTORS, SUBCONTRACTORS, MANUFACTURERS, AND SUPPLIERS, AS APPLICABLE, SHALL BE SOLELY RESPONSIBLE FOR DEVELOPING, COMPLETING, COORDINATING, REVIEWING, AND CERTIFYING ALL FINAL ARCHITECTURAL, ENGINEERING, PERMITTING, PROCUREMENT, FABRICATION, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROPER EXECUTION AND COMPLETION OF THE PROJECT.

THE DESIGN-BUILD ENTITY SHALL INDEPENDENTLY INVESTIGATE AND VERIFY ALL EXISTING CONDITIONS, FIELD DIMENSIONS, ELEVATIONS, QUANTITIES, UTILITY LOCATIONS, SITE CONSTRAINTS, DESIGN ASSUMPTIONS, TECHNICAL CRITERIA, CODE REQUIREMENTS, AND OTHER INFORMATION AFFECTING THE WORK. INFORMATION CONTAINED IN THE BRIDGING DOCUMENTS SHALL NOT RELIEVE THE DESIGN-BUILD ENTITY OR ITS DESIGN PROFESSIONALS FROM THEIR INDEPENDENT PROFESSIONAL JUDGMENT, DUE DILIGENCE, COORDINATION OBLIGATIONS, OR RESPONSIBILITY FOR THE ACCURACY, COMPLETENESS, CONSTRUCTABILITY, CODE COMPLIANCE, PERMITTING, SAFETY, AND PERFORMANCE OF THE FINAL DESIGN AND COMPLETED WORK.

NO REPRESENTATION OR WARRANTY IS MADE THAT THE BRIDGING DOCUMENTS ARE COMPLETE OR SUITABLE FOR DIRECT CONSTRUCTION USE. ANY UNAUTHORIZED USE, REPRODUCTION, MODIFICATION, ADAPTATION, DISTRIBUTION, DISCLOSURE, OR RELIANCE UPON THESE DOCUMENTS SHALL BE AT THE SOLE RISK OF THE PERSON OR ENTITY UNDERTAKING SUCH USE AND WITHOUT LIABILITY TO DE LA TORRE–ESTÉVEZ ARCHITECTS OR ITS CONSULTANTS. NO THIRD-PARTY RIGHTS, LICENSES, OR BENEFITS ARE CREATED BY THE PREPARATION, ISSUANCE, OR AUTHORIZED DISTRIBUTION OF THESE DOCUMENTS.

ADVANCED ARCHITECTURAL DESIGN DEVELOPMENT - DESIGN BASIS, LIMITATIONS, AND DESIGN-BUILD RESPONSIBILITY

1. THESE DRAWINGS REPRESENT THE ADVANCED ARCHITECTURAL DESIGN DEVELOPMENT STAGE OF THE PUERTO RICO TRAUMA HOSPITAL AND FORM PART OF THE BRIDGING DOCUMENTS PREPARED FOR ASEM'S DESIGN-BUILD REQUEST FOR PROPOSALS. THEY COMMUNICATE THE OWNER-APPROVED PROGRAMMATIC REQUIREMENTS, FUNCTIONAL AND OPERATIONAL OBJECTIVES, DESIGN INTENT, BASIS-OF-DESIGN CONCEPTS, AND MINIMUM PERFORMANCE EXPECTATIONS DEVELOPED TO THE LEVEL SHOWN. THESE DRAWINGS ARE NOT FINAL PERMIT OR CONSTRUCTION DOCUMENTS AND SHALL NOT BE USED FOR CONSTRUCTION.
2. THE ADVANCED ARCHITECTURAL DESIGN DEVELOPMENT AND RELATED ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND MECHANICAL NARRATIVES WERE DEVELOPED UNDER THE DIRECTION OF DE LA TORRE-ESTEVEZ ARCHITECTS, AS BRIDGING ARCHITECT, BASED ON THE FIRM'S PROFESSIONAL ARCHITECTURAL JUDGMENT, HEALTHCARE PLANNING AND DESIGN EXPERIENCE, AND APPLICABLE ENGINEERING INPUT. THEY ALSO REFLECT THE PROGRAMMING, PLANNING, CLINICAL, OPERATIONAL, FUNCTIONAL, AND SERVICE REQU

NAMED PRODUCTS, MANUFACTURERS, EQUIPMENT, SYSTEMS, AND BASIS-OF-QUALITY REQUIREMENTS

1. UNLESS EXPRESSLY IDENTIFIED OTHERWISE IN THE REQUEST FOR PROPOSALS (RFP), BRIDGING DOCUMENTS, ASEM REQUIREMENTS, OR FINAL DESIGN-BUILD AGREEMENT, ANY TRADE NAME, PROPRIETARY PRODUCT, MATERIAL, EQUIPMENT, SYSTEM, MANUFACTURER, SUPPLIER, MODEL NUMBER, CATALOG REFERENCE, ASSEMBLY, DETAIL, OR SIMILAR REFERENCE SHOWN OR IDENTIFIED IN THESE ADVANCED ARCHITECTURAL DESIGN DEVELOPMENT (AADD) DOCUMENTS SHALL BE CONSIDERED A BASIS OF DESIGN AND MINIMUM BASIS-OF-QUALITY REQUIREMENT ONLY.
2. SUCH REFERENCES ARE INTENDED TO ESTABLISH THE MINIMUM ACCEPTABLE LEVEL OF QUALITY, PERFORMANCE, FUNCTIONALITY, DURABILITY, RELIABILITY, APPEARANCE, SERVICEABILITY, COMPATIBILITY, MAINTAINABILITY, AND STANDARD OF WORKMANSHIP REQUIRED FOR THE PROJECT AND SHALL NOT, BY THEMSELVES, BE INTERPRETED AS REQUIRING THE SPECIFICALLY NAMED PRODUCT, MANUFACTURER, SUPPLIER, MODEL, OR SYSTEM.
3. THE DESIGN-BUILD ENTITY MAY PROPOSE EQUAL, COMPARABLE, SIMILAR, OR SUPERIOR PRODUCTS, MATERIALS, EQUIPMENT, SYSTEMS, MANUFACTURERS, ASSEMBLIES, OR INSTALLATION METHODS, PROVIDED THAT THE PROPOSED SELECTIONS FULLY SATISFY OR EXCEED THE ESTABLISHED BASIS-OF-QUALITY AND PROJECT REQUIREMENTS.
4. ALL PROPOSED SELECTIONS SHALL COMPLY WITH THE PROJECT DESIGN INTENT, REQUIRED PERFORMANCE CRITERIA, FUNCTIONAL AND OPERATIONAL REQUIREMENTS, APPLICABLE CODES AND REGULATIONS, HEALTHCARE-FACILITY REQUIREMENTS, OWNER'S PROJECT REQUIREMENTS, RFP BRIDGING DOCUMENTS, AND FINAL DESIGN-BUILD AGREEMENT.
5. THE DESIGN-BUILD ENTITY, THROUGH ITS ARCHITECT AND ENGINEERS OF RECORD, SHALL BE SOLELY RESPONSIBLE FOR THE TECHNICAL EVALUATION, FINAL SELECTION, SPECIFICATION, COORDINATION, DOCUMENTATION, INTEGRATION, AND PERFORMANCE OF ALL PRODUCTS, MATERIALS, EQUIPMENT, SYSTEMS, AND MANUFACTURERS INCORPORATED INTO THE FINAL PROJECT.
6. FINAL PRODUCT, EQUIPMENT, MATERIAL, MANUFACTURER, SYSTEM, AND BASIS-OF-QUALITY SELECTIONS SHALL BE DEVELOPED IN ACTIVE CONSULTATION AND COORDINATION WITH ASEM AND SHALL REFLECT ASEM'S CONFIRMED PROGRAMMATIC, CLINICAL, OPERATIONAL, MAINTENANCE, FACILITY-STANDARD, STANDARDIZATION, COMPATIBILITY, RELIABILITY, RESILIENCY, AND LONG-TERM SERVICE REQUIREMENTS.
7. PRODUCTS AND SYSTEMS HAVING A MATERIAL EFFECT ON OWNER OPERATIONS, MAINTENANCE PRACTICES, FACILITY STANDARDS, SYSTEM COMPATIBILITY, ARCHITECTURAL CHARACTER, ENERGY USE, RESILIENCY, LIFECYCLE COST, OR LONG-TERM SERVICE REQUIREMENTS SHALL BE PRESENTED TO ASEM FOR REVIEW, CONSULTATION, AND AGREEMENT PRIOR TO INCORPORATION INTO THE FINAL DESIGN AND TECHNICAL SPECIFICATIONS.
8. ALL FINAL PRODUCT AND SYSTEM SELECTIONS SHALL BE APPROPRIATE FOR USE WITHIN A CRITICAL HEALTHCARE FACILITY AND SHALL PROVIDE THE REQUIRED LEVELS OF PERFORMANCE, DURABILITY, SAFETY, ACCESSIBILITY, INFECTION-CONTROL COMPATIBILITY, MAINTAINABILITY, ENERGY EFFICIENCY, RESILIENCE, AND LONG-TERM OPERATIONAL RELIABILITY.
9. PROPOSED EQUAL OR COMPARABLE PRODUCTS SHALL MEET OR EXCEED THE SALIENT CHARACTERISTICS OF THE REFERENCED BASIS-OF-DESIGN ITEM, INCLUDING, AS APPLICABLE, MATERIAL COMPOSITION, DIMENSIONS, CAPACITY, CONFIGURATION, PERFORMANCE, FIRE AND LIFE-SAFETY CHARACTERISTICS, ENVIRONMENTAL RESISTANCE, CODE COMPLIANCE, TESTING, CERTIFICATIONS, LISTINGS, WARRANTIES, SERVICE LIFE, MAINTAINABILITY, AND ARCHITECTURAL APPEARANCE.
10. WHERE APPLICABLE, EQUIVALENCY SHALL ALSO ADDRESS RESISTANCE TO CORROSION, MOISTURE, WIND, IMPACT, VIBRATION, SEISMIC FORCES, AND OTHER PROJECT-SPECIFIC ENVIRONMENTAL OR SERVICE CONDITIONS.
11. PRODUCTS AND MATERIALS USED IN CLINICAL OR HEALTHCARE ENVIRONMENTS SHALL BE COMPATIBLE WITH APPLICABLE INFECTION-PREVENTION PROTOCOLS, CLEANING PROCEDURES, DISINFECTANTS, MAINTENANCE METHODS, AND OTHER OWNER OPERATIONAL REQUIREMENTS.
12. THE AVAILABILITY OF LOCAL TECHNICAL SUPPORT, QUALIFIED SERVICE PERSONNEL, REPLACEMENT PARTS, CONSUMABLES, WARRANTIES, AND REASONABLE LONG-TERM PRODUCT SUPPORT SHALL BE CONSIDERED IN THE FINAL PRODUCT AND EQUIPMENT SELECTION PROCESS.
13. THE IDENTIFICATION OR DEPICTION OF ANY PRODUCT, MATERIAL, EQUIPMENT, SYSTEM, MANUFACTURER, DETAIL, OR ASSEMBLY IN THE BRIDGING DOCUMENTS SHALL NOT RELIEVE THE DESIGN-BUILD ENTITY OF ITS OBLIGATION TO VERIFY ITS SUITABILITY, AVAILABILITY, DIMENSIONAL COMPATIBILITY, PERFORMANCE, CODE COMPLIANCE, COORDINATION WITH ADJACENT CONSTRUCTION, AND INTERFACE WITH OTHER BUILDING SYSTEMS.
14. WHEN REQUIRED BY ASEM, THE RFP, OR THE FINAL DESIGN-BUILD AGREEMENT, THE DESIGN-BUILD ENTITY SHALL SUBMIT SUFFICIENT TECHNICAL DOCUMENTATION TO SUPPORT THE EVALUATION OF PROPOSED PRODUCTS AND SYSTEMS AND TO DEMONSTRATE COMPLIANCE WITH THE ESTABLISHED BASIS-OF-QUALITY REQUIREMENTS.
15. SUCH DOCUMENTATION MAY INCLUDE, AS APPLICABLE, COMPARATIVE PRODUCT DATA, PERFORMANCE INFORMATION AND CALCULATIONS, CODE-COMPLIANCE INFORMATION, TEST REPORTS, CERTIFICATIONS, SAMPLES, MOCKUPS, SHOP DRAWINGS, COORDINATION DRAWINGS, DELEGATED-DESIGN CALCULATIONS, MANUFACTURER QUALIFICATIONS, INSTALLATION REQUIREMENTS, WARRANTIES, SERVICE INFORMATION, MAINTENANCE REQUIREMENTS, REPLACEMENT-PARTS INFORMATION, AND COMMISSIONING REQUIREMENTS.
16. THE DESIGN-BUILD ENTITY SHALL CLEARLY IDENTIFY ANY PROPOSED DEVIATION OR VARIATION FROM A REFERENCED OR ASEM-CONFIRMED BASIS-OF-QUALITY REQUIREMENT AND SHALL PROVIDE DOCUMENTATION DEMONSTRATING THAT THE PROPOSED ALTERNATIVE DOES NOT REDUCE THE REQUIRED QUALITY, PERFORMANCE, SAFETY, DURABILITY, MAINTAINABILITY, FUNCTIONALITY, USEFUL LIFE, COMPATIBILITY, OR ARCHITECTURAL AND ENGINEERING DESIGN INTENT.
17. ANY MATERIAL DEVIATION AFFECTING AN ASEM STANDARD, AGREED BASIS-OF-QUALITY CRITERION, MAJOR EQUIPMENT OR SYSTEM SELECTION, OPERATIONAL REQUIREMENT, SYSTEM COMPATIBILITY, OR LONG-TERM MAINTENANCE REQUIREMENT SHALL BE SPECIFICALLY BROUGHT TO ASEM'S ATTENTION FOR CONSULTATION AND WRITTEN AGREEMENT IN ACCORDANCE WITH THE RFP AND FINAL DESIGN-BUILD AGREEMENT.
18. ASEM'S REVIEW, CONSULTATION, ACCEPTANCE, AGREEMENT, OR NON-OBJECTION REGARDING ANY PRODUCT, MANUFACTURER, MATERIAL, EQUIPMENT, SYSTEM, OR BASIS-OF-QUALITY REQUIREMENT SHALL REPRESENT CONFIRMATION OF OWNER REQUIREMENTS AND PREFERENCES ONLY AND SHALL NOT CONSTITUTE PROFESSIONAL DESIGN APPROVAL OR TRANSFER DESIGN RESPONSIBILITY FROM THE DESIGN-BUILD ENTITY AND ITS ARCHITECT AND ENGINEERS OF RECORD.
19. ASEM'S PARTICIPATION IN THE PRODUCT AND SYSTEM SELECTION PROCESS SHALL NOT RELIEVE THE DESIGN-BUILD ENTITY, ITS ARCHITECT AND ENGINEERS OF RECORD, DELEGATED-DESIGN PROFESSIONALS, SUBCONTRACTORS, SUPPLIERS, OR MANUFACTURERS FROM RESPONSIBILITY FOR CODE COMPLIANCE, TECHNICAL ADEQUACY, COORDINATION, SUITABILITY, COMPATIBILITY, ERRORS, OMISSIONS, DEFICIENCIES, OR COMPLIANCE WITH THE CONTRACT REQUIREMENTS.
20. PRODUCTS, MATERIALS, EQUIPMENT, SYSTEMS, OR MANUFACTURERS EXPRESSLY IDENTIFIED BY THE RFP, BRIDGING DOCUMENTS, ASEM STANDARDS OR DIRECTIVES, OR FINAL DESIGN-BUILD AGREEMENT AS MANDATORY, OWNER-STANDARD, SOLE-SOURCE, NO-SUBSTITUTION, PRE-APPROVED, OR REQUIRED FOR COMPATIBILITY OR STANDARDIZATION WITH EXISTING ASEM SYSTEMS SHALL BE PROVIDED AS SPECIFIED.
21. WHERE ASEM AND THE DESIGN-BUILD ENTITY ESTABLISH OR REVISE PRODUCT, MANUFACTURER, EQUIPMENT, SYSTEM, OR BASIS-OF-QUALITY REQUIREMENTS DURING THE DESIGN-BUILD DESIGN PROCESS, THE AGREED REQUIREMENTS SHALL BE INCORPORATED INTO THE FINAL CONSTRUCTION DOCUMENTS AND TECHNICAL SPECIFICATIONS IN ACCORDANCE WITH THE FINAL DESIGN-BUILD AGREEMENT.
22. THE FINAL TECHNICAL SPECIFICATIONS PREPARED BY THE DESIGN-BUILD ENTITY SHALL DEFINE ALL APPLICABLE PERFORMANCE REQUIREMENTS, QUALITY STANDARDS, BASIS-OF-QUALITY CRITERIA, ACCEPTABLE MANUFACTURERS, PRODUCTS, EQUIPMENT AND SYSTEMS, SUBMITTAL REQUIREMENTS, TESTING REQUIREMENTS, INSTALLATION CRITERIA, WARRANTIES, COMMISSIONING OBLIGATIONS, SERVICE AND MAINTENANCE REQUIREMENTS, AND REQUIRED CLOSEOUT DOCUMENTATION.
23. NOTHING SHOWN OR IDENTIFIED IN THESE AADD BRIDGING DOCUMENTS SHALL LIMIT OR DIMINISH THE DESIGN-BUILD ENTITY'S OBLIGATION TO DEVELOP COMPLETE, COORDINATED, CODE-COMPLIANT, CONSTRUCTION-READY DRAWINGS AND TECHNICAL SPECIFICATIONS FOR THE ENTIRE PROJECT.
24. IN THE EVENT OF A CONFLICT BETWEEN A PRODUCT OR SYSTEM REFERENCE SHOWN IN THESE AADD DOCUMENTS AND A SPECIFIC MANDATORY REQUIREMENT OF THE RFP, ASEM, OR FINAL DESIGN-BUILD AGREEMENT, THE APPLICABLE MANDATORY CONTRACT REQUIREMENT SHALL GOVERN.
25. UNLESS EXPRESSLY INDICATED OTHERWISE, WHEREVER THE ADVANCED ARCHITECTURAL DESIGN DEVELOPMENT (AADD) DRAWING SET IDENTIFIES A PRODUCT, MATERIAL, COLOR, FINISH, EQUIPMENT ITEM, SYSTEM, ASSEMBLY, DETAIL, INSTALLATION, OR OTHER PROJECT COMPONENT AS "TO BE SELECTED BY ARCHITECT," "TO BE APPROVED BY ARCHITECT," "TO BE REVIEWED BY ARCHITECT," "TO BE CONFIRMED BY ARCHITECT," "TO BE COORDINATED WITH ARCHITECT," "CONSULT ARCHITECT," OR USES ANY OTHER LANGUAGE OF SIMILAR INTENT, SUCH REQUIREMENT SHALL BE INTERPRETED AS ALSO REQUIRING APPROPRIATE CONSULTATION AND COORDINATION WITH ASEM, AND THE OWNER'S CONSENT, CONCURRENCE, AND/OR RECOMMENDATION, AS APPLICABLE, PRIOR TO INCORPORATION OF THE FINAL SELECTION OR DECISION INTO THE PROJECT. ASEM'S PARTICIPATION SHALL REPRESENT CONFIRMATION OF OWNER REQUIREMENTS, PREFERENCES, OPERATIONAL NEEDS, AND PROJECT STANDARDS AND SHALL NOT TRANSFER, DIMINISH, OR RELIEVE THE DESIGN-BUILD ENTITY OR ITS ARCHITECT AND ENGINEERS OF RECORD OF THEIR PROFESSIONAL RESPONSIBILITY FOR THE TECHNICAL ADEQUACY, CODE COMPLIANCE,

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PROPOSALS, PRICING, AND DESIGN-BUILD DEVELOPMENT FOR THE PROJECT IDENTIFIED HEREIN. THEY ARE NOT INTENDED FOR PERMITTING, BIDDING, FABRICATION, PROCUREMENT, OR CONSTRUCTION, AND SHALL NOT BE RELIED UPON FOR SUCH PURPOSES. THEY ARE PROVIDED SOLELY TO GUIDE AND INFORM THE DESIGN-BUILD ENTITY IN DEVELOPING ITS OWN DESIGN AND CONSTRUCTION DOCUMENTS. THE DESIGN-BUILD ENTITY IS RESPONSIBLE FOR THE SELECTED DESIGN-BUILD ENTITY'S ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY IS SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COMPLETENESS, ACCURACY, AND COORDINATION OF ITS CONSTRUCTION DOCUMENTS AND FOR OBTAINING ALL REQUIRED APPROVALS AND PERMITS. ANY REUSE, DISCLOSURE, ADAPTATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, BY ANY PERSON OR ENTITY OTHER THAN THE DESIGN-BUILD ENTITY FOR WHICH THEY WERE PREPARED, WITHOUT THE EXPRESS WRITTEN CONSENT OF DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS, IS PROHIBITED AND SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT AND ENGINEERS.

NO.	DATE	DESCRIPTIONS

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
COMPLIANCE NOTES

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1580 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER
TS-3

I. PROJECT DESIGN INTENT

A. PURPOSE OF THE BRIDGING DOCUMENTS

1. THESE ADVANCED ARCHITECTURAL DESIGN DEVELOPMENT DOCUMENTS ESTABLISH THE OWNER'S APPROVED ARCHITECTURAL DESIGN INTENT FOR THE PUERTO RICO TRAUMA HOSPITAL PROJECT AND SHALL SERVE AS THE ARCHITECTURAL BASIS OF DESIGN FOR THE DESIGN-BUILD PROCUREMENT PROCESS.
2. THESE DOCUMENTS ESTABLISH THE REQUIRED FUNCTIONAL PROGRAM, DEPARTMENTAL ORGANIZATION, CLINICAL RELATIONSHIPS, CIRCULATION CONCEPTS, OPERATIONAL OBJECTIVES, ARCHITECTURAL CHARACTER, RESILIENCE OBJECTIVES, AND HEALTHCARE PERFORMANCE REQUIREMENTS OF THE PROJECT.
3. THESE DOCUMENTS ARE BRIDGING DOCUMENTS AND ARE NOT CONSTRUCTION DOCUMENTS AND SHALL NOT BE USED FOR PERMITTING OR CONSTRUCTION PURPOSES.

B. DESIGN INTENT REQUIREMENTS

4. THE APPROVED FUNCTIONAL PROGRAM, ROOM FUNCTIONS, DEPARTMENTAL ORGANIZATION, AND CLINICAL ADJACENCIES REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED.
5. THE APPROVED PATIENT, STAFF, VISITOR, SERVICE, MATERIALS, AND WASTE CIRCULATION CONCEPTS SHALL BE MAINTAINED.
6. THE APPROVED OPERATIONAL WORKFLOWS, HEALTHCARE PLANNING CONCEPTS, AND DEPARTMENTAL RELATIONSHIPS SHALL BE MAINTAINED.
7. THE APPROVED BUILDING ORGANIZATION, VERTICAL STACKING STRATEGY, AND CAMPUS INTEGRATION CONCEPTS SHALL BE MAINTAINED.
8. THE APPROVED ARCHITECTURAL CHARACTER, BUILDING IMAGE, MASSING, SCALE, PROPORTIONS, AND DESIGN QUALITY SHALL BE MAINTAINED.
9. THE APPROVED PATIENT-CARE OBJECTIVES, RESILIENCE STRATEGIES, AND OPERATIONAL CONTINUITY OBJECTIVES SHALL BE MAINTAINED.
10. APPROVED BED CAPACITY, TREATMENT CAPACITY, AND SURGE-CAPACITY OBJECTIVES REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED UNLESS OTHERWISE APPROVED BY THE OWNER.
11. PROVISIONS FOR FUTURE ADAPTABILITY AND FUTURE HEALTHCARE OPERATIONAL NEEDS REPRESENTED BY THESE DOCUMENTS SHALL BE PRESERVED.

C. DESIGN-BUILD RESPONSIBILITIES

1. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR DEVELOPMENT OF THE FINAL DESIGN, ENGINEERING, CONSTRUCTION DOCUMENTS, PERMITTING, PROCUREMENT, AND CONSTRUCTION.
2. THE DESIGN-BUILD ENTITY SHALL PROVIDE COMPLETE INTERDISCIPLINARY COORDINATION AMONG ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, MEDICAL GAS, TELECOMMUNICATIONS, TECHNOLOGY, SECURITY, AND SPECIALTY SYSTEMS.
3. THE DESIGN-BUILD ENTITY SHALL VERIFY ALL DIMENSIONS, FIELD CONDITIONS, UTILITY REQUIREMENTS, EXISTING CONDITIONS, AND TECHNICAL CRITERIA REQUIRED FOR COMPLETION OF THE FINAL DESIGN.
4. VERIFICATION OF ALL CODE COMPLIANCE, REGULATORY COMPLIANCE, ENGINEERING PERFORMANCE, SYSTEM INTEGRATION, AND PERMITTING REQUIREMENTS SHALL BE THE SOLE RESPONSIBILITY OF THE DESIGN-BUILD ENTITY.
5. NOTHING CONTAINED WITHIN THESE BRIDGING DOCUMENTS SHALL RELIEVE THE DESIGN-BUILD ENTITY OF RESPONSIBILITY FOR COMPLETE AND CODE-COMPLIANT FINAL DESIGN AND CONSTRUCTION.

D. PERMITTED MODIFICATIONS

1. THE DESIGN-BUILD ENTITY MAY PROPOSE MODIFICATIONS THAT IMPROVE CONSTRUCTABILITY, MAINTAINABILITY, SUSTAINABILITY, ENGINEERING EFFICIENCY, LIFE-CYCLE PERFORMANCE, OR OPERATIONAL EFFECTIVENESS.
2. PROPOSED MODIFICATIONS SHALL NOT DIMINISH APPROVED ARCHITECTURAL DESIGN INTENT, CLINICAL FUNCTIONALITY, OPERATIONAL OBJECTIVES, LIFE-SAFETY REQUIREMENTS, OR HEALTHCARE PERFORMANCE REQUIREMENTS.
3. PROPOSED MODIFICATIONS SHALL NOT ADVERSELY AFFECT DEPARTMENTAL RELATIONSHIPS, CIRCULATION SYSTEMS, PATIENT-CARE OBJECTIVES, RESILIENCE STRATEGIES, OR SURGE-CAPACITY OBJECTIVES.
4. MODIFICATIONS AFFECTING APPROVED DESIGN INTENT SHALL BE SUBMITTED TO THE OWNER FOR REVIEW AND ACCEPTANCE PRIOR TO INCORPORATION INTO THE FINAL DESIGN.

E. PROJECT COMPLIANCE REQUIREMENTS

1. THE FINAL DESIGN SHALL COMPLY WITH ALL APPLICABLE FEDERAL, COMMONWEALTH OF PUERTO RICO, LOCAL, HEALTHCARE, ENVIRONMENTAL, ACCESSIBILITY, AND LIFE-SAFETY REQUIREMENTS.
2. APPLICABLE CODES AND STANDARDS SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, THE PUERTO RICO BUILDING CODE, INTERNATIONAL BUILDING CODE (IBC), INTERNATIONAL EXISTING BUILDING CODE (IEBC), INTERNATIONAL PLUMBING CODE (IPC), INTERNATIONAL MECHANICAL CODE (IMC), INTERNATIONAL ENERGY CONSERVATION CODE (IECC), NFPA CODES AND STANDARDS, NFPA 101, NFPA 99, AMERICANS WITH DISABILITIES ACT (ADA), 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN, FGI GUIDELINES FOR DESIGN AND CONSTRUCTION OF HOSPITALS, PUERTO RICO DEPARTMENT OF HEALTH REQUIREMENTS, CMS REQUIREMENTS, FEMA REQUIREMENTS, HUD/CDBG REQUIREMENTS WHERE APPLICABLE, AND ALL APPLICABLE AUTHORITY HAVING JURISDICTION REQUIREMENTS.

F. HEALTHCARE FACILITY PERFORMANCE REQUIREMENTS

1. THE FACILITY SHALL SUPPORT THE OPERATIONAL REQUIREMENTS OF A LEVEL I TRAUMA CENTER.
2. THE FINAL DESIGN SHALL SUPPORT PATIENT SAFETY, STAFF SAFETY, VISITOR SAFETY, AND EMERGENCY RESPONSE OPERATIONS.
3. ARCHITECTURAL SYSTEMS, MATERIALS, AND ASSEMBLIES SHALL SUPPORT HEALTHCARE INFECTION-PREVENTION OBJECTIVES AND LONG-TERM HEALTHCARE OPERATIONS.
4. ARCHITECTURAL SYSTEMS AND MATERIALS SHALL PROVIDE DURABILITY, MAINTAINABILITY, CLEANABILITY, AND LIFE-CYCLE PERFORMANCE APPROPRIATE FOR HEALTHCARE OCCUPANCY.
5. THE FACILITY SHALL SUPPORT DISASTER RESPONSE OPERATIONS, MASS-CASUALTY INCIDENTS, EMERGENCY MANAGEMENT FUNCTIONS, AND APPROVED SURGE-CAPACITY OBJECTIVES.
6. THE FACILITY SHALL SUPPORT CONTINUOUS OPERATION DURING HURRICANES, SEVERE WEATHER EVENTS, UTILITY INTERRUPTIONS, AND OTHER EMERGENCY CONDITIONS.
7. ALTERNATIVE SYSTEMS, MATERIALS, ASSEMBLIES, OR LAYOUTS PROPOSED BY THE DESIGN-BUILD ENTITY SHALL PROVIDE EQUAL OR SUPERIOR PERFORMANCE TO THE REQUIREMENTS ESTABLISHED BY THESE BRIDGING DOCUMENTS.

G. DRAWING INTERPRETATION REQUIREMENTS

1. THESE DRAWINGS ESTABLISH DESIGN INTENT AND PERFORMANCE REQUIREMENTS AND SHALL NOT BE INTERPRETED AS COMPLETE CONSTRUCTION DOCUMENTS.
2. DRAWINGS, SCHEDULES, DIAGRAMS, NARRATIVES, ROOM DATA SHEETS, AND SUPPORTING DOCUMENTS SHALL BE INTERPRETED COLLECTIVELY.
3. DESIGN INTENT NOTES CONTAINED WITHIN INDIVIDUAL DRAWING SHEETS ESTABLISH ADDITIONAL PROJECT-SPECIFIC REQUIREMENTS APPLICABLE TO THOSE DRAWINGS.
4. WHERE DISCREPANCIES OCCUR, THE INTERPRETATION THAT BEST PRESERVES THE APPROVED DESIGN INTENT SHALL GOVERN UNTIL CLARIFIED BY THE OWNER.
5. DIMENSIONS, LAYOUTS, RELATIONSHIPS, AND PLANNING CONCEPTS REPRESENTED BY THESE DOCUMENTS ESTABLISH MINIMUM DESIGN REQUIREMENTS UNLESS SPECIFICALLY NOTED OTHERWISE.
6. THE ORDER OF PRECEDENCE FOR INTERPRETATION OF DESIGN INTENT SHALL BE:
    a. DESIGN INTENT NARRATIVE
    b. ADVANCED ARCHITECTURAL DESIGN DEVELOPMENT DRAWINGS
    c. ROOM DATA SHEETS
    d. SPACE PROGRAM REQUIREMENTS
    e. ARCHITECTURAL SCHEDULES
    f. DIAGRAMMATIC INFORMATION

H. DESIGN INTENT PRESERVATION REQUIREMENTS

1. SITE PLANS, FLOOR PLANS, ELEVATIONS, SECTIONS, REFLECTED CEILING PLANS, SCHEDULES, AND SUPPORTING ARCHITECTURAL DOCUMENTS ESTABLISH MINIMUM APPROVED DESIGN INTENT REQUIREMENTS.
2. DESIGN INTENT AND PERFORMANCE REQUIREMENT NOTES LOCATED THROUGHOUT THIS DRAWING SET SHALL BE CONSIDERED SUPPLEMENTARY TO THESE GENERAL REQUIREMENTS.
3. THE DESIGN-BUILD ENTITY SHALL PRESERVE THE APPROVED FUNCTIONAL, OPERATIONAL, ARCHITECTURAL, CLINICAL, RESILIENCE, AND HEALTHCARE PERFORMANCE OBJECTIVES REPRESENTED BY THESE BRIDGING DOCUMENTS.
4. THE DESIGN-BUILD ENTITY SHALL MAINTAIN THE ARCHITECTURAL IMAGE, INSTITUTIONAL PRESENCE, FAÇADE COMPOSITION, BUILDING PROPORTIONS, AND OVERALL ARCHITECTURAL CHARACTER REPRESENTED BY THESE BRIDGING DOCUMENTS.

II. GENERAL DESIGN COMPLIANCE

A. GENERAL REQUIREMENTS

1. THE DESIGN-BUILD ENTITY SHALL COMPLY WITH ALL REQUIREMENTS CONTAINED WITHIN THE CONTRACT DOCUMENTS, BRIDGING DOCUMENTS, APPLICABLE CODES, REGULATIONS, STANDARDS, AND AUTHORITY HAVING JURISDICTION REQUIREMENTS.
2. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR DEVELOPMENT OF THE FINAL DESIGN, ENGINEERING, CONSTRUCTION DOCUMENTS, PERMITTING, PROCUREMENT, CONSTRUCTION, AND PROJECT CLOSEOUT.
3. THE DESIGN-BUILD ENTITY SHALL COMPLY WITH ALL APPLICABLE FEDERAL, COMMONWEALTH OF PUERTO RICO, LOCAL, HEALTHCARE, ENVIRONMENTAL, ACCESSIBILITY, AND LIFE-SAFETY REQUIREMENTS.
4. THE DESIGN-BUILD ENTITY SHALL COORDINATE ALL PROJECT ACTIVITIES WITH THE OWNER AND DESIGNATED OWNER REPRESENTATIVES.
5. THE DESIGN-BUILD ENTITY SHALL VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, UTILITY REQUIREMENTS, AND SITE CONDITIONS NECESSARY FOR DEVELOPMENT OF THE FINAL DESIGN AND EXECUTION OF THE WORK.

B. PERFORMANCE OF THE WORK

1. THE DESIGN-BUILD ENTITY SHALL PROVIDE A COMPLETE, FUNCTIONAL, AND CODE-COMPLIANT FACILITY SUITABLE FOR THE INTENDED OCCUPANCY AND OPERATIONAL REQUIREMENTS OF A LEVEL I TRAUMA HOSPITAL.
2. ALL SYSTEMS, ASSEMBLIES, EQUIPMENT, AND COMPONENTS SHALL PERFORM IN ACCORDANCE WITH THE REQUIREMENTS ESTABLISHED BY THE CONTRACT DOCUMENTS.
3. THE COMPLETED FACILITY SHALL SATISFY THE OPERATIONAL, FUNCTIONAL, RESILIENCE, MAINTAINABILITY, AND HEALTHCARE PERFORMANCE OBJECTIVES ESTABLISHED BY THE BRIDGING DOCUMENTS.
4. THE DESIGN-BUILD ENTITY SHALL PROVIDE ALL RESOURCES, COORDINATION, AND MANAGEMENT NECESSARY TO ACHIEVE PROJECT REQUIREMENTS.
5. NON-CONFORMING WORK, SYSTEMS, OR INSTALLATIONS SHALL BE CORRECTED TO ACHIEVE COMPLIANCE WITH PROJECT REQUIREMENTS.

C. CONSTRUCTION MEANS AND METHODS

1. THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR ALL TEMPORARY FACILITIES, TEMPORARY SYSTEMS, TEMPORARY STRUCTURES, AND CONSTRUCTION SUPPORT SYSTEMS REQUIRED FOR EXECUTION OF THE WORK.
2. CONSTRUCTION ACTIVITIES SHALL NOT ADVERSELY AFFECT PUBLIC SAFETY, HEALTHCARE OPERATIONS, ADJACENT FACILITIES, OR CRITICAL INFRASTRUCTURE.
3. EXISTING FACILITIES, UTILITIES, INFRASTRUCTURE, AND ADJACENT PROPERTY AFFECTED BY THE WORK SHALL BE PROTECTED THROUGHOUT THE PROJECT.
4. SITE DRAINAGE, EROSION CONTROL, WATER MANAGEMENT, AND ENVIRONMENTAL PROTECTION REQUIREMENTS SHALL BE MAINTAINED THROUGHOUT THE PROJECT.
5. MEASURES SHALL BE IMPLEMENTED TO MINIMIZE DUST, NOISE, VIBRATION, CONTAMINATION, AND OTHER IMPACTS AFFECTING HEALTHCARE OPERATIONS AND PATIENT SAFETY.

D. SAFETY AND PROTECTION

1. THE DESIGN-BUILD ENTITY SHALL MAINTAIN COMPLIANCE WITH ALL APPLICABLE SAFETY REGULATIONS AND REQUIREMENTS THROUGHOUT THE PROJECT.
2. THE DESIGN-BUILD ENTITY SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT PERSONNEL, PATIENTS, VISITORS, STAFF, FACILITIES, AND PROPERTY AFFECTED BY THE WORK.
3. EMERGENCY ACCESS ROUTES, FIRE LANES, EMERGENCY RESPONSE FUNCTIONS, AND LIFE-SAFETY SYSTEMS SHALL REMAIN OPERATIONAL THROUGHOUT THE PROJECT.
4. CONSTRUCTION ACTIVITIES SHALL NOT ADVERSELY AFFECT EXISTING HEALTHCARE OPERATIONS OR EMERGENCY SERVICES.
5. THE DESIGN-BUILD ENTITY SHALL COMPLY WITH ALL APPLICABLE INFECTION CONTROL RISK ASSESSMENT (ICRA) REQUIREMENTS AND HEALTHCARE ENVIRONMENTAL CONTROL REQUIREMENTS.

E. COORDINATION WITH OWNER (ASEM)

1. THE DESIGN-BUILD ENTITY SHALL COORDINATE PROJECT ACTIVITIES WITH ASEM TO MAINTAIN CONTINUITY OF HEALTHCARE OPERATIONS.
2. THE DESIGN-BUILD ENTITY SHALL COMPLY WITH APPLICABLE CAMPUS ACCESS, SECURITY, OPERATIONAL, AND FACILITY REQUIREMENTS ESTABLISHED BY ASEM.
3. ACTIVITIES AFFECTING UTILITIES, ACCESS, CRITICAL INFRASTRUCTURE, EMERGENCY OPERATIONS, OR HEALTHCARE SERVICES SHALL BE COORDINATED WITH ASEM.
4. THE DESIGN-BUILD ENTITY SHALL SUPPORT OWNER REVIEW, COORDINATION, AND PROJECT OVERSIGHT ACTIVITIES AS REQUIRED BY THE CONTRACT DOCUMENTS.
5. PLANNED INTERRUPTIONS AFFECTING HEALTHCARE OPERATIONS, UTILITIES, ACCESS, OR CRITICAL SERVICES SHALL BE COORDINATED WITH ASEM.

F. SCHEDULE AND PROGRESS

1. THE DESIGN-BUILD ENTITY SHALL COMPLETE THE PROJECT WITHIN THE CONTRACT TIME AND IN ACCORDANCE WITH PROJECT PHASING REQUIREMENTS.
2. THE DESIGN-BUILD ENTITY SHALL MAINTAIN PROGRESS NECESSARY TO ACHIEVE PROJECT MILESTONES AND COMPLETION REQUIREMENTS.
3. ADEQUATE RESOURCES SHALL BE PROVIDED TO SUPPORT TIMELY COMPLETION OF THE PROJECT.
4. DELAYS, IMPACTS, OR CONDITIONS AFFECTING PROJECT COMPLETION SHALL BE DOCUMENTED AND COMMUNICATED IN ACCORDANCE WITH CONTRACT REQUIREMENTS.

G. SUBMITTALS AND DOCUMENTATION

1. THE DESIGN-BUILD ENTITY SHALL PROVIDE ALL SUBMITTALS, TECHNICAL DOCUMENTATION, PRODUCT INFORMATION, CERTIFICATIONS, AND SUPPORTING INFORMATION REQUIRED BY THE CONTRACT DOCUMENTS.
2. THE DESIGN-BUILD ENTITY SHALL MAINTAIN CURRENT PROJECT DOCUMENTATION AND RECORD INFORMATION THROUGHOUT THE PROJECT.
3. ALL SUBMITTED INFORMATION SHALL BE COORDINATED AND VERIFIED BY THE DESIGN-BUILD ENTITY PRIOR TO SUBMISSION.
4. DOCUMENTATION NECESSARY TO DEMONSTRATE COMPLIANCE WITH PROJECT REQUIREMENTS SHALL BE MAINTAINED THROUGHOUT THE PROJECT.

H. PERMITS, CODES, AND REGULATIONS

1. THE DESIGN-BUILD ENTITY SHALL OBTAIN ALL PERMITS, APPROVALS, INSPECTIONS, CERTIFICATIONS, AND AUTHORIZATIONS REQUIRED FOR CONSTRUCTION AND OCCUPANCY OF THE FACILITY.
2. THE FINAL DESIGN AND COMPLETED FACILITY SHALL COMPLY WITH ALL APPLICABLE CODES, REGULATIONS, STANDARDS, AND AUTHORITY HAVING JURISDICTION REQUIREMENTS.
3. THE DESIGN-BUILD ENTITY SHALL COORDINATE WITH ALL GOVERNMENTAL AGENCIES, REGULATORY AUTHORITIES, AND UTILITY PROVIDERS HAVING JURISDICTION OVER THE PROJECT.

I. FIELD CONDITIONS AND EXISTING UTILITIES

1. EXISTING UTILITY LOCATIONS, INFRASTRUCTURE SYSTEMS, AND SITE CONDITIONS AFFECTING THE PROJECT SHALL BE VERIFIED BY THE DESIGN-BUILD ENTITY.
2. EXISTING UTILITIES, INFRASTRUCTURE, AND SERVICES REQUIRED TO REMAIN OPERATIONAL SHALL BE PROTECTED THROUGHOUT THE PROJECT.
3. UNFORESEEN CONDITIONS, DISCREPANCIES, CONFLICTS, OR CONDITIONS REQUIRING CLARIFICATION SHALL BE PROMPTLY REPORTED TO THE OWNER.

J. CLEANING AND PROJECT CLOSEOUT

1. THE PROJECT SITE SHALL BE MAINTAINED IN A CONDITION APPROPRIATE FOR ONGOING HEALTHCARE CAMPUS OPERATIONS.
2. THE COMPLETED FACILITY SHALL BE DELIVERED FREE OF CONSTRUCTION DEBRIS AND SUITABLE FOR OCCUPANCY AND OPERATION.
3. ALL REQUIRED CLOSEOUT DOCUMENTATION, CERTIFICATIONS, WARRANTIES, OPERATION MANUALS, MAINTENANCE INFORMATION, AND RECORD DOCUMENTS SHALL BE PROVIDED.
4. PROJECT COMPLETION SHALL BE SUBJECT TO SATISFACTION OF CONTRACT REQUIREMENTS AND OWNER ACCEPTANCE.

K. INTERPRETATION OF DOCUMENTS

1. THE CONTRACT DOCUMENTS SHALL BE CONSIDERED COMPLEMENTARY AND SHALL BE INTERPRETED COLLECTIVELY.
2. WHERE DISCREPANCIES OCCUR, THE MORE STRINGENT REQUIREMENT SHALL GOVERN UNLESS OTHERWISE WRITTEN DIMENSIONS, CAPACITIES, AND PERFORMANCE REQUIREMENTS SHALL GOVERN OVER SCALED INFORMATION.
3. NOTHING CONTAINED WITHIN THE BRIDGING DOCUMENTS SHALL RELIEVE THE DESIGN-BUILD ENTITY OF RESPONSIBILITY FOR COMPLETE CODE COMPLIANCE, ENGINEERING PERFORMANCE, CONSTRUCTABILITY, OR DEVELOPMENT OF THE FINAL DESIGN AND CONSTRUCTION DOCUMENTS.

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PROPOSALS FOR THE DESIGN-BUILD PROCUREMENT OF THE PROJECT DESCRIBED HEREIN. THEY ARE NOT CONSTRUCTION DOCUMENTS, DO NOT SPECIFY FINAL DESIGN, DIMENSIONS, FABRICATION, OR ASSEMBLY METHODS, AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION. THEY ARE INTENDED TO COMMUNICATE DESIGN INTENT AND PROVIDE GUIDANCE FOR THE DESIGN-BUILD ENTITY. THE SELECTED DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR DEVELOPMENT OF THE FINAL DESIGN, ENGINEERING, CONSTRUCTION DOCUMENTS, AND CONSTRUCTION METHODS. WE SHALL NOT BE RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, OR ACCURACY OF CONSTRUCTION DOCUMENTS PREPARED BY OTHERS. ANY REUSE, MODIFICATION, OR DISTRIBUTION OF THESE DOCUMENTS WITHOUT PRIOR WRITTEN AUTHORIZATION IS PROHIBITED.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY LA TORRE-ESTEVEZ ARCHITECTS PLANNERS FOR THE PUERTO RICO TRAUMA HOSPITAL PROJECT. THEY ARE NOT PREPARED OR INTENDED SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND WE USED ONLY BY PERSONS OR ENTITIES WHO HAVE EXECUTED A WRITTEN AGREEMENT WITH LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. ANY REUSE, DISCLOSURE, MODIFICATION, RELIANCE, OR MISUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT PRIOR WRITTEN AUTHORIZATION. ANY UNAUTHORIZED USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO OUR FIRM OR ASSOCIATES.

NO.	DATE	DESCRIPTIONS

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
GENERAL PROJECT INTENT & COMPLIANCE NOTES

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER

TS-4

III. GENERAL PERFORMANCE REQUIREMENTS

PROPOSED SITE PLAN

1. THE SITE PLAN ESTABLISHES THE APPROVED SITE ORGANIZATION, CAMPUS INTEGRATION STRATEGY, EMERGENCY ACCESS CONCEPTS, AND OPERATIONAL RELATIONSHIPS FOR THE HOSPITAL.
2. THE APPROVED RELATIONSHIP BETWEEN THE HOSPITAL, ASEM CENTRAL SERVICES, ADJACENT MEDICAL CENTER FACILITIES, AND CAMPUS CIRCULATION SYSTEMS SHALL BE MAINTAINED.
3. AMBULANCE ACCESS, EMERGENCY VEHICLE ACCESS, SERVICE ACCESS, PATIENT DROP-OFF FUNCTIONS, PEDESTRIAN CIRCULATION, AND OPERATIONAL CONNECTIVITY SHALL BE MAINTAINED.
4. EMERGENCY RESPONSE ROUTES, FIRE DEPARTMENT ACCESS, AND DISASTER-RESPONSE OPERATIONS SHALL REMAIN FULLY FUNCTIONAL.
5. UTILITY CORRIDORS, CRITICAL INFRASTRUCTURE CONNECTIONS, AND SERVICE ACCESS REQUIREMENTS REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED.
6. ROADWAY GEOMETRY, GRADING, UTILITY ROUTING, LANDSCAPE SYSTEMS, AND SITE INFRASTRUCTURE MAY BE REFINED PROVIDED THAT OPERATIONAL FUNCTIONALITY IS NOT ADVERSELY AFFECTED.
7. FINAL SITE DESIGN SHALL SUPPORT ACCESSIBILITY, RESILIENCY, MAINTAINABILITY, FUTURE ADAPTABILITY, AND LONG-TERM HEALTHCARE OPERATIONS.

PROPOSED FLOOR PLANS

1. FLOOR PLANS ESTABLISH THE APPROVED FUNCTIONAL PROGRAM, DEPARTMENTAL ORGANIZATION, OPERATIONAL RELATIONSHIPS, CLINICAL ADJACENCIES, AND CIRCULATION CONCEPTS FOR THE HOSPITAL.
2. THE APPROVED RELATIONSHIPS BETWEEN EMERGENCY SERVICES, SURGICAL SERVICES, CRITICAL CARE, INPATIENT UNITS, DIAGNOSTIC SERVICES, REHABILITATION SERVICES, ADMINISTRATIVE FUNCTIONS, AND SUPPORT SERVICES SHALL BE MAINTAINED.
3. PATIENT, STAFF, VISITOR, SERVICE, MATERIALS, AND WASTE CIRCULATION CONCEPTS REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED.
4. CLINICAL WORKFLOWS, PATIENT-CARE OBJECTIVES, AND DEPARTMENTAL OPERATIONAL RELATIONSHIPS SHALL BE MAINTAINED.
5. APPROVED BED CAPACITY, TREATMENT CAPACITY, AND SURGE-CAPACITY OBJECTIVES REPRESENTED BY THESE DOCUMENTS SHALL BE PRESERVED.
6. THE FINAL DESIGN SHALL PRESERVE PATIENT SAFETY OBJECTIVES, STAFF OPERATIONAL EFFICIENCY, AND HEALTHCARE FUNCTIONALITY.
7. ROOM CONFIGURATIONS MAY BE REFINED PROVIDED THAT DEPARTMENTAL FUNCTIONALITY AND APPROVED DESIGN INTENT ARE MAINTAINED.
8. FUTURE ADAPTABILITY AND FLEXIBILITY FOR EVOLVING HEALTHCARE OPERATIONAL REQUIREMENTS SHALL BE PRESERVED.
9. FINAL PLANNING SOLUTIONS SHALL SUPPORT EFFICIENT EMERGENCY RESPONSE AND DISASTER OPERATIONS.
10. MODIFICATIONS SHALL NOT ADVERSELY AFFECT APPROVED DEPARTMENTAL ADJACENCIES OR OPERATIONAL WORKFLOWS.

ELEVATIONS

1. ELEVATIONS ESTABLISH THE APPROVED ARCHITECTURAL CHARACTER, INSTITUTIONAL IMAGE, BUILDING PROPORTIONS, MASSING COMPOSITION, AND EXTERIOR APPEARANCE OF THE HOSPITAL.
2. THE OVERALL ARCHITECTURAL EXPRESSION, FAÇADE COMPOSITION, SCALE, AND VISUAL IDENTITY REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED.
3. EXTERIOR MATERIALS MAY BE REFINED PROVIDED THAT DURABILITY, MAINTAINABILITY, AND HEALTHCARE OCCUPANCY REQUIREMENTS ARE MAINTAINED.
4. HURRICANE-RESISTANCE OBJECTIVES AND ENVIRONMENTAL PERFORMANCE REQUIREMENTS SHALL BE MAINTAINED.
5. PROPOSED MODIFICATIONS SHALL PRESERVE THE APPROVED ARCHITECTURAL CHARACTER AND INSTITUTIONAL PRESENCE OF THE FACILITY.
6. BUILDING ENVELOPE SYSTEMS SHALL PROVIDE LONG-TERM DURABILITY AND MAINTAINABILITY APPROPRIATE FOR CRITICAL HEALTHCARE INFRASTRUCTURE.
7. FINAL ENVELOPE SYSTEMS SHALL SATISFY ALL APPLICABLE PERFORMANCE REQUIREMENTS WHILE MAINTAINING APPROVED DESIGN INTENT.

BUILDING SECTIONS

1. BUILDING SECTIONS ESTABLISH THE APPROVED VERTICAL ORGANIZATION, FLOOR-TO-FLOOR RELATIONSHIPS, DEPARTMENTAL STACKING CONCEPTS, CEILING VOLUME RELATIONSHIPS, AND OVERALL BUILDING PROPORTIONS.
2. THE APPROVED VERTICAL PLANNING STRATEGY AND CIRCULATION SYSTEMS SHALL BE MAINTAINED.
3. THE APPROVED RELATIONSHIP BETWEEN CLINICAL DEPARTMENTS, SUPPORT SERVICES, VERTICAL TRANSPORTATION SYSTEMS, AND HELIPORT CONNECTIVITY SHALL BE MAINTAINED.
4. FLOOR-TO-FLOOR HEIGHTS REPRESENTED BY THESE DOCUMENTS ESTABLISH MINIMUM PLANNING CRITERIA FOR BUILDING SYSTEMS INTEGRATION.
5. STRUCTURAL, MECHANICAL, AND BUILDING SYSTEMS MAY BE REFINED PROVIDED THAT APPROVED SPATIAL RELATIONSHIPS AND OPERATIONAL FUNCTIONALITY ARE PRESERVED.
6. FUTURE BUILDING ADAPTABILITY AND SYSTEMS DISTRIBUTION REQUIREMENTS SHALL BE CONSIDERED IN THE FINAL DESIGN.
7. FINAL DESIGN SOLUTIONS SHALL MAINTAIN THE APPROVED ORGANIZATIONAL FRAMEWORK REPRESENTED BY THESE DOCUMENTS.
8. MODIFICATIONS SHALL NOT ADVERSELY AFFECT HEALTHCARE OPERATIONS, PATIENT-CARE FUNCTIONS, OR DEPARTMENTAL RELATIONSHIPS.

REFLECTED CEILING PLANS

1. REFLECTED CEILING PLANS ESTABLISH THE INTENDED CEILING HIERARCHY, ARCHITECTURAL CHARACTER, LIGHTING INTEGRATION CONCEPTS, AND HEALTHCARE ENVIRONMENT OBJECTIVES.
2. ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, MEDICAL GAS, FIRE PROTECTION, AND TECHNOLOGY SYSTEMS SHALL BE COORDINATED TO PRESERVE INTENDED CEILING CONCEPTS.
3. CEILING SYSTEMS SHALL SUPPORT INFECTION PREVENTION, MAINTENANCE ACCESSIBILITY, DURABILITY, AND HEALTHCARE OPERATIONS.
4. MEDICAL EQUIPMENT, PATIENT-CARE SYSTEMS, AND OVERHEAD SERVICE REQUIREMENTS SHALL BE COORDINATED WITH CEILING SYSTEMS.
5. FINAL CEILING CONFIGURATIONS MAY BE REFINED PROVIDED THAT ARCHITECTURAL CHARACTER AND OPERATIONAL OBJECTIVES ARE MAINTAINED.
6. CEILING SYSTEMS SHALL BE APPROPRIATE FOR THE OCCUPANCY AND FUNCTIONAL REQUIREMENTS OF EACH DEPARTMENT.
7. ACCESS REQUIREMENTS FOR MAINTENANCE AND FUTURE MODIFICATIONS SHALL BE PRESERVED.

TOILET ROOMS AND PLUMBING FIXTURE REQUIREMENTS

1. TOILET ROOM LAYOUTS ESTABLISH THE INTENDED ACCESSIBILITY OBJECTIVES, PATIENT-SUPPORT FUNCTIONS, STAFF-SUPPORT FUNCTIONS, INFECTION-CONTROL CONSIDERATIONS, AND OPERATIONAL REQUIREMENTS OF THE HOSPITAL.
2. COMPLETE COMPLIANCE WITH ALL APPLICABLE ACCESSIBILITY, PLUMBING, HEALTHCARE, AND LIFE-SAFETY REQUIREMENTS SHALL BE PROVIDED.
3. REQUIRED PLUMBING FIXTURE QUANTITIES AND FIXTURE TYPES SHALL BE PROVIDED IN ACCORDANCE WITH APPLICABLE CODES AND HEALTHCARE REGULATIONS.
4. TOILET ROOM CONFIGURATIONS SHALL SUPPORT PATIENT DIGNITY, PRIVACY, SAFETY, ACCESSIBILITY, MAINTAINABILITY, AND INFECTION-PREVENTION OBJECTIVES.
5. TOILET ROOMS SERVING PATIENT-CARE AREAS SHALL SUPPORT SAFE PATIENT USE AND STAFF ASSISTANCE WHERE REQUIRED.
6. FINISHES, FIXTURES, AND ACCESSORIES SHALL SUPPORT MOISTURE RESISTANCE, DURABILITY, CLEANABILITY, AND INFECTION-CONTROL PRACTICES.
7. FINAL FIXTURE SELECTION AND PLUMBING SYSTEM DESIGN SHALL BE THE RESPONSIBILITY OF THE DESIGN-BUILD ENTITY.
8. APPROVED OPERATIONAL INTENT REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED.

SCHEDULE OF FINISHES

1. THE FINISH SCHEDULE ESTABLISHES THE INTENDED QUALITY LEVEL, DURABILITY STANDARDS, HEALTHCARE PERFORMANCE CRITERIA, INFECTION-PREVENTION OBJECTIVES, AND ARCHITECTURAL CHARACTER OF THE FACILITY.
2. MATERIALS AND FINISHES SELECTED BY THE DESIGN-BUILD ENTITY SHALL PROVIDE EQUAL OR SUPERIOR PERFORMANCE RELATIVE TO THE REQUIREMENTS ESTABLISHED BY THESE DOCUMENTS.
3. INTERIOR FINISH SYSTEMS SHALL SUPPORT CLEANABILITY, INFECTION PREVENTION, DURABILITY, MAINTAINABILITY, AND LONG-TERM HEALTHCARE OPERATIONS.
4. FLOOR FINISHES SHALL BE APPROPRIATE FOR THE FUNCTIONAL REQUIREMENTS OF EACH DEPARTMENT AND SHALL SUPPORT PATIENT SAFETY, SLIP RESISTANCE, EQUIPMENT MOBILITY, AND MAINTENANCE OBJECTIVES.
5. WALL FINISHES SHALL PROVIDE DURABILITY, IMPACT RESISTANCE, MOISTURE RESISTANCE, AND COMPATIBILITY WITH HEALTHCARE CLEANING AND DISINFECTION PROCEDURES.
6. FINISH SYSTEMS WITHIN TRAUMA, SURGICAL, CRITICAL CARE, DIAGNOSTIC, REHABILITATION, AND PATIENT-CARE AREAS SHALL SUPPORT HEALTHCARE INFECTION-CONTROL OBJECTIVES AND DEPARTMENTAL OPERATIONAL REQUIREMENTS.
7. ACOUSTICAL PERFORMANCE, PATIENT COMFORT, STAFF FUNCTIONALITY, AND HEALING ENVIRONMENT OBJECTIVES REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED.
8. SUSTAINABLE MATERIAL SELECTIONS MAY BE INCORPORATED PROVIDED THAT HEALTHCARE PERFORMANCE REQUIREMENTS ARE MAINTAINED.
9. FINAL FINISH SELECTIONS SHALL MAINTAIN THE ARCHITECTURAL CHARACTER AND QUALITY STANDARDS REPRESENTED BY THESE DOCUMENTS.
10. MODIFICATIONS SHALL NOT ADVERSELY AFFECT HEALTHCARE OPERATIONS, INFECTION-PREVENTION OBJECTIVES, OR LONG-TERM FACILITY MAINTAINABILITY.

DOOR SCHEDULE

1. THE DOOR SCHEDULE ESTABLISHES THE INTENDED OPERATIONAL REQUIREMENTS, OPENING SIZES, PATIENT MOVEMENT REQUIREMENTS, EQUIPMENT MOVEMENT REQUIREMENTS, PRIVACY REQUIREMENTS, SECURITY REQUIREMENTS, AND LIFE-SAFETY OBJECTIVES OF THE FACILITY.
2. DOOR OPENINGS SHALL ACCOMMODATE PATIENT TRANSPORT, BARIATRIC TRANSPORT WHERE REQUIRED, EMERGENCY RESPONSE OPERATIONS, AND EQUIPMENT MOVEMENT REQUIREMENTS.
3. DOOR LOCATIONS AND OPENING SIZES REPRESENTED BY THESE DOCUMENTS ESTABLISH MINIMUM OPERATIONAL REQUIREMENTS AND SHALL NOT BE REDUCED WITHOUT OWNER APPROVAL.
4. DOOR ASSEMBLIES SHALL SUPPORT SMOKE COMPARTMENTATION, FIRE-RESISTANCE REQUIREMENTS, AND LIFE-SAFETY OBJECTIVES APPLICABLE TO HEALTHCARE OCCUPANCIES.
5. SECURITY ZONING, CONTROLLED ACCESS REQUIREMENTS, AND OPERATIONAL SEPARATION BETWEEN PUBLIC, PATIENT, STAFF, AND SERVICE AREAS SHALL BE MAINTAINED.
6. DOOR SYSTEMS SHALL SUPPORT ACCESSIBILITY, PATIENT SAFETY, STAFF SAFETY, AND HEALTHCARE OPERATIONAL EFFICIENCY.
7. FINAL DOOR ASSEMBLIES SHALL BE APPROPRIATE FOR HEALTHCARE OCCUPANCY AND DEPARTMENTAL OPERATIONAL REQUIREMENTS.
8. REQUIRED FIRE-RATED, SMOKE-RATED, AND SECURITY-RELATED OPENINGS SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS.
9. FINAL DOOR SYSTEM DESIGN SHALL BE COORDINATED WITH HARDWARE, ACCESS CONTROL, LIFE-SAFETY, AND SECURITY SYSTEMS.
10. APPROVED OPERATIONAL INTENT REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED.

WINDOW SCHEDULE

1. THE WINDOW SCHEDULE ESTABLISHES THE INTENDED DAYLIGHTING OBJECTIVES, EXTERIOR APPEARANCE, PATIENT COMFORT GOALS, OPERATIONAL REQUIREMENTS, AND ENVIRONMENTAL PERFORMANCE EXPECTATIONS OF THE FACILITY.
2. APPROVED FENESTRATION PATTERNS, GLAZING PROPORTIONS, AND EXTERIOR ARCHITECTURAL CHARACTER REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED.
3. WINDOW SYSTEMS SHALL SUPPORT PATIENT WELL-BEING, DAYLIGHT ACCESS, STAFF FUNCTIONALITY, AND HEALING ENVIRONMENT OBJECTIVES.
4. GLAZING AND WINDOW SYSTEMS SHALL PROVIDE HURRICANE RESISTANCE, IMPACT RESISTANCE, STRUCTURAL PERFORMANCE, AND ENVIRONMENTAL PROTECTION APPROPRIATE FOR CRITICAL HEALTHCARE INFRASTRUCTURE.
5. WINDOW SYSTEMS SHALL PROVIDE ENERGY EFFICIENCY, THERMAL PERFORMANCE, AIR INFILTRATION RESISTANCE, WATER INFILTRATION RESISTANCE, AND OCCUPANT COMFORT.
6. WINDOW SYSTEMS SHALL COMPLY WITH ALL APPLICABLE STRUCTURAL, ENERGY, ACCESSIBILITY, LIFE-SAFETY, AND HEALTHCARE FACILITY REQUIREMENTS.
7. PATIENT ROOM WINDOWS AND OCCUPIED-AREA GLAZING SHALL SUPPORT PATIENT COMFORT, SAFETY, AND OPERATIONAL REQUIREMENTS.
8. SAFETY GLAZING, FALL-PROTECTION REQUIREMENTS, OPERABLE WINDOW RESTRICTIONS, AND EMERGENCY ACCESS REQUIREMENTS SHALL BE PROVIDED WHERE APPLICABLE.
9. FINAL GLAZING ASSEMBLIES SHALL PROVIDE EQUAL OR SUPERIOR PERFORMANCE RELATIVE TO THE REQUIREMENTS ESTABLISHED BY THESE DOCUMENTS.
10. APPROVED ARCHITECTURAL APPEARANCE AND HEALTHCARE PERFORMANCE OBJECTIVES SHALL BE MAINTAINED.

HARDWARE SCHEDULE

1. THE HARDWARE SCHEDULE ESTABLISHES THE INTENDED OPERATIONAL, SECURITY, ACCESSIBILITY, PATIENT-SAFETY, AND LIFE-SAFETY REQUIREMENTS OF DOOR OPENINGS.
2. HARDWARE SYSTEMS SHALL SUPPORT CONTROLLED ACCESS, EMERGENCY RESPONSE FUNCTIONS, PATIENT SAFETY, STAFF SAFETY, ACCESSIBILITY, AND SECURITY OPERATIONS.
3. HARDWARE SYSTEMS SHALL BE COMPATIBLE WITH HEALTHCARE OPERATIONAL REQUIREMENTS AND DEPARTMENTAL FUNCTIONAL NEEDS.
4. ACCESS CONTROL SYSTEMS, ELECTRONIC SECURITY SYSTEMS, AND DOOR HARDWARE SYSTEMS SHALL BE FULLY COORDINATED.
5. HARDWARE SYSTEMS SERVING CRITICAL CARE, SURGICAL, EMERGENCY, DIAGNOSTIC, AND RESTRICTED-ACCESS AREAS SHALL SUPPORT APPROVED SECURITY OBJECTIVES.
6. HARDWARE SYSTEMS SHALL SUPPORT FIRE-PROTECTION, SMOKE-CONTROL, AND EMERGENCY EGRESS REQUIREMENTS.
7. ACCESSIBILITY REQUIREMENTS AND BARRIER-FREE ACCESS OBJECTIVES SHALL BE MAINTAINED.
8. FINAL HARDWARE SELECTIONS SHALL BE DURABLE, MAINTAINABLE, AND APPROPRIATE FOR HEALTHCARE OCCUPANCY.
9. HARDWARE SYSTEMS SHALL SUPPORT EMERGENCY OPERATIONS, DISASTER-RESPONSE FUNCTIONS, AND FACILITY SECURITY REQUIREMENTS.
10. APPROVED OPERATIONAL INTENT REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED.

CABINETRY AND MILLWORK

1. CABINETRY AND MILLWORK LAYOUTS ESTABLISH THE INTENDED OPERATIONAL FUNCTIONALITY, STORAGE REQUIREMENTS, HEALTHCARE WORKFLOW SUPPORT, AND ARCHITECTURAL CHARACTER OF INTERIOR SPACES.
2. STORAGE CAPACITIES, WORK SURFACES, AND FUNCTIONAL RELATIONSHIPS REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED.
3. CABINETRY SYSTEMS SHALL SUPPORT HEALTHCARE WORKFLOWS, STAFF EFFICIENCY, PATIENT-CARE OPERATIONS, AND DEPARTMENTAL OPERATIONAL REQUIREMENTS.
4. MATERIALS SHALL BE DURABLE, MOISTURE RESISTANT, CLEANABLE, MAINTAINABLE, AND APPROPRIATE FOR HEALTHCARE OCCUPANCY.
5. CABINETRY SYSTEMS SHALL SUPPORT HEALTHCARE INFECTION-PREVENTION OBJECTIVES AND COMPATIBILITY WITH CLEANING AND DISINFECTION PROCEDURES.
6. MILLWORK SYSTEMS LOCATED WITHIN PATIENT-CARE AND CLINICAL ENVIRONMENTS SHALL BE DESIGNED FOR LONG-TERM DURABILITY AND OPERATIONAL RELIABILITY.
7. FINAL MATERIALS, FABRICATION METHODS, AND CONSTRUCTION DETAILS MAY VARY PROVIDED THAT PERFORMANCE OBJECTIVES ARE MAINTAINED.
8. ARCHITECTURAL CHARACTER AND QUALITY STANDARDS REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED.
9. CABINETRY SYSTEMS SHALL BE COORDINATED WITH MEDICAL EQUIPMENT, UTILITIES, TECHNOLOGY SYSTEMS, AND OPERATIONAL REQUIREMENTS.
10. APPROVED OPERATIONAL INTENT REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED.

FURNITURE, FIXTURES AND EQUIPMENT (FF&E)

1. FF&E LAYOUTS ESTABLISH THE INTENDED OPERATIONAL FUNCTIONALITY, PLANNING ASSUMPTIONS, DEPARTMENTAL CAPACITIES, PATIENT-CARE OBJECTIVES, AND SPACE UTILIZATION CONCEPTS REPRESENTED BY THESE DOCUMENTS.
2. THE FF&E INDICATED WITHIN THESE DOCUMENTS ESTABLISHES PLANNING CRITERIA AND MINIMUM OPERATIONAL REQUIREMENTS FOR THE FINAL DESIGN.
3. FINAL FF&E SELECTIONS SHALL MAINTAIN DEPARTMENTAL FUNCTIONALITY, PATIENT-CARE OBJECTIVES, EQUIPMENT CLEARANCES, OPERATIONAL WORKFLOWS, AND HEALTHCARE PERFORMANCE REQUIREMENTS.
4. MEDICAL EQUIPMENT, FURNITURE SYSTEMS, AND SUPPORT EQUIPMENT SHALL BE COORDINATED WITH ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, MEDICAL GAS, TECHNOLOGY, AND SECURITY SYSTEMS.
5. EQUIPMENT ACCESS, INSTALLATION REQUIREMENTS, MAINTENANCE ACCESS, AND FUTURE REPLACEMENT REQUIREMENTS SHALL BE ACCOMMODATED.
6. FF&E SYSTEMS SHALL SUPPORT PATIENT SAFETY, STAFF EFFICIENCY, INFECTION PREVENTION, AND HEALTHCARE OPERATIONAL OBJECTIVES.
7. PROPOSED SUBSTITUTIONS SHALL PROVIDE EQUAL OR SUPERIOR OPERATIONAL PERFORMANCE AND SHALL NOT ADVERSELY AFFECT APPROVED DEPARTMENTAL LAYOUTS.
8. FUTURE FLEXIBILITY AND ADAPTABILITY FOR EVOLVING HEALTHCARE OPERATIONAL REQUIREMENTS SHALL BE PRESERVED.
9. FF&E SELECTIONS SHALL SUPPORT LONG-TERM MAINTAINABILITY, DURABILITY, AND LIFE-CYCLE PERFORMANCE OBJECTIVES.
10. APPROVED OPERATIONAL INTENT, PLANNING ASSUMPTIONS, AND HEALTHCARE PERFORMANCE OBJECTIVES REPRESENTED BY THESE DOCUMENTS SHALL BE MAINTAINED.

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

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NO.	DATE	DESCRIPTIONS

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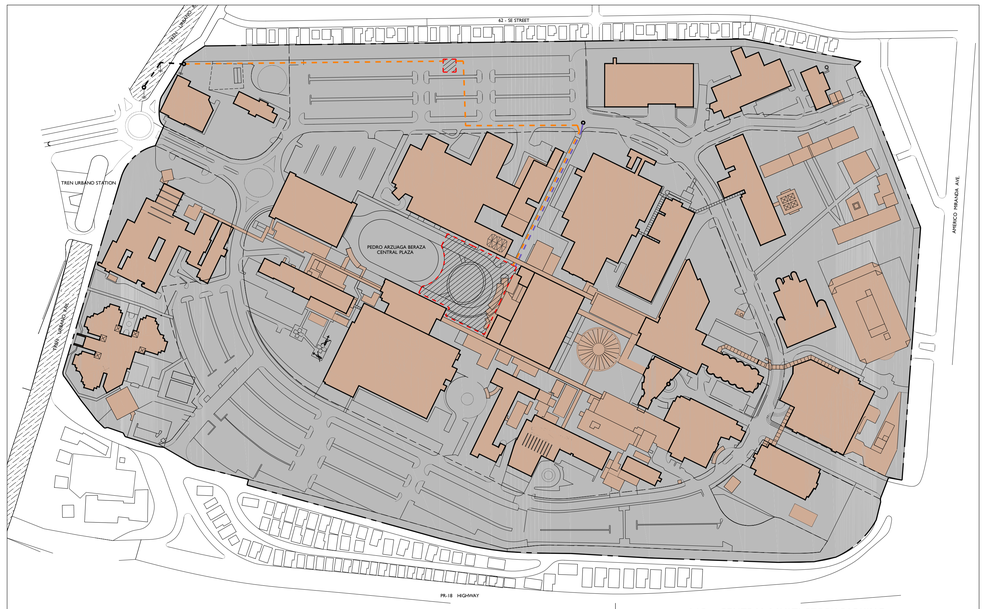
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
GENERAL PROJECT INTENT & COMPLIANCE NOTES (CONTINUE)

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 103 SAN JUAN PR 00909

DRAWING NUMBER

TS-5



GENERAL PROJECT LOCATION PLAN

NO TO SCALE

N

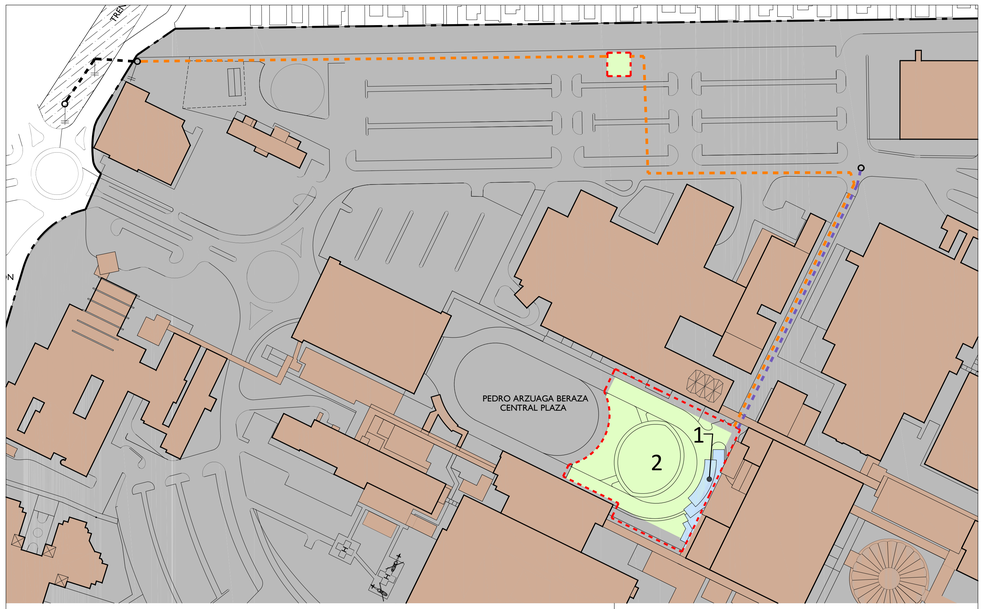
LEGEND:

- PROPOSED P.R. TRAUMA HOSPITAL PROJECT LOTS
- PROPOSED OFF-SITE AERIAL ELECTRICAL LINE TO POINT OF SERVICE CONNECTION
- MAIN ELECTRICAL SERVICE LINE UNDER EXISTING PAVED ROADWAYS & PARKINGS
- MAIN SANITARY, WATER & STORM SEWER LINES TO POINT OF CONNECTION UNDER EXISTING PAVED ROADWAYS & PARKINGS

A - P.R. MEDICAL SERVICES ADMINISTRATION (ASEM)

A1 - MAIN MEDICAL SERVICES BUILDING
A2 - MAIN FOOD PREPARATION SERVICES BUILDING
A3 - MAIN SERVICE & SUPPLY BUILDING
A4 - MAIN LAUNDRY & LINEN SERVICES BUILDING
A5 - MAIN STEAM PLANT BUILDING
A6 - ABIGAIL ROBLES ADMINISTRATION BUILDING
A7 - EXTERNAL SERVICES CLINICS BUILDING
A8 - CASA SALUD ADMINISTATION BUILDING
A9 - BLOOD BANK SERVICES BUILDING
A10 - MEDICAL SERVICES BUILDING
A11 - HUMAN RESOURCES & PROPERTY BUILDING
A12 - CENTRAL MULTI-STORY PARKING BUILDING
A13 - FOOD CONCESSIONS BUILDING

B - P.R. MEDICAL SCIENCE CAMPUS
C - P.R. CARDIOVASCULAR HOSPITAL
D - UNIVERSITY DISTRICT HOSPITAL (UDH)
E - UNIVERSITY PEDIATRIC HOSPITAL (HOPU)
F - UPR COMPREHENSIVE CANCER CENTER
G - ONCOLOGICAL HOSPITAL DR. ISAAC GONZALEZ
H - P.R. INDUSTRIAL HOSPITAL
I - FORENSIC PSYCHIATRY HOSPITAL
J - LATIN AMERICAN TRANSMISSIBLE DISEASES CENTER (CLET)
K - ASSMCA ALCOHOLISM CENTER
L - AMERICAN RED CROSS - PUERTO RICO
M - SAN JUAN MUNICIPAL HOSPITAL
N - VOCATIONAL REHABILITATION BUILDING
O - AEROMED PUERTO RICO SERVICES



PROPOSED PROJECT DEMOLITION SCOPE

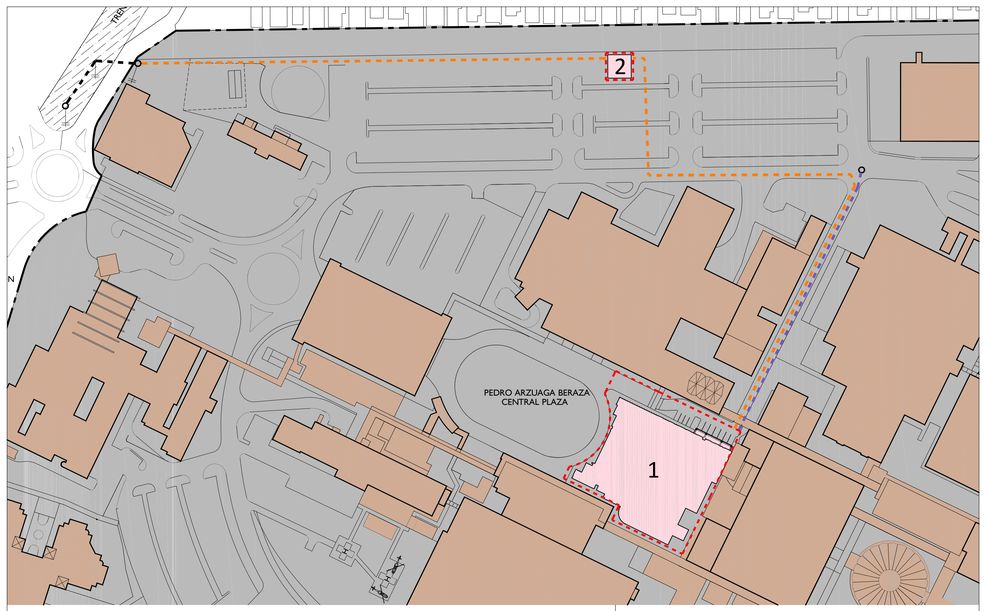
NOT TO SCALE

N

LEGEND:

- PROPOSED P.R. TRAUMA HOSPITAL PROJECT LOTS
- EXISTING STRUCTURES TO REMAIN
- PARKING & PLAZA SURFACES TO BE DEMOLISHED
- EXISTING STRUCTURES TO BE DEMOLISHED
- PROPOSED OFF-SITE AERIAL ELECTRICAL LINE TO POINT OF SERVICE CONNECTION
- MAIN ELECTRICAL SERVICE LINE UNDER EXISTING PAVED ROADWAYS & PARKINGS
- MAIN SANITARY, WATER & STORM SEWER LINES TO POINT OF CONNECTION UNDER EXISTING PAVED ROADWAYS & PARKINGS
- 1 EMERGENCY WAITING AREA
- 2 CENTRAL PLAZA CONSTRUCTION SITE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.



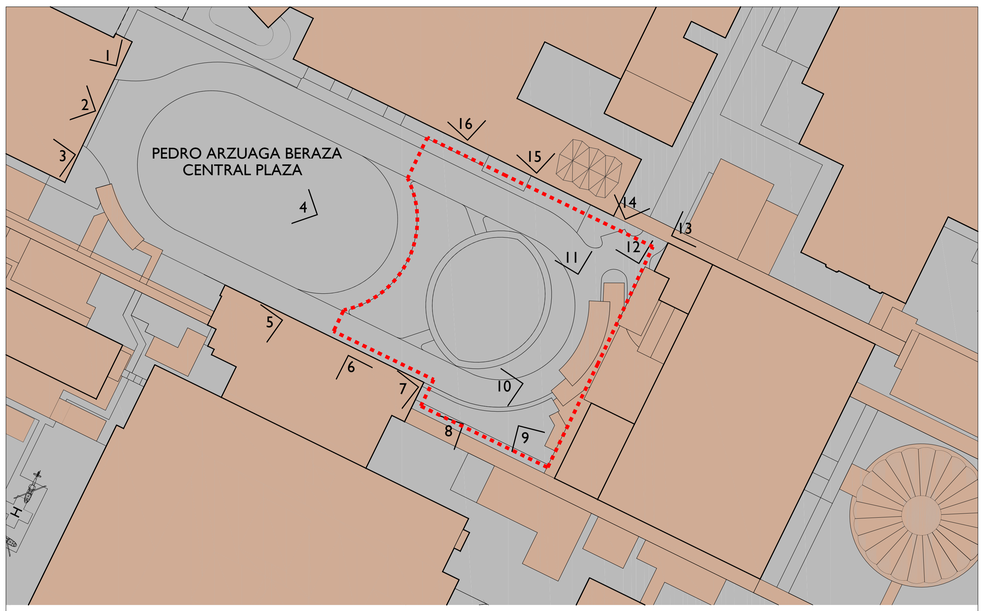
PROPOSED PROJECT FOOTPRINTS

NOT TO SCALE

N

LEGEND:

- PROPOSED P.R. TRAUMA HOSPITAL PROJECT LOTS
- EXISTING STRUCTURES
- EXISTING ROADWAYS, WALKWAYS, PARKINGS & PLANTING
- PROPOSED NEW STRUCTURES
- PROPOSED OFF-SITE AERIAL ELECTRICAL LINE TO POINT OF SERVICE CONNECTION
- MAIN ELECTRICAL SERVICE LINE UNDER EXISTING PAVED ROADWAYS & PARKINGS
- MAIN SANITARY, WATER & STORM SEWER LINES TO POINT OF CONNECTION UNDER EXISTING PAVED ROADWAYS & PARKINGS
- 1 P.R. TRAUMA HOSPITAL STRUCTURE
- 2 ELECTRICAL SERVICE SUBSTATION



EXISTING CONDITION IMAGES

SCALE: 1/64"= 1'-0"

N

LEGEND:

- PROPOSED PR TRAUMA HOSPITAL LOT PERIMETER
- 1 IMAGES

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PERMITS, PRICING AND CONSTRUCTION OF THE PROJECT DESCRIBED HEREIN. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE ON EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. THEY ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, FABRICATION, PRODUCTION, CONSTRUCTION OR PHYSICAL IMPLEMENTATION WITHOUT THE WRITTEN AUTHORIZATION AND APPROVAL OF DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS. ANY UNAUTHORIZED USE, CHANGES, MODIFICATIONS OR OMISSIONS MADE TO THESE DRAWINGS AND SPECIFICATIONS WITHOUT THE EXPRESS WRITTEN CONSENT OF DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS, OR INCORRECT INFORMATION CONTAINED HEREIN, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS. THE USER SHALL INDEMNIFY AND HOLD HARMLESS DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS AND ITS OFFICERS, DIRECTORS, EMPLOYEES AND AGENTS AGAINST ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES INCLUDING ATTORNEY'S FEES ARISING OUT OF OR RESULTING THEREFROM. ANY MODIFICATION OF THESE DOCUMENTS IS STRICTLY PROHIBITED WITHOUT WRITTEN PERMISSION FROM DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS.

NO.	DATE	DESCRIPTIONS

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DATE: JULY 2026

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
GENERAL PROJECT LOCATION

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1509 AVE PONCE DE LEON, STE. 105 SAN JUAN PR 00909

DRAWING NUMBER

PL-1.0



IMAGE 1



IMAGE 2



IMAGE 3



IMAGE 4



IMAGE 5



IMAGE 6

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

NO. | DATE | DESCRIPTIONS

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS AND ARE PROPRIETARY TO THE ARCHITECTS. THESE DOCUMENTS ARE NOT TO BE USED IN WHOLE OR IN PART, FOR ANY OTHER PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES WHO HAVE ENTERED INTO AN AGREEMENT WITH THE ARCHITECTS. ANY UNAUTHORIZED USE, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT THE PRIOR WRITTEN CONSENT OF THE ARCHITECTS. BY USING ANY OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECTS AND THEIR CONSULTANTS.

DATE: JULY 2026

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
GENERAL PROJECT LOCATION EXISTING VIEWS

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1580 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER

PL-1.1



IMAGE 7



IMAGE 8



IMAGE 9



IMAGE 10



IMAGE 11



IMAGE 12

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

NO.	DATE	DESCRIPTIONS

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS AND ARE PROPRIETARY TO THE ARCHITECT. NO PART OF THESE DOCUMENTS MAY BE USED FOR ANY PURPOSE OTHER THAN THE SPECIFIC PROJECT FOR WHICH THEY WERE PREPARED. THEY ARE NOT TO BE USED IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF DE LA TORRE-ESTEVEZ ARCHITECTS. THESE DOCUMENTS ARE NOT TO BE LOANED, COPIED OR DISCLOSED TO ANY UNAUTHORIZED PERSON OR ENTITY WITHOUT THE WRITTEN CONSENT OF DE LA TORRE-ESTEVEZ ARCHITECTS, AND SHALL BE RETURNED UPON REQUEST OR UPON COMPLETION OF THE PROJECT. PROVISION OF THESE DOCUMENTS TO YOU OR TO ANY OTHER ENTITY DOES NOT CONSTITUTE PUBLICATION AND DOES NOT DISPOSE OF REPRODUCTION, PROPRIETARY OR OTHER RIGHTS. THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE-ESTEVEZ ARCHITECTS.

DATE: JULY 2026

DRAWN BY:

APROVED BY:

SCALE: AS SHOWN

PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:

GENERAL PROJECT LOCATION EXISTING VIEWS

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER

PL-1.2



IMAGE 13



IMAGE 14



IMAGE 15



IMAGE 16

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: JULY 2026

DRAWN BY:

APROVED BY:

SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND NOT FOR CONSTRUCTION. THESE DOCUMENTS DEPICTS DESIGN INTENT, PERFORMANCE CRITERIA, AND TECHNICAL ASSESSMENTS. THESE DOCUMENTS ARE NOT SUITABLE FOR BIDDING, PERMITTING, FABRICATION, OR CONSTRUCTION PURPOSES AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, PROCUREMENT, OR CONSTRUCTION. THESE DOCUMENTS ARE PROVIDED FOR INFORMATIONAL AND GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY, IN ITS SOLE DISCRETION, MAY USE, MODIFY, OR DISREGARD ANY PORTION OF THESE DOCUMENTS. THE DESIGN-BUILD ENTITY IS SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, AND CODE COMPLIANCE OF ALL DESIGNS, DRAWINGS, AND CONSTRUCTION DOCUMENTS. THE DESIGN-BUILD ENTITY SHALL INDEPENDENTLY VERIFY ALL CONDITIONS, DIMENSIONS, AND REQUIREMENTS AND SHALL NOT RELY ON THESE DOCUMENTS FOR ACCURACY OR SUITABILITY. THE DESIGN-BUILD ENTITY IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, SEQUENCES, SAFETY PROGRAMS, AND JOB-SITE CONDITIONS. THE DESIGN-BUILD ENTITY SHALL PREPARE ALL FINAL CONSTRUCTION DOCUMENTS AND SHALL OBTAIN ALL PERMITS, APPROVALS, AND INSPECTIONS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL NOT REPRODUCE, DISTRIBUTE, OR MODIFY THESE DOCUMENTS FOR ANY PURPOSE OTHER THAN THE PERFORMANCE OF THE DESIGN-BUILD SERVICES FOR THIS PROJECT. THE DESIGN-BUILD ENTITY SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND THE ARCHITECT FROM ANY CLAIMS, DAMAGES, OR LIABILITIES ARISING FROM THE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES OR FROM ANY UNAUTHORIZED USE. THE DESIGN-BUILD ENTITY'S USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT AND ITS CONSULTANTS.

NO.	DATE	DESCRIPTIONS

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PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

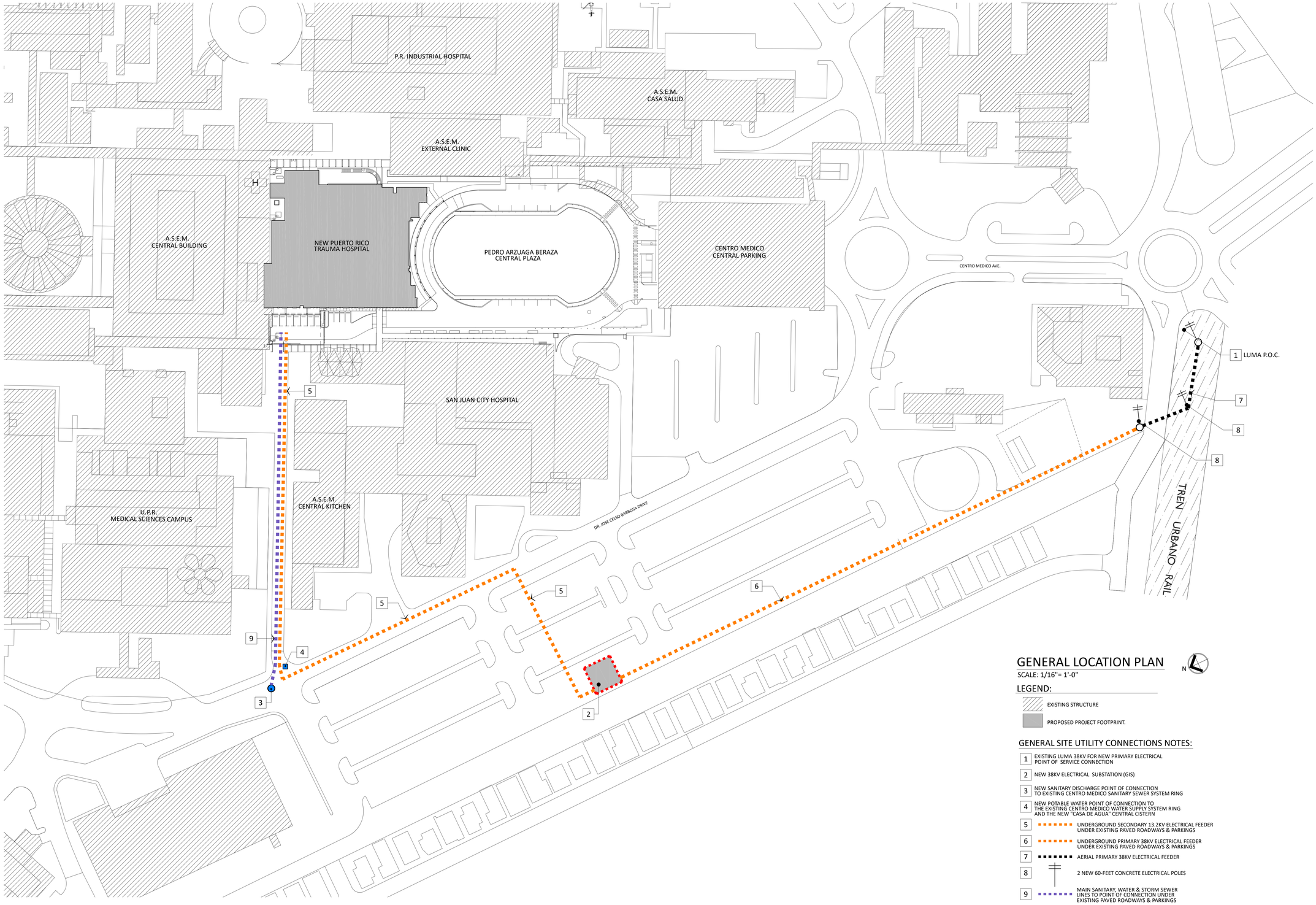
SHEET TITLE:

GENERAL PROJECT LOCATION EXISTING VIEWS

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1580 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER

PL-1.3



GENERAL LOCATION PLAN

SCALE: 1/16"= 1'-0"

N

LEGEND:

- EXISTING STRUCTURE
- PROPOSED PROJECT FOOTPRINT.

GENERAL SITE UTILITY CONNECTIONS NOTES:

1. EXISTING LUMA 38KV FOR NEW PRIMARY ELECTRICAL POINT OF SERVICE CONNECTION
2. NEW 38KV ELECTRICAL SUBSTATION (GIS)
3. NEW SANITARY DISCHARGE POINT OF CONNECTION TO EXISTING CENTRO MEDICO SANITARY SEWER SYSTEM RING
4. NEW POTABLE WATER POINT OF CONNECTION TO THE EXISTING CENTRO MEDICO WATER SUPPLY SYSTEM RING AND THE NEW "CASA DE AGUA" CENTRAL CISTERN
5. UNDERGROUND SECONDARY 13.2KV ELECTRICAL FEEDER UNDER EXISTING PAVED ROADWAYS & PARKINGS
6. UNDERGROUND PRIMARY 38KV ELECTRICAL FEEDER UNDER EXISTING PAVED ROADWAYS & PARKINGS
7. AERIAL PRIMARY 38KV ELECTRICAL FEEDER
8. 2 NEW 60-FEET CONCRETE ELECTRICAL POLES
9. MAIN SANITARY, WATER & STORM SEWER LINES TO POINT OF CONNECTION UNDER EXISTING PAVED ROADWAYS & PARKINGS

NOTES:

- DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

DATE: JULY 2026

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PERMITS, PERFORMANCE CRITERIA, AND TECHNICAL ASPECTS OF THE PUERTO RICO TRAUMA HOSPITAL PROJECT. THESE DOCUMENTS ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, PROCUREMENT, OR CONSTRUCTION. THEY ARE INTENDED TO PROVIDE DESIGN INTENT AND GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, AND ACCURACY OF ALL CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL ALSO BE RESPONSIBLE FOR ENGINEERING, PROCUREMENT, AND CONSTRUCTION MEANS AND METHODS. WE SHALL NOT BE RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, OR ACCURACY OF THE DESIGN-BUILD ENTITY'S CONSTRUCTION DOCUMENTS OR FOR ANY DEVIATIONS FROM THESE DOCUMENTS. ANY INFORMATION CONTAINED HEREIN IS PRELIMINARY AND TECHNICAL INFORMATION CONTAINED HEREIN SHALL NOT BE CONSTRUED AS A GUARANTEE OF PERFORMANCE. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, AND ACCURACY OF ITS CONSTRUCTION DOCUMENTS AND FOR ANY DEVIATIONS FROM THESE DOCUMENTS. THE DESIGN-BUILD ENTITY SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT OF RECORD.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS PSC FOR USE SOLELY WITH RESPECT TO THIS PROJECT. THESE DOCUMENTS ARE TO BE USED SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND WE USED ONLY BY PERSONS OR ENTITIES WHICH HAVE EXECUTED A WRITTEN AGREEMENT WITH DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS PSC. ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS, INCLUDING COPYRIGHT, IN THESE DOCUMENTS, IN WHOLE OR IN PART, IS RESERVED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS PSC. ANY UNAUTHORIZED USE, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED AND SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT OF RECORD.

NO.	DATE	DESCRIPTIONS

PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

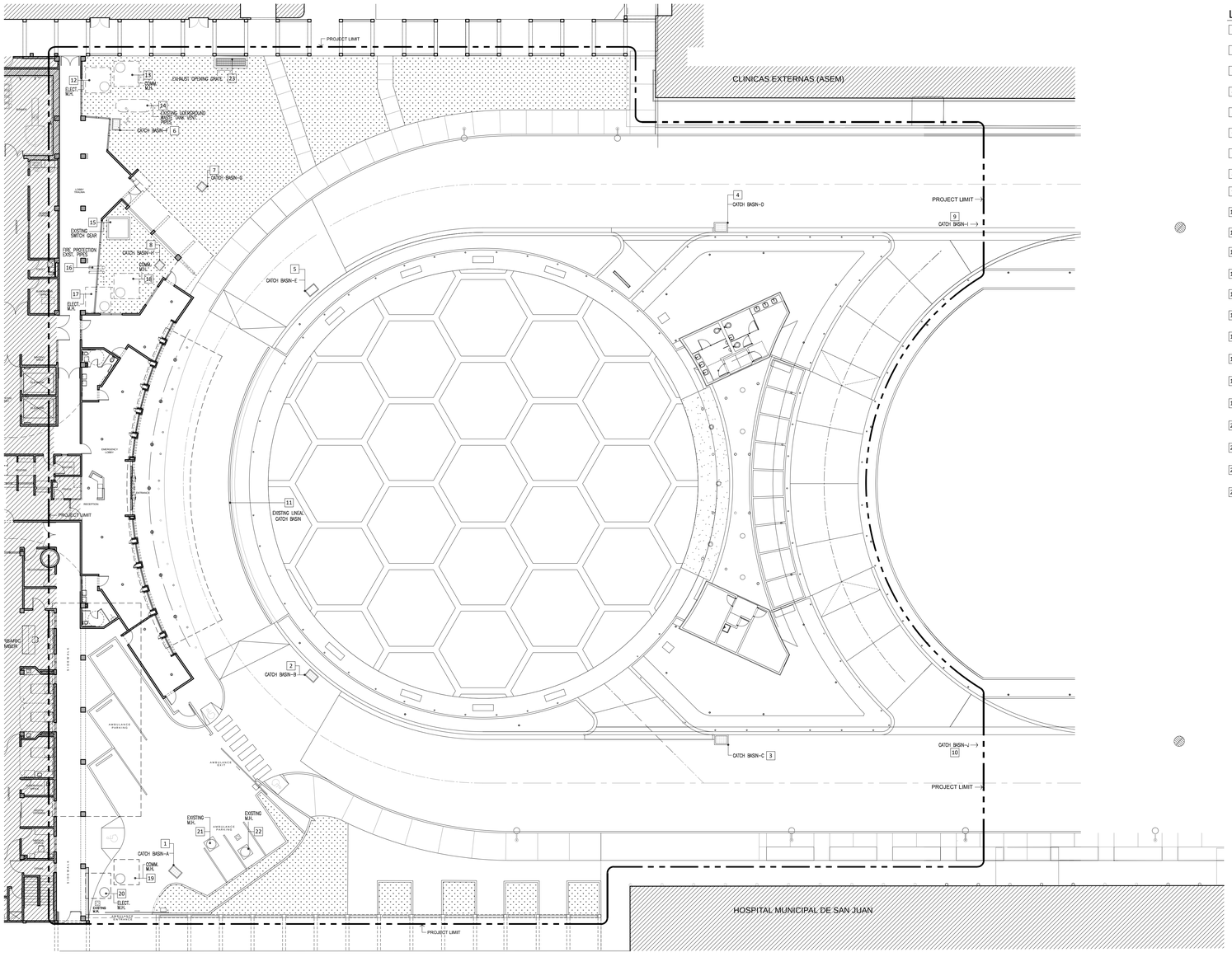
SHEET TITLE:

GENERAL UTILITY LOCATION & CONNECTION PLAN

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1596 AVE.PONCE DE LEON, STE 103 SAN JUAN PR 00926

DRAWING NUMBER

GL-1.0



EXISTING SITE PLAN

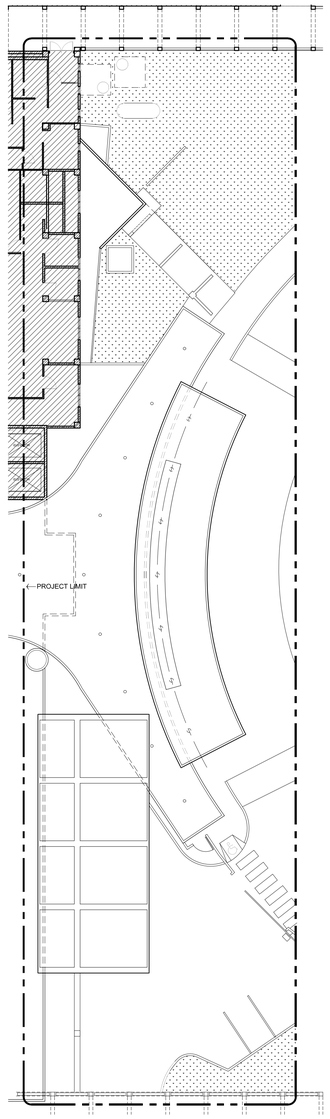
SCALE: 1/16"= 1'-0"

LEGEND:

1. EXISTING CATCH BASIN "A"
2. EXISTING CATCH BASIN "B"
3. EXISTING CATCH BASIN "C"
4. EXISTING CATCH BASIN "D"
5. EXISTING CATCH BASIN "E"
6. EXISTING CATCH BASIN "F"
7. EXISTING CATCH BASIN "G"
8. EXISTING CATCH BASIN "H"
9. EXISTING CATCH BASIN "I"
10. EXISTING CATCH BASIN "J"
11. EXISTING LINEAL CATCH BASIN
12. EXISTING ELECTRICAL MANHOLE
13. EXISTING COMMUNICATIONS MANHOLE
14. EXISTING UNDERGROUND WASTE TANK VENT PIPES
15. EXISTING SWITCH GEAR
16. EXISTING FIRE PROTECTION PIPES
17. EXISTING ELECTRICAL MANHOLE
18. EXISTING COMMUNICATIONS MANHOLE
19. EXISTING COMMUNICATIONS MANHOLE
20. EXISTING ELECTRICAL MANHOLE
21. EXISTING MANHOLE
22. EXISTING MANHOLE
23. EXHAUST OPENING GRATE

GENERAL NOTES / EXISTING CONDITION SITE PLAN:

1- THIS EXISTING CONDITIONS SITE PLAN HAS BEEN PREPARED AS A PRELIMINARY, GENERAL, NON-SURVEYED, AND NON-CERTIFIED REFERENCE DOCUMENT FOR USE AS PART OF THE DESIGN-BUILD REQUEST FOR PROPOSAL ("RFP") BRIDGING DOCUMENTS ONLY.
2- THE INFORMATION SHOWN ON THIS DRAWING IS BASED ON AVAILABLE RECORD INFORMATION, FIELD OBSERVATIONS, CAMPUS REFERENCE INFORMATION, AND PRELIMINARY ARCHITECTURAL PLANNING COORDINATION. IT SHALL NOT BE CONSTRUED AS A CERTIFIED SURVEY, FINAL EXISTING CONDITIONS DOCUMENT, LEGAL PROPERTY SURVEY, UTILITY SURVEY, OR CONSTRUCTION CONTROL DOCUMENT.
3- THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR ENGAGING A DULY LICENSED AND CERTIFIED PROFESSIONAL LAND SURVEYOR AUTHORIZED TO PRACTICE IN PUERTO RICO TO PERFORM A COMPLETE FIELD SURVEY OF THE TOTALITY OF THE PROPOSED PROJECT LOT AND ALL AREAS NECESSARY FOR THE DESIGN, PERMITTING, COORDINATION, AND CONSTRUCTION OF THE PROJECT.
4- THE DESIGN-BUILD ENTITY SHALL VERIFY, DOCUMENT, AND CERTIFY ALL EXISTING CONDITIONS PRIOR TO FINAL DESIGN, PERMITTING, CONSTRUCTION DOCUMENT PREPARATION, PROCUREMENT, SITE DEMOLITION, EXCAVATION, UTILITY WORK, OR CONSTRUCTION ACTIVITY.
5- THE REQUIRED SURVEY AND EXISTING CONDITIONS VERIFICATION SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, THE FOLLOWING:
   A. PROJECT LOT LIMITS, PERIMETER BOUNDARIES, CONTROL POINTS, BENCHMARKS, EASEMENTS, RIGHTS-OF-WAY, ACCESS LIMITS, AND ANY PHYSICAL OR LEGAL SITE CONSTRAINTS AFFECTING THE WORK.
   B. EXISTING TOPOGRAPHY, GRADES, SLOPES, ELEVATIONS, DRAINAGE PATTERNS, LOW POINTS, HIGH POINTS, RETAINING CONDITIONS, CURBS, GUTTERS, AND FINISHED FLOOR OR PAVEMENT ELEVATIONS OF ADJACENT AREAS.
   C. EXISTING STORM DRAINAGE STRUCTURES AND SYSTEMS, INCLUDING CATCH BASINS, MANHOLES, INLETS, GRATES, PIPES, CLEANOUTS, UNDERGROUND DRAINAGE LINES, OUTFALLS, AND RELATED APPURTENANCES.
   D. EXISTING SANITARY, POTABLE WATER, FIRE PROTECTION, MEDICAL GAS, IRRIGATION, OR OTHER WET UTILITY SYSTEMS, INCLUDING MANHOLES, VALVE BOXES, CLEANOUTS, UTILITY STRUCTURES, LINES, AND POINTS OF CONNECTION.
   E. EXISTING ELECTRICAL, TELECOMMUNICATIONS, DATA, SECURITY, FIBER OPTIC, SITE LIGHTING, EMERGENCY POWER, SWITCHGEAR, TRANSFORMERS, PULL BOXES, DUCT BANKS, HANDHOLES, MANHOLES, CONDUITS, AND RELATED UTILITY INFRASTRUCTURE.
   F. EXISTING ROADWAYS, SERVICE DRIVES, ACCESS LANES, CURBS, SIDEWALKS, RAMPS, PLAZAS, PAVEMENTS, PARKING AREAS, LOADING AREAS, AMBULANCE ROUTES, PEDESTRIAN ROUTES, AND CAMPUS CIRCULATION ELEMENTS.
   G. EXISTING STRUCTURES, BUILDING FOOTPRINTS, CANOPIES, WALLS, RETAINING WALLS, SITE STAIRS, RAMPS, UTILITY ENCLOSURES, MECHANICAL OR ELECTRICAL YARDS, FENCES, GUARDRAILS, BOLLARDS, SIGNAGE, AND OTHER SITE IMPROVEMENTS WITHIN OR ADJACENT TO THE PROJECT AREA.
   H. EXISTING ADJACENT BUILDINGS, STRUCTURES, CAMPUS FACILITIES, ENTRANCES, EXITS, LOADING AREAS, EMERGENCY ACCESS POINTS, SERVICE AREAS, AND OTHER IMPROVEMENTS THAT WILL REMAIN IN OPERATION DURING OR AFTER CONSTRUCTION.
   I. EXISTING LANDSCAPE AREAS, PLANTING AREAS, TREES, PLANTERS, IRRIGATION ELEMENTS, SITE FURNISHINGS, AND OTHER EXTERIOR CAMPUS FEATURES AFFECTING THE PROJECT WORK.
6- THE DESIGN-BUILD ENTITY SHALL NOT RELY EXCLUSIVELY ON THE PRELIMINARY INFORMATION SHOWN ON THIS DRAWING FOR FINAL DESIGN, QUANTITY TAKE-OFFS, COST ESTIMATING, CONSTRUCTION MEANS AND METHODS, SITE DEMOLITION, UTILITY RELOCATION, EXCAVATION, STRUCTURAL DESIGN, OR PERMITTING PURPOSES.
7- ALL DIMENSIONS, LOCATIONS, ELEVATIONS, UTILITY ROUTING, STRUCTURE LOCATIONS, PAVEMENT LIMITS, GRADES, AND SITE FEATURES SHOWN ON THIS DRAWING SHALL BE FIELD VERIFIED BY THE DESIGN-BUILD ENTITY. ANY DISCREPANCIES SHALL BE RESOLVED BY THE DESIGN-BUILD ENTITY THROUGH FIELD SURVEY, EXISTING CONDITIONS INVESTIGATION, UTILITY LOCATION SERVICES, RECORD DOCUMENT REVIEW, AND COORDINATION WITH ASEM AND APPLICABLE CAMPUS AUTHORITIES.
8- THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR IDENTIFYING, LOCATING, VERIFYING, PROTECTING, MAINTAINING, RELOCATING, TEMPORARILY SUPPORTING, OR REMOVING EXISTING UTILITIES AND SITE IMPROVEMENTS AS REQUIRED FOR THE COMPLETE DESIGN AND CONSTRUCTION OF THE PROJECT.
9- THE DESIGN-BUILD ENTITY SHALL COORDINATE WITH ASEM, CAMPUS FACILITIES PERSONNEL, UTILITY PROVIDERS, REGULATORY AGENCIES, AND OTHER AUTHORITIES HAVING JURISDICTION TO CONFIRM EXISTING UTILITY INFORMATION, POINTS OF CONNECTION, SERVICE CONTINUITY REQUIREMENTS, SHUTDOWN PROCEDURES, AND PROTECTION OF EXISTING OPERATIONAL FACILITIES.
10- THE DESIGN-BUILD ENTITY SHALL VERIFY THE LOCATION AND CONDITION OF ALL ADJACENT STRUCTURES AND CAMPUS FACILITIES THAT ARE TO REMAIN, AND SHALL DESIGN AND EXECUTE THE WORK IN A MANNER THAT PROTECTS SUCH FACILITIES FROM DAMAGE, DISRUPTION, SETTLEMENT, VIBRATION, WATER INFILTRATION, UTILITY INTERRUPTION, OR OTHER ADVERSE IMPACTS.
11- EXISTING CONDITIONS NOT SHOWN, INCOMPLETELY SHOWN, OR DIFFERING FROM THE INFORMATION INDICATED ON THIS PRELIMINARY DRAWING SHALL NOT RELIEVE THE DESIGN-BUILD ENTITY FROM ITS RESPONSIBILITY TO PROVIDE A COMPLETE DESIGN, COMPLETE CONSTRUCTION DOCUMENTS, REQUIRED PERMITS, AND FULLY COORDINATED CONSTRUCTION WORK.
12- PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES, THE DESIGN-BUILD ENTITY SHALL SUBMIT, AS REQUIRED BY THE RFP AND CONTRACT DOCUMENTS, UPDATED EXISTING CONDITIONS DOCUMENTATION, CERTIFIED SURVEY INFORMATION, UTILITY VERIFICATION RECORDS, AND ANY ADDITIONAL SITE INVESTIGATION INFORMATION NECESSARY TO SUPPORT THE FINAL DESIGN AND CONSTRUCTION OF THE PROJECT.
13- THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR INCORPORATING THE RESULTS OF THE CERTIFIED SURVEY AND EXISTING CONDITIONS VERIFICATION INTO THE FINAL DESIGN DOCUMENTS, CONSTRUCTION DOCUMENTS, PERMIT APPLICATIONS, COORDINATION DRAWINGS, SITE LOGISTICS PLANS, DEMOLITION PLANS, UTILITY RELOCATION PLANS, AND CONSTRUCTION PHASING PLANS.
14- THE DESIGN-BUILD ENTITY SHALL NOTIFY ASEM IN WRITING OF ANY MATERIAL DISCREPANCY, CONFLICT, UNKNOWN CONDITION, UTILITY CONFLICT, ACCESS LIMITATION, OR SITE CONSTRAINT IDENTIFIED DURING SURVEY, INVESTIGATION, DESIGN, OR CONSTRUCTION THAT MAY AFFECT THE PROJECT SCOPE, SCHEDULE, COST, SAFETY, PERMITTING, OR CONTINUITY OF CAMPUS OPERATIONS.
15- THE INCLUSION OF THIS PRELIMINARY EXISTING CONDITIONS SITE PLAN IN THE RFP BRIDGING DOCUMENTS DOES NOT TRANSFER TO THE OWNER OR BRIDGING ARCHITECT THE DESIGN-BUILD ENTITY'S RESPONSIBILITY TO VERIFY EXISTING CONDITIONS, PREPARE FINAL DESIGN DOCUMENTS, OBTAIN REQUIRED SURVEYS, COORDINATE UTILITIES, PROTECT EXISTING FACILITIES, AND COMPLETE THE PROJECT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
16- THIS DRAWING IS PROVIDED TO COMMUNICATE GENERAL PROJECT SITE CONTEXT AND PRELIMINARY EXISTING CONDITIONS ONLY. THE DESIGN-BUILD ENTITY SHALL ASSUME FULL RESPONSIBILITY FOR CONFIRMING THE ACCURACY, COMPLETENESS, AND APPLICABILITY OF ALL EXISTING CONDITIONS INFORMATION REQUIRED FOR THE SUCCESSFUL DESIGN, PERMITTING, AND CONSTRUCTION OF THE PUERTO RICO TRAUMA HOSPITAL PROJECT.



EXISTING ROOF PLAN

SCALE: 1/16"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

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PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
EXISTING SITE PLAN

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 103 SAN JUAN PR 00909

DRAWING NUMBER

EX-1.0

GENERAL SCOPE DESCRIPTION LAYOUT INDICATIONS & LEGEND NOTES

(APPLICABLE WHERE REQUIRED TO THE FULL SCOPE OF THE WORK SHOWN IN THE DRAWINGS FROM ED-1.1 TO ED-1.3)

GENERAL DEMOLITION NOTES:

(TYPICAL & APPLICABLE WHEN REQUIRED BY THE FULL SCOPE OF THE WORK SHOWN INSIDE THE PROJECT LIMIT)

1. EXISTING PERIMETER WINDOWS SHALL BE PROTECTED DURING THE DEMOLITION WORK.
2. ALL EXISTING WALLS TO REMAIN, INSIDE THE PROJECT LIMIT, SHALL BE REPAIRED AS REQUIRED TO CREATE A SMOOTH FINISH FOR PAINT APPLICATION.
3. ALL EXISTING WALLS, FLOORS AND CEILINGS TO REMAIN, SHALL BE STRIPPED, REPAIRED AND PATCHED AS REQUIRED FOR PROPER APPLICATION OF PAINT FINISH.
4. ALL EXISTING FINISHES NOT SHOWN IN THE DRAWINGS AND NOT SHOWN TO REMAIN IN THE PROPOSED FLOOR PLAN, SHALL BE DEMOLISHED AND DISPOSED OFF.
5. EXISTING FLOOR FINISHES SHALL BE REMOVED AND EXISTING FLOOR SUBSTRATE SHALL BE REPAIRED, SEALED AND LEVELED FOR PROPER INSTALLATION OF FINISHES IN SPACES SPECIFIED TO HAVE THEM AS PART OF THE CONTRACT SCOPE.
6. ALL EXISTING FLOOR SLABS TO REMAIN, INSIDE THE CONTRACT LIMIT, SHALL BE STRIPPED, REPAIRED AND LEVELED READY (USING A SELF-LEVELING PRODUCT) FOR THE INSTALLATION AND/OR APPLICATION OF THE NEW FLOOR FINISH.
7. ALL SLABS THAT HAVE HUMIDITY PERCOLATION SHALL BE TREATED WITH A SURFACE APPLIED VAPOR BARRIER EQUAL OR SIMILAR TO MAXXON M.V.P. VAPOR BARRIER.
8. EXISTING UTILITIES SYSTEMS TO REMAIN SHALL BE PROTECTED DURING CONSTRUCTION AND ADAPTED TO NEW LAY-OUT.
9. ALL EXISTING ELECTROMECHANICAL UTILITIES AND CONDUITS TO REMAIN INSIDE THE PROJECT LIMIT SHALL BE REMOVED AND DISPOSED OFF, UNLESS OTHERWISE NOTED.
10. EXISTING C.M.U WALLS TO REMAIN, SHALL NOT BE DAMAGED DURING THE DEMOLITION WORK.
11. EXISTING REINFORCED CONCRETE WALLS AND STRUCTURAL COLUMNS WILL REMAIN AND SHALL NOT BE DAMAGED DURING THE DEMOLITION WORK.
12. DEMOLITION WORK SHALL BE STOPPED IN WALLS SHOWN TO BE DEMOLISHED IF THEY ARE FOUND TO BE MADE OF REINFORCED CONCRETE. CONSULTATION SHALL BE MADE WITH THE PROJECT INSPECTOR TO GET THE PROPER STRUCTURAL SUPPORT SOLUTION TO ACHIEVE THE REQUIRED WALL DEMOLITION.
13. CONTRACTOR SHALL FIELD VERIFY EXISTING FLOOR LEVELS TO BE MATCHED FLUSH WITH THE PROPOSED FINISHED LEVEL OF THE PROJECT.
14. CONTRACTOR SHALL VERIFY AND CONFIRM THE ELEVATIONS AND RELATIONSHIPS OF LEVEL OF ALL EXISTING FLOORS PRIOR TO THE START OF THE CONSTRUCTION PROCESS
15. CONTRACTOR SHALL VERIFY ALL EXISTING FINISHED LEVELS INSIDE THE PROJECT LIMIT AND WITH ADJACENT CONNECTIONS TO CONFIRM THE SCOPE OF THE PROPOSED FINISHED LEVELS.
16. IN ADDITION TO THE DEMOLITION WORK SPECIFIED HEREIN, THE CONTRACTOR SHALL EXECUTE ALL SITE DEMOLITION OR SELECTIVE DEMOLITION WORK THAT MAY BE REQUIRED FOR THE PROPER EXECUTION OF THE PROJECT CONTRACT WORK WITHIN THE PROJECT LIMITS AND SPECIFIED IN THIS CONTRACT DOCUMENTS.
17. ALL EXISTING UTILITIES LINES, JUNCTION BOXES AND ALL OTHER FACILITIES INSIDE THE CONTRACT LIMIT SHALL BE DEMOLISHED IN ACCORDANCE WITH THE OWNERS' INSTRUCTIONS.
18. A 8'-0" HIGH PLYWOOD TEMPORARY PROTECTION WALL SHALL BE CONSTRUCTED PARALLEL AND ALONG THE PERIMETER OF THE PROJECT LIMIT IN ACCORDANCE WITH THE OWNERS' INSTRUCTIONS.
19. LIMIT OF NEW PAVEMENT WORK. IT SHALL BE GRADED AND/OR LEVELED TO MATCH EXISTING ELEVATIONS.
20. ALL CURBS, GUTTERS AND SIDEWALKS INSIDE THE PROJECT LIMIT SHALL BE DEMOLISHED AND DISPOSED OF.
21. ALL WHEEL STOPS INSIDE THE PROJECT LIMIT SHALL BE DEMOLISHED AND DISPOSED OF.
22. EXISTING FENCES SHALL BE DEMOLISHED AND DISPOSED OF.
23. EXISTING TREES, SHRUBS AND PLANTING SHALL BE REMOVED AND DISPOSED OF.
24. EXISTING STRUCTURE ALONG THE PROPERTY LINE SHALL BE PROTECTED, SUPPORTED AND CONTAINED DURING THE EXCAVATION AND CONSTRUCTION OF THE PROJECT.
25. LIMIT OF NEW PAVEMENT WORK SHALL BE GRADED AND/OR LEVELED TO MATCH EXISTING ELEVATIONS.
26. ALL PAVEMENT AND/OR SUBSTRATE FILL OR SLABS INSIDE THE PROJECT LIMIT SHALL BE DEMOLISHED AND DISPOSED OF.
27. ALL DRAINS, SANITARY OR STORM SEWERS, SHALL BE PROTECTED AND SEALED WITH CONCRETE CLAY PLUGS, LAIN IN MORTAR. CONTRACTORS SHALL NOTIFY THE LOCATION TO THE OWNER SO THAT ALL DRAINS PLUGGED MAY BE PROPERLY REUSED AND LOCATED FOR FUTURE USE.
28. CONTRACTOR SHALL PROTECT THE STORM SEWERS, CONTAIN ANY RUNOFF, AND KEEP ADJACENT STREETS AND PARKING LOTS FREE OF DEBRIS, DIRT, MUD, ETC. INSTALL SILT FENCE AROUND LOTS/PROPERTY THAT IS BEING DEMOLISHED. SWPPP AS REQUIRED PER APPLICABLE LAWS / REGULATIONS. SILT FENCE TO BE REMOVED AFTER HYDRO-SEEDING.
29. ALL EXISTING FLOOR UTILITY BOXES, METERS, JUNCTION BOXES, MANHOLES, VALVES, ETC. SHALL BE PROTECTED DURING THE CONSTRUCTION PROCESS. ALL COVERS, ACCESS PANELS AND LIDS SHALL BE RAISED (EXTENDING NECKS AS REQUIRED) TO BE FLUSH WITH THE NEW SIDEWALK TILE FINISH LEVEL.
30. ALL EXISTING SIGN POSTS, UTILITIES (AEE, COMMUNITATIONS, ETC.) AND HYDRANTS SHALL BE PROTECTED AND GUARDED DURING THE CONSTRUCTION PROCESS TO REMAIN OPERABLE IN EXISTING LOCATION.
31. CONTRACTOR SHALL PROVIDE SUBSTITUTE TEMPORARY PEDESTRIAN AND VEHICULAR ACCESSES AND PEDESTRIAN ROADWAY CROSSINGS (IN ACCORDANCE WITH ASEM'S INSTRUCTION) AS REQUIRED TO SERVE THE AREAS WHERE NEW ACCESSES ARE BEING CONSTRUCTED AS SIDEWALKS INTERRUPTED AS PART OF THE PROJECT.
32. ALL THE WORK AT THE ENDS AND/OR EDGES OF THE PROJECT WORK SCOPE LIMIT SHALL BE CONSTRUCTED AND COORDINATED TO ABUTT FLUSH AND LEVELED WITH THE ADJACENT EXISTING PAVEMENT FINISHED GRADING LEVEL AND EDGES. A ½" EXPANSION JOINT WITH AN EXTERIOR GRADE ELASTIC JOINT FILLER MATERIAL SHALL BE SUPPLIED AND INSTALLED BETWEEN ALL NEW AND EXISTING PAVEMENT CONSTRUCTION, WALLS, AND ADJACENT STRUCTURES.
33. ALL EXISTING UTILITIES INSIDE THE PROPERTY INCLUDING, BUT NOT LIMITED TO, JUNCTION BOXES, OUTLET COVERS, ACCESS LIDS, CATCH BASINS, DRAIN GRILLES, WATER METERS, GAS METERS, FLOW REGISTERS, SIGNS, ETC. SHALL BE REMOVED DURING THE CONSTRUCTION PROCESS.
34. ALL EXISTING FIRE HYDRANTS INSIDE THE PROJECT SCOPE WORK LIMIT SHALL BE PROTECTED AND KEPT OPERABLE DURING THE CONSTRUCTION OF THE PROJECT. THE FIRE HYDRANTS LOCATION SHALL BE MAINTAINED OR ADAPTED IF REQUIRED TO REMAIN INSIDE THE NEW OUTER PLANTING STRIP ADJACENT TO THE NEW CURB AND GUTTER. THE FIRE HYDRANTS SHALL BE REPAIRED, STRIPPED, AND PAINTED TO REMAIN OPERABLE AFTER THE CONSTRUCTION OF THE PROJECT IS COMPLETED.

SUPPLEMENTARY DEMOLITION NOTES

(APPLICABLE WHERE REQUIRED AS PER THE SCOPE OF THE DEMOLITION WORK SHOWN IN THE DRAWINGS AND THEIR NOTES)

1. PRIOR TO COMPLETING THE DEMOLITION, THE CONTRACTOR SHALL REMOVE ALL WOOD, LATH, PLASTER, OR OTHER DELETERIOUS MATERIAL FORM AREA TO BE FILLED, AND NOTIFY THE OWNER, WHO WILL PROVIDE AND INSPECTOR FOR PRELIMINARY INSPECTION OF THE SITE, AND APPROVAL.
2. THE FINAL GRADE OF BACKFILL FOR NEW PAVEMENTS VOIDS SHALL CONFORM TO THE EXISTING SURROUNDING GRADE IN SUCH A MANNER AS TO PRESENT A NEAT WELL-DRAINED APPEARANCE, AND TO PREVENT WATER DRAINING UNNECESSARILY ONTO ADJACENT PROPERTIES.
3. THE CONTRACTOR SHALL CLEAR THE SITE OF THE WORK AND HE SHALL REMOVE AND DISPOSE OF ALL DEAD TREES, BRUSH, RUBBISH, AND ANY OTHER JUNK OR DEBRIS. LIVE TREES, HEDGES, AND SHRUBBERY SHALL NOT BE REMOVED, AND THE CONTRACTOR SHALL BE HELD LIABLE FOR DAMAGE TO OR REMOVAL OF THEM.
4. IT SHALL BE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ALL UTILITY SUPPLIERS OF INTENDED DEMOLITION, TO INSURE ALL UTILITIES ARE DISCONNECTED.
5. ALL REFUSE REMOVED FROM THE SITE SHALL BE DISPOSED OF AT AN E.P.A APPROVED LANDFILL. METHOD OF DEMOLITION SHALL COMPLY WITH E.P.A. FUGITIVE DUST REQUIREMENTS INCLUDING ALL ARRANGEMENTS AND COSTS FOR SPRAYING WATER ON DEMOLITION.
6. DEMOLITION AND DISPOSAL OF RUBBISH AND DEBRIS SHALL PROCEED SIMULTANEOUSLY.
7. ONCE THE DEMOLITION IS STARTED, IT SHALL BE CONTINUED UNTIL COMPLETED.
8. A DEMOLITION AND WRECKING PERMIT SHALL BE PROCURED FROM THE APPLICABLE GOVERNMENT AGENCIES BEFORE COMMENCING DEMOLITION. THERE WILL BE NO CHARGE FOR THE PERMIT.
9. THE CONTRACTOR SHALL COMPLY WILL ALL APPLICABLE LAWS, ORDINANCES AND CODES.
10. WHENEVER THE OWNER DETERMINES THAT CONSTRUCTION OR REPAIR WORK MAY ENDANGER THE TRAVELING PUBLIC, THE CONTRACTOR AT THE REQUEST OF THE OWNER, SHALL ERECT ROOFED PASSAGEWAYS EXTENDING OVER PUBLIC THOROUGHFARES AT LEAST SIX (6) FEET, THE ROOF OF WHICH SHALL BE NOT LESS THAT A DOUBLE THICKNESS OF 2-INCH-THICK LUMBER.
11. NO PART OF THE ABUTTING STREETS, INCLUDING THE PUBLIC WALKS AND STREET AREAS, SHALL BE OCCUPIED BY THE CONTRACTOR AND HIS EQUIPMENT. TREES, PUBLIC WALKS AND STREET SHALL BE PRESERVED AND PROPERLY PROTECTED. THE CONTRACTOR'S OPERATIONS SHALL BE CONFINED TO THE PARCELS OF LAND INCLUDED IN THE DEMOLITION.
12. ARRANGEMENTS SHALL BE MADE TO PROHIBIT PARKING OF VEHICLES IN THE NEAR VICINITY OF THE ACTUAL DEMOLITION.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO PRIVATE OR PUBLIC PROPERTY AS A RESULT OF HIS FAULT OR NEGLIGENCE IN CONNECTION WITH THE PROSECUTION OF THE WORK AND SHALL BE RESPONSIBLE FOR THE PROPER CARE AND PROTECTION OF ALL WORK PERFORMED UNTIL COMPLETION AND FINAL ACCEPTANCE.
14. IN ORDER TO PREVENT THE BLOWING OF DUST AND DIRT, THE CONTRACTOR WILL BE REQUIRED TO WET DOWN AND KEEP WET THE STRUCTURES BEFORE AND DURING WRECKING OPERATIONS, ALL RUBBISH AND DEBRIS STOCKPILED ON THE SITE, AND ALL RUBBISH OR DEBRIS IS BEING LOADED FOR DISPOSAL.
15. ALL OBSTRUCTIONS SHALL BE ADEQUATELY BARRICADED AND LIGHTED AT NIGHT.
16. DEMOLITION AND SITE CLEARANCE WILL CONSIST UNLESS OTHERWISE NOTED IN THE DRAWINGS, OF THE DEMOLITION AND REMOVAL OF ALL STRUCTURES, WALKS, CONCRETE SLABS, RETAINING WALLS, TREES, AND BUSHES, AND INCLUDING FOUNDATION WALLS, FLOORS AND ANY OTHER SUBSURFACE STRUCTURES TO THE LEVEL OF THE DEMOLITION GRADE; FILLING ALL EXCAVATIONS TO THE EXISTING GROUND ELEVATION; AND THE GRADING AND SMOOTHING OF THE SITE. ALL SHALL BE DONE IN A LUMP SUM BID.
17. WHEN THE WORK OF DEMOLITION IS SUBSTANTIALLY COMPLETE, THE CONTRACTOR SHALL NOTIFY THE OWNER THAT THE WORK WILL BE READY FOR FINAL INSPECTION.
18. THE CONTRACTOR SHALL COMPLY WITH APPLICABLE LAWS AND ORDINANCES GOVERNING THE DISPOSAL OF MATERIALS, DEBRIS, RUBBISH AND TRASH OFF OR ON THE PROJECT AREA; AND SHALL COMMIT NO TRESPASS ON ANY PRIVATE PROPERTY IN THE DISPOSAL OF THE MATERIALS WITHOUT PERMISSION OF THE PROPERTY OWNER INVOLVED.
19. DEMOLISH AND REMOVE BELOW-GRADE CONSTRUCTION AND CONCRETE SLABS-ON-GRADE.
20. ALL DISTURBED AREAS SHALL BE PROPERLY GRADED AFTER DEMOLITION IS COMPLETE. NO PONDING SHALL BE ALLOWED TO OCCUR.
21. CONTRACTOR SHALL PROTECT THE STORM SEWERS, CONTAIN ANY RUNOFF, AND KEEP ADJACENT STREETS AND PARKING LOTS FREE OF DEBRIS, DIRT, MUD, ETC. INSTALL SILT FENCE AROUND LOTS/PROPERTY THAT IS BEING DEMOLISHED. SWPPP AS REQUIRED PER APPLICABLE LAWS / REGULATIONS. SILT FENCE TO BE REMOVED AFTER HYDRO-SEEDING.
22. STRUCTURES TO REMAIN IN PLACE SHALL BE PROTECTED FROM DAMAGE DURING ALL PHASES OF WORK.
23. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING A TEMPORARY FENCE FOR WORK AREA.
24. CONTRACTOR SHALL FIELD VERIFY THE WORK INDICATED PRIOR TO WORK. REPORT DISCREPANCIES OR CONCERNS IMMEDIATELY TO OWNER OR OWNER'S REPRESENTATIVE.
25. THE DEMOLITION WORK SPECIFIED HEREIN SHALL BE PERFORMED IN A SAFE, SATISFACTORY CONDITION, STARTING WITH THE ROOF AND WORKING DOWN, WITH THE SAFETY AND WELFARE OF ALL PEOPLE AND PROPERTY BEING OF THE HIGHEST PRIORITY.
26. THE CONTRACTOR SHALL HAUL OFF ALL DEBRIS AND UNSALVAGEABLE MATERIALS; AND NO DEBRIS OR RUBBLE WHICH MAY POSE A THREAT TO PUBLIC SAFETY WILL BE LEFT ON THE SITE OVERNIGHT. NO SUCH DEBRIS OR MATERIAL WILL BE PLACED ON A SIDEWALK OR PUBLIC RIGHT-OF-WAY SO THAT IT POSES A DANGER TO ANY PERSON.
27. CONTRACTOR IS RESPONSIBLE FOR PERFORMING UTILITY SERVICES, IN COORDINATION WITH THE LOCAL PUBLIC SERVICE COMMISSION (C.S.P), PRIOR TO COMMENCEMENT OF WORK.
28. STORAGE OR SALE OF REMOVED ITEMS ON THE PROJECT SITE WILL NOT BE PERMITTED.
29. THE USE OF EXPLOSIVES WILL NOT BE PERMITTED.
30. CONDUCT DEMOLITION OPERATIONS AND THE REMOVAL OF DEBRIS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES.
31. ENSURE THE SAFE PASSAGE OF PERSONS AROUND THE AREA OF DEMOLITION. CONDUCT OPERATIONS TO PREVENT INJURY TO ADJACENT BUILDINGS, STRUCTURES, OTHER FACILITIES, AND PERSONS.
32. DO NOT INTERRUPT EXISTING UTILITIES SERVING OCCUPIED OR USED FACILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY AUTHORITIES HAVING JURISDICTION. PROVIDE TEMPORARY SERVICE DURING INTERRUPTIONS TO EXISTING UTILITIES, AS ACCEPTABLE TO THE GOVERNING AUTHORITIES.
33. USE WATER SPRINKLING, TEMPORARY ENCLOSURES, AND OTHER SUITABLE METHODS TO LIMIT THE AMOUNT OF DUST AND DIRT RISING AND SCATTERING IN THE AIR TO THE LOWEST PRACTICABLE LEVEL.
34 COMPLY WITH THE GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
35. DO NOT USE WATER WHEN IT MAY CREATE HAZARDOUS OR OBJECTIONABLE CONDITIONS SUCH AS FLOODING AND POLLUTION.
36. CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF ALL DUST, DIRT AND DEBRIS CAUSED BY DEMOLITION OPERATIONS, AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE OR GOVERNING AUTHORITIES. RETURN ADJACENT AREAS TO CONDITION EXISTING PRIOR TO THE START OF THE WORK.
37. GRADE THE SURFACE TO MEET ADJACENT CONTOURS AND TO PROVIDE FLOW TO SURFACE DRAINAGE STRUCTURES.
38. AFTER GRADING IS COMPLETE, THE SITE SHALL BE CLEANED OF ALL CONSTRUCTION DEBRIS 2" IN DIAMETER AND LARGER.
39. BURNING OF REMOVED MATERIALS FROM DEMOLISHED STRUCTURES WILL NOT BE PERMITTED ON THE PROJECT SITE.
40. HAZARDOUS MATERIALS: MATERIALS DEFINED BY THE ENVIRONMENTAL PROTECTION AGENCY TO BE HAZARDOUS TO THE ENVIRONMENT OR PERSONS, SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL GOVERNMENT REGULATIONS AND GOVERNING LAWS. THIS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL FURNISH WRITTEN PROOF OF SUCH DISPOSAL.
41. CONTRACTOR IS RESPONSIBLE FOR VERIFYING QUANTITIES AND DIMENSIONS FOR ALL DEMOLITION AND FINAL CONSTRUCTION REQUIREMENTS SUCH AS BACKFILL/GRADING, HYDRO-SEED/SOD, OR FENCING (W/GATES) AS SHOWN ON SITE PLANS.
42. THE CONTRACTOR MUST OBTAIN FROM THE MUNICIPALITY OF SAN JUAN – PERMITS OFFICE AND ALL OTHER GOVERNMENT ENTITIES, AT HIS OWN EXPENSE, ALL NECESSARY GENERAL, SUPPLEMENTARY, AND SPECIAL PERMITS, INSURANCES, AND PAY ANY AND ALL FEES FOR SAID PERMITS AND ANY OTHER FEES, PUBLIC OR PRIVATE RELATED TO THE DEMOLITION WORK SCOPE.
43. THE CONTRACTOR SHALL LOCATE AND IDENTIFY ALL UTILITIES (INCLUDING BUT NOT LIMITED TO ELECTRICAL, SANITARY, WATER, CHILLED WATER, FIRE PROTECTION, ETC). RUNNING THROUGH THE PROJECT DEMOLITION SITE AND SERVING ADJACENT STRUCTURES AND FACILITIES TO REMAIN. SAID UTILITIES SHALL BE PROTECTED, KEPT IN PLACE, AND REMAIN OPERATIONAL DURING THE DEMOLITION WORK. IF CONFLICTS ARISE BETWEEN THE UTILITIES TO REMAIN OPERATIONAL AND THE DEMOLITION WORK, THE OWNER'S REPRESENTATIVE SHALL BE INFORMED TO PROVIDE, WITH THE HELP OF THE CONTRACTOR, A SOLUTION IN-PLACE WITHOUT AFFECTING THE UTILITIES SERVICE.
44. ALL MATERIAL RESULTING FROM THE DEMOLITION WORK BECOMES THE PROPERTY OF THE CONTRACTOR. DISPOSE OF OR USE ALL MATERIALS, RESULTING FROM THE DEMOLITION WORK, EXCEPT MATERIALS THAT ARE PROPERTY OF UTILITY COMPANIES PROVIDING SERVICE TO THE BUILDING. PROVIDE ALL PERMITS AND DISPOSE OF ALL CONTAMINATED MATERIAL ENCOUNTERED IN CONNECTION WITH THE WORK.
45. COMPLY WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS WHEN PERFORMING BUILDING DEMOLITION REMOVAL OF UNDERGROUND STORAGE TANKS (UST), AND CONTAMINATED MATERIAL DISPOSAL. ANY FINES RESULTING FROM VIOLATIONS OF ANY REGULATION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE CONTRACTOR AGREES TO INDEMNIFY AND HOLD HARMLESS THE OWNER AGAINST ANY ASSESSMENT OF SUCH FINES.
46. CONFORM TO ALL APPLICABLE SAFETY CODES PERTAINING TO THE WORK, SECURE ALL PERMITS THAT MAY BE REQUIRED AND PAY ALL FEES IN CONNECTION THEREWITH.
47. MAKE ALL NECESSARY ARRANGEMENTS WITH UTILITY COMPANIES FOR THE DISCONNECTING OF ALL SERVICES AND THE REMOVAL OF AND RECOVERY BY THEM OF ALL METERS, TELEPHONES AND ANY OTHER UTILITY FACILITIES OR EQUIPMENT OWNED BY THEM. ARRANGE FOR AND ACTUALLY EFFECT THE DISCONNECTING AND CLOSING OF WATER AND SEWER CONNECTIONS TO BUILDINGS, INCLUDING BUT NOT LIMITED TO ANY WORK THAT SHALL BE DONE IN ADDITION TO THAT NORMALLY DONE BY THE UTILITY COMPANY, IN CONFORMITY WITH ALL APPLICABLE CODES AND REGULATIONS OF THE LOCAL BOARDS OF HEALTH. PAY FOR ALL COSTS INCURRED IN CONNECTION WITH THE ABOVE WORK. ALL REFUNDS OR DEPOSITS THAT MAY BECOME DUE AS A RESULT OF THE DISCONNECTION OF SERVICE AND THE RETURNING OF EQUIPMENT OR FACILITIES TO ANY UTILITY COMPANY BECOME THE PROPERTY OF THE OWNER.
48. DISPOSE OF MATERIALS AND DEBRIS IN ACCORDANCE WITH APPLICABLE LOCAL CODES.

GENERAL SITE DEMOLITION WORK COMPLIANCE NOTES:

(AS REQUIRED AND WHEN BY SCOPE OF WORK SHOWN IN THE CONTRACT PLANS)

1. ALL WORK SHALL INCLUDE COMPLETE DEMOLITION, CLEARING, PROTECTION, AND PREPARATION OF THE APPROX. 5,200 SM SITE FOR CONSTRUCTION OF A NEW TEN-STORY TRAUMA HOSPITAL BUILDING WITH A 3,800 SM FOOTPRINT AND A BASEMENT EXCAVATION RANGING APPROX. FROM 22'-0" TO 28'-0" IN DEPTH.
2. WORK SHALL BE EXECUTED WITHIN AN ACTIVE HEALTHCARE CAMPUS AND SHALL BE PLANNED AND IMPLEMENTED AS A HIGH-RISK CONSTRUCTION OPERATION.
3. CONTRACTOR SHALL COORDINATE CONTINUOUSLY WITH OWNER, HOSPITAL OPERATIONS, AND DESIGN TEAM.
4. MAINTAIN FULL OPERATION OF ADJACENT EMERGENCY, TRAUMA, AND CRITICAL CARE SERVICES AT ALL TIMES.
5. IMPLEMENT INFECTION CONTROL RISK ASSESSMENT (ICRA) MEASURES INCLUDING:
   A. FULLY ENCLOSED WORK ZONES
   B. NEGATIVE AIR PRESSURE (WHERE APPLICABLE)
   C. HEPA FILTRATION SYSTEMS
   D. DAILY CLEANING AND DEBRIS CONTROL
6. IMPLEMENT INTERIM LIFE SAFETY MEASURES (ILSM) AS REQUIRED, INCLUDING:
   A. MAINTAINED EGRESS PATHS
   B. FIRE WATCH (IF REQUIRED)
   C. TEMPORARY LIFE SAFETY SYSTEMS
7. COORDINATE ALL WORK WITH HOSPITAL ADMINISTRATION PRIOR TO ANY HIGH-IMPACT ACTIVITY.
8. PERFORM MASS EXCAVATION TO DEPTHS RANGING APPROX. FROM 22'-0" TO 28'-0"
9. ALL EARTH RETENTION SYSTEMS SHALL BE FULLY ENGINEERED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER.
10. ACCEPTABLE SYSTEMS INCLUDE (AS REQUIRED BY DESIGN):
    A. SECANT OR TANGENT PILE WALLS (PREFERRED IN URBAN HOSPITAL SETTINGS)
    B. SOLDIER PILES AND LAGGING WITH TIEBACKS
    C. SHEET PILES
    D. INTERNALLY BRACED SYSTEMS
11. DESIGN SHALL LIMIT GROUND MOVEMENT AND PROTECT ADJACENT STRUCTURES, UTILITIES, AND PAVEMENTS.
12. PROVIDE A COMPREHENSIVE GEOTECHNICAL INSTRUMENTATION PROGRAM, INCLUDING:
    A. SETTLEMENT POINTS (SURFACE AND STRUCTURAL)
    B. INCLINOMETERS (ALONG RETENTION SYSTEMS)
    C. PIEZOMETERS (GROUNDWATER LEVELS)
    D. VIBRATION MONITORS
    E. CRACK GAUGES ON EXISTING BUILDING
13. ESTABLISH BASELINE READINGS PRIOR TO CONSTRUCTION.
14. MONITORING SHALL BE CONTINUOUS OR DAILY AS REQUIRED DURING CRITICAL PHASES.
15. IMPLEMENT A THREE-TIER ALERT SYSTEM:
    A. ALERT LEVEL 1 (CAUTION):
       · SETTLEMENT≥ 1/4 INCH
       · ACTION: INCREASE MONITORING FREQUENCY, REVIEW METHODS
    B. ALERT LEVEL 2 (WARNING):
       · SETTLEMENT≥ 3/8 INCH
       · ACTION: MODIFY CONSTRUCTION METHODS, NOTIFY ENGINEER AND OWNER
    C. ALERT LEVEL 3 (CRITICAL):
       · SETTLEMENT ≥ 1/2 INCH OR RAPID MOVEMENT
       · ACTION: IMMEDIATE STOP WORK, IMPLEMENT EMERGENCY STABILIZATION
16. ALL THRESHOLDS SHALL BE VERIFIED AND ADJUSTED BY THE GEOTECHNICAL ENGINEER.
17. PROVIDE A FULLY ENGINEERED DEWATERING SYSTEM.
18. CONTROL HYDROSTATIC PRESSURE WITHOUT CAUSING ADJACENT GROUND SETTLEMENT.
19. MONITOR GROUNDWATER LEVELS CONTINUOUSLY.
20. LOCATE AND PROTECT ALL UTILITIES.
21. PROVIDE STRUCTURAL SUPPORT OR BRIDGING FOR UTILITIES WITHIN INFLUENCE ZONE OF EXCAVATION.
22. MAINTAIN CONTINUOUS OPERATION OF CRITICAL HOSPITAL UTILITIES (POWER, MEDICAL GAS, WATER, DATA).
23. DEMOLISH ALL EXISTING SITE ELEMENTS INCLUDING PLAZA AREAS, ROADWAYS, LANDSCAPING, AND STRUCTURES.
24. REMOVE ALL ORGANIC AND UNSUITABLE MATERIALS.
25. PROPERLY HANDLE HAZARDOUS MATERIALS.
26. PROOF-ROLL SUBGRADE AND VERIFY WITH GEOTECHNICAL ENGINEER.
27. REMOVE UNSUITABLE MATERIALS AND REPLACE WITH ENGINEERED FILL.
28. COMPACT TO MINIMUM 95% MODIFIED PROCTOR OR AS SPECIFIED.
29. IMPLEMENT DUST, NOISE, AND VIBRATION CONTROL MEASURES SUITABLE FOR HEALTHCARE ENVIRONMENT.
30. INSTALL EROSION AND SEDIMENT CONTROL SYSTEMS.
31. CONTRACTOR SHALL DEVELOP AND MAINTAIN A PROJECT-SPECIFIC RISK REGISTER, INCLUDING:
    A. ADJACENT STRUCTURE SETTLEMENT
    B. UTILITY FAILURE
    C. GROUNDWATER INTRUSION
    D. VIBRATION IMPACT ON MEDICAL EQUIPMENT
    E. INFECTION CONTROL BREACH
32. EACH RISK SHALL INCLUDE:
    A. PROBABILITY LEVEL
    B. IMPACT LEVEL
    C. MITIGATION MEASURES
    D. RESPONSE PLAN
33. SUBMIT RISK REGISTER PRIOR TO START OF EXCAVATION WORK.
34. COORDINATE WITH STRUCTURAL, CIVIL, MEP, AND HOSPITAL OPERATIONS.
35. PROVIDE DAILY REPORTS DURING CRITICAL EXCAVATION PHASES.
36. ALL WORK SHALL BE SUBJECT TO INSPECTION AND TESTING.
37. REMOVE TEMPORARY SYSTEMS INCLUDING SHORING (AS APPLICABLE), DEWATERING, AND PROTECTION MEASURES.
38. LEAVE SITE READY FOR FOUNDATION CONSTRUCTION.
39. ALL WORK SHALL COMPLY WITH APPLICABLE CODES AND STANDARDS INCLUDING:
    A. PUERTO RICO BUILDING CODE (PRBC) AND ADOPTED INTERNATIONAL BUILDING CODE (IBC)
    B. OSHA CONSTRUCTION SAFETY REGULATIONS (29 CFR 1926)
    C. ACI 301 (SPECIFICATIONS FOR STRUCTURAL CONCRETE)
    D. ACI 318 (BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE)
    E. ACI 336 (FOUNDATIONS AND EARTH RETAINING STRUCTURES)
    F. ASTM STANDARDS FOR MATERIALS AND TESTING
    G. FHWA / AASHTO GUIDELINES FOR EARTH RETENTION AND EXCAVATION
    H. EPA AND LOCAL ENVIRONMENTAL REGULATIONS
40. WORK SHALL BE EXECUTED WITHIN AN ACTIVE HEALTHCARE CAMPUS AND SHALL END OF GENERAL NOTES

EXISTING BUILDING FLOOR LEVELS:

1. CONTRACTOR SHALL VERIFY AND CONFIRM THE ELEVATIONS AND RELATIONSHIPS OF LEVEL OF ALL EXISTING FLOORS PRIOR TO THE START OF THE CONSTRUCTION PROCESS
2. CONTRACTOR SHALL RETAIN THE SERVICES OF A REGISTERED SURVEYOR TO CONFIRM THE EXISTING ELEVATIONS OF ALL THE EXISTING FLOOR LEVELS.
3. DEVIATION OF EXISTING FLOOR LEVELS FROM THE ONES INDICATED IN THE DRAWINGS SHALL BE INFORMED TO THE ARCHITECT FOR THE PROPER ADJUSTMENT OF THE CONSTRUCTION DRAWINGS LEVELS.

BUILDING ADMINISTRATION COMPLIANCE

1- ALL WORK TO BE EXECUTED UNDER THIS CONTRACT SHALL BE DONE ONLY DURING THE HOURS APPROVED BY THE BUILDING ADMINISTRATOR.

2- ALL WORK EXECUTED UNDER THIS CONTRACT SHALL BE IN ACCORDANCE AND IN COMPLIANCE WITH THE BUILDING ADMINISTRATION REGULATIONS RELATED TO CONSTRUCTION.

WORK BY OWNER

1- ALL CABLING, HARDWARE AND SOFTWARE RELATED TO THE VOICE COMMUNICATION SYSTEM, INFORMATION TECHNOLOGY SYSTEM, CLOSED CIRCUIT TV SYSTEM AND ELECTRONIC ACCESS CONTROL SYSTEM WILL BE SUPPLIED AND INSTALLED BY EACH OF THE SYSTEMS OWNER'S SUBCONTRACTORS.

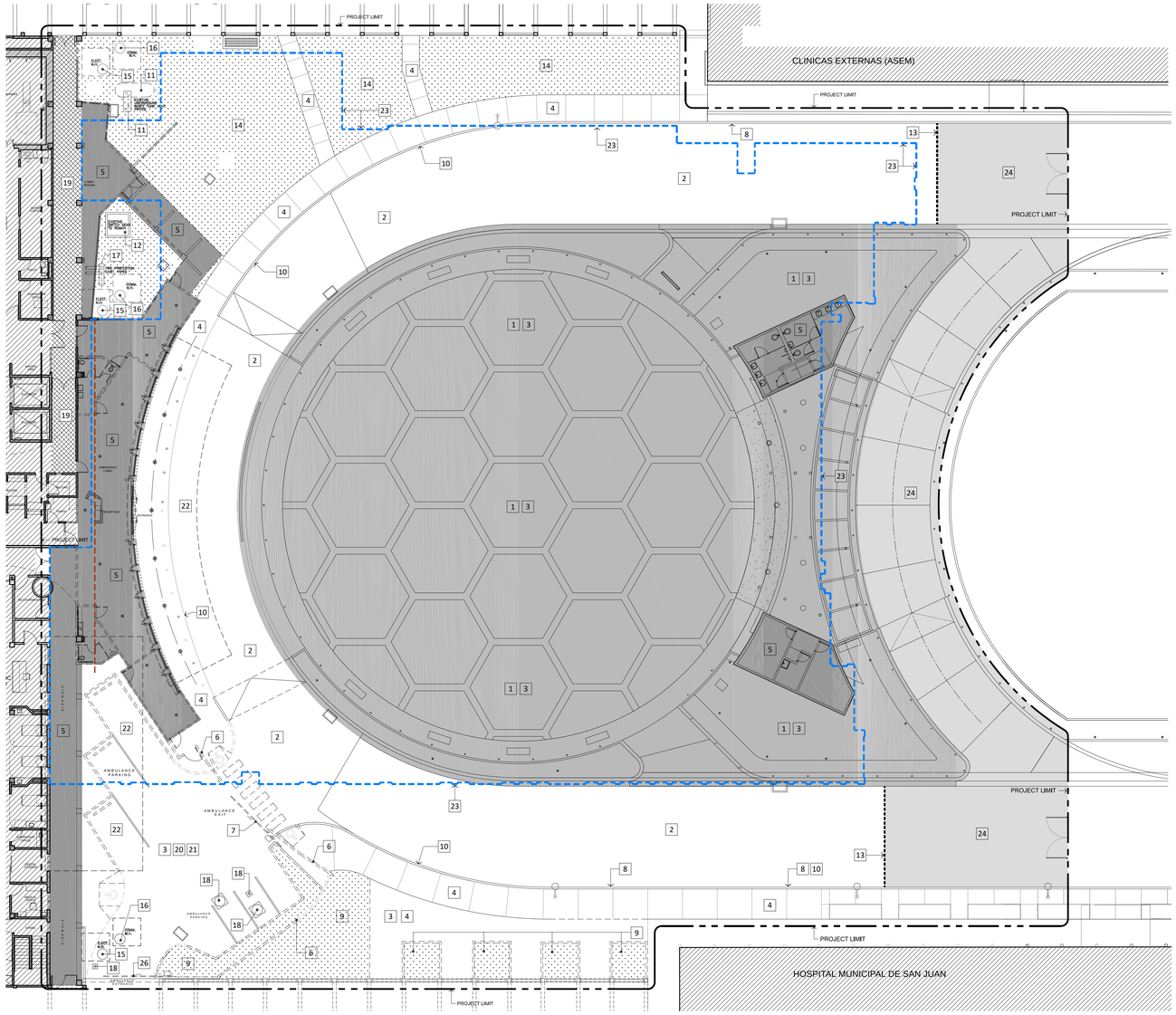
NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

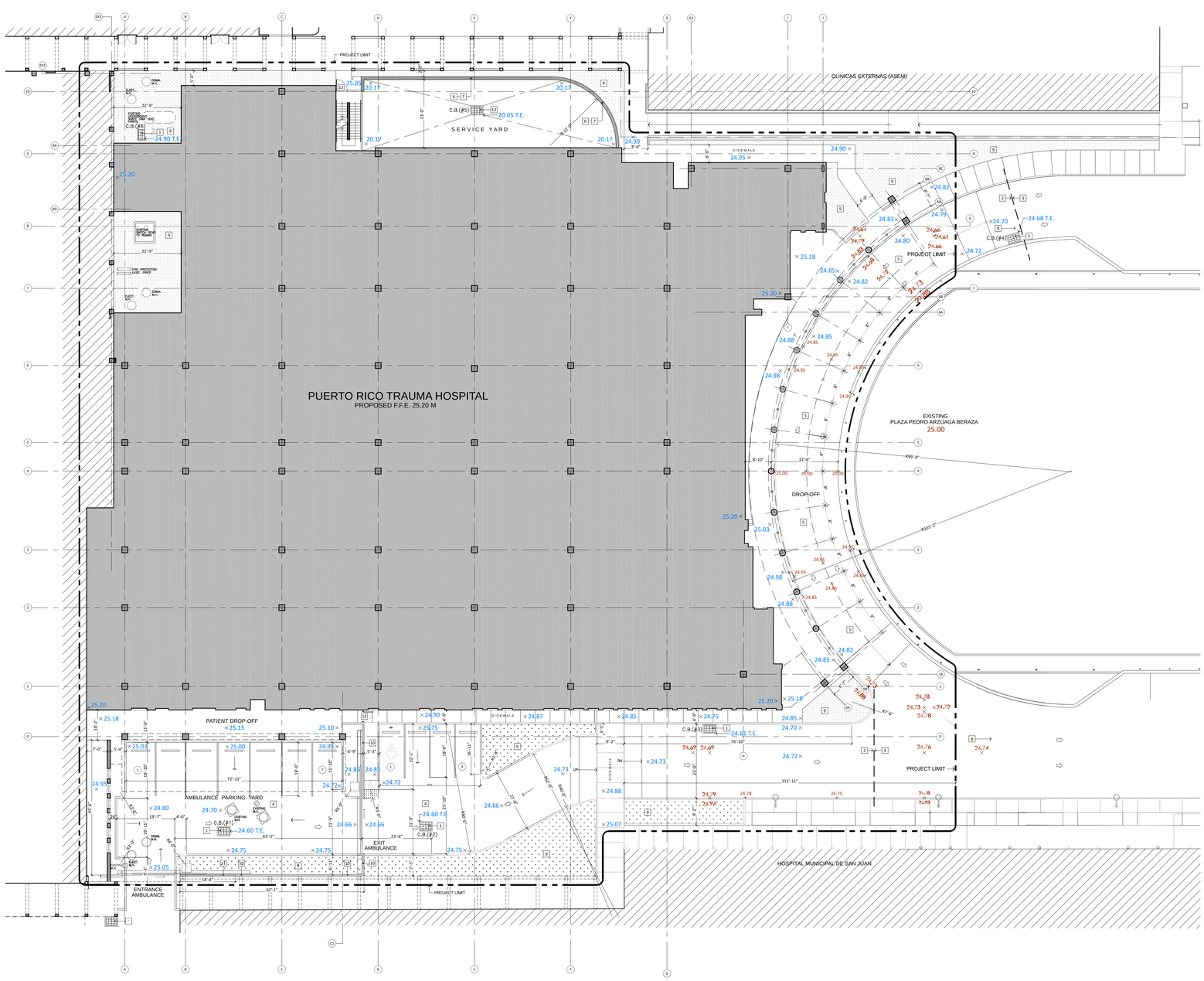
DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESCRIBING THE ARCHITECTURAL AND ENGINEERING DESIGN OF THE PROJECT OBJECTIVES, DESIGN INTENT, PERFORMANCE CRITERIA, AND TECHNICAL REQUIREMENTS FOR THE DESIGN-BUILD ENTITY RESPONSIBLE FOR THE PROJECT. THEY ARE NOT INTENDED TO BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION PURPOSES. THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR DEVELOPING THE CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT, IN ACCORDANCE WITH THE PERFORMANCE REQUIREMENTS AND DESIGN GUIDANCE CONTAINED IN THESE DOCUMENTS. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, AND ACCURACY OF THE CONSTRUCTION DOCUMENTS, AND FOR OBTAINING ALL PERMITS AND APPROVALS REQUIRED FOR CONSTRUCTION. THE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

NO.	DATE	DESCRIPTIONS

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS FOR THE PUERTO RICO TRAUMA HOSPITAL PROJECT. THEY ARE INTENDED FOR USE SOLELY FOR USE I


PROJECT LIMIT
CLINICAS EXTERNAS (ASEM)
PROJECT LIMIT
PROJECT LIMIT
PROJECT LIMIT
PROJECT LIMIT
PROJECT LIMIT
PROJECT LIMIT
HOSPITAL MUNICIPAL DE SAN JUAN
AMBULANCE PARKING
AMBULANCE EXIT
AMBULANCE PARKING
EMERGENCY ENTRANCE
RECEPTION
EMERGENCY LOBBY
CONC. PROTECTION FOR GENERATOR
CONC. PAD
ELECT. M.H.
CONC. PAD
ELECT. M.H.
CONC. PAD
ELECT. M.H.
CONC. PAD
ELECT. M.H.
SURFACE MOUNTED TV SCREEN
SURFACE MOUNTED TV SCREEN
SIDEWALK
SIDEWALK
SIDEWALK



SUGGESTEDGRADING & LAYOUT PLAN

SCALE: 1/16"= 1'-0"

GENERAL NOTES / PROPOSED SITE GRADING AND GEOMETRIC LAY-OUT PLAN:

1- THIS PROPOSED SITE GRADING AND GEOMETRIC LAYOUT PLAN HAS BEEN PREPARED AS A PRELIMINARY, CONCEPTUAL, AND SUGGESTED SITE PLANNING DOCUMENT FOR USE AS PART OF THE DESIGN-BUILD REQUEST FOR PROPOSAL ("RFP") BRIDGING DOCUMENTS ONLY.
2- THIS DRAWING IS INTENDED TO COMMUNICATE THE OWNER'S GENERAL SITE PLANNING INTENT, INCLUDING PRELIMINARY BUILDING ACCESS, VEHICULAR CIRCULATION, ROADWAY ALIGNMENTS, DROP-OFF AND PICK-UP AREAS, CANOPIES, AMBULANCE ACCESS AND PARKING AREAS, PATIENT DROP-OFF AREAS, PEDESTRIAN ROUTES, PAVEMENT AREAS, PLANTING AREAS, AND GENERAL SITE ORGANIZATION.
3- THIS DRAWING SHALL NOT BE CONSTRUED AS A FINAL GRADING PLAN, FINAL GEOMETRIC LAYOUT PLAN, FINAL SITE CIVIL ENGINEERING DESIGN, CERTIFIED SURVEY, CONSTRUCTION STAKING PLAN, PERMIT-READY CIVIL DOCUMENT, OR CONSTRUCTION DOCUMENT.
4- THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR DEVELOPING THE FINAL, COORDINATED, COMPREHENSIVE, CODE-COMPLIANT, PERMIT-READY, AND BUILDABLE SITE GRADING AND GEOMETRIC LAYOUT PLANS REQUIRED FOR THE COMPLETE DESIGN AND CONSTRUCTION OF THE PROJECT.
5- THE DESIGN-BUILD ENTITY SHALL ENGAGE A DULY LICENSED PROFESSIONAL LAND SURVEYOR AUTHORIZED TO PRACTICE IN PUERTO RICO TO ESTABLISH, VERIFY, AND CERTIFY ALL SURVEY CONTROL, BENCHMARKS, HORIZONTAL AND VERTICAL DATUMS, PROJECT COORDINATES, GEOGRAPHIC REFERENCE POINTS, PROPERTY OR LOT LIMITS, AND CONSTRUCTION CONTROL INFORMATION REQUIRED FOR FINAL DESIGN AND CONSTRUCTION.
6- THE FINAL SITE GRADING AND GEOMETRIC LAYOUT PLANS PREPARED BY THE DESIGN-BUILD ENTITY SHALL BE PROPERLY GEOREFERENCED, SURVEY-BASED, DIMENSIONALLY COORDINATED, AND SUITABLE FOR FIELD LAYOUT, CONSTRUCTION STAKING, PERMITTING, QUALITY CONTROL, AND FINAL PROJECT RECORD DOCUMENTATION.
7- THE DESIGN-BUILD ENTITY SHALL VERIFY AND COORDINATE THE FINAL SITE LAYOUT WITH THE CERTIFIED EXISTING CONDITIONS SURVEY, FINAL BUILDING LOCATION, STRUCTURAL GRID, FINISHED FLOOR ELEVATIONS, SITE TOPOGRAPHY, EXISTING AND PROPOSED UTILITIES, DRAINAGE SYSTEMS, ADJACENT CAMPUS FACILITIES, ACCESS REQUIREMENTS, AND CONSTRUCTION PHASING.
8- THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR THE FINAL DESIGN AND COORDINATION OF ALL SITE GRADES, SPOT ELEVATIONS, SLOPES, HIGH POINTS, LOW POINTS, DRAINAGE PATTERNS, CURB ELEVATIONS, PAVEMENT ELEVATIONS, SIDEWALK ELEVATIONS, RAMP ELEVATIONS, BUILDING ENTRY ELEVATIONS, CANOPY AREAS, ROADWAY PROFILES, AND TRANSITIONS TO EXISTING CONDITIONS.
9- THE DESIGN-BUILD ENTITY SHALL CONFIRM THAT THE FINAL GRADING DESIGN PROVIDES POSITIVE DRAINAGE AWAY FROM BUILDING ENTRANCES, EXTERIOR WALLS, CANOPIES, PEDESTRIAN ROUTES, AMBULANCE AREAS, ROADWAYS, PARKING AREAS, PLAZAS, PLANTING AREAS, AND OTHER SITE IMPROVEMENTS, WITHOUT ADVERSELY AFFECTING EXISTING ADJACENT CAMPUS FACILITIES THAT ARE TO REMAIN.
10- THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR THE FINAL GEOMETRIC DESIGN OF ALL PROPOSED ROADWAYS, ACCESS DRIVES, SERVICE DRIVES, EMERGENCY VEHICLE ROUTES, AMBULANCE CIRCULATION, DROP-OFF AND PICK-UP LANES, CURB RADII, TURNING MOVEMENTS, DRIVEWAY WIDTHS, PAVEMENT MARKINGS, SIDEWALKS, RAMPS, CROSSWALKS, ACCESSIBLE ROUTES, LOADING AREAS, AND OTHER SITE CIRCULATION ELEMENTS.
11- THE DESIGN-BUILD ENTITY SHALL VERIFY THAT ALL FINAL ROADWAY, AMBULANCE, SERVICE, AND EMERGENCY ACCESS GEOMETRIES ARE COORDINATED WITH THE REQUIRED VEHICLE TURNING RADII, CLEARANCES, OVERHEAD CANOPY HEIGHTS, FIRE DEPARTMENT ACCESS REQUIREMENTS, EMERGENCY OPERATIONAL REQUIREMENTS, AND CAMPUS TRAFFIC CIRCULATION CONDITIONS.
12- THE DESIGN-BUILD ENTITY SHALL COORDINATE THE FINAL SITE PLAN WITH ALL APPLICABLE ACCESSIBILITY REQUIREMENTS, INCLUDING ACCESSIBLE ROUTES, SLOPES, CROSS-SLOPES, CURB RAMPS, LANDINGS, DOOR APPROACHES, DROP-OFF AREAS, PARKING AREAS, AND ACCESSIBLE CONNECTIONS BETWEEN THE PROJECT, EXISTING CAMPUS FACILITIES, AND PUBLIC OR CAMPUS PEDESTRIAN ROUTES.
13- THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR THE FINAL DESIGN AND COORDINATION OF ALL SITE DRAINAGE IMPROVEMENTS, INCLUDING INLETS, CATCH BASINS, MANHOLES, TRENCH DRAINS, PIPES, SWALES, UNDERGROUND DRAINAGE SYSTEMS, STORMWATER MANAGEMENT ELEMENTS, AND CONNECTIONS TO EXISTING OR PROPOSED CAMPUS DRAINAGE INFRASTRUCTURE.
14- THE DESIGN-BUILD ENTITY SHALL COORDINATE THE FINAL SITE GRADING AND GEOMETRIC LAYOUT WITH ALL SITE UTILITIES, INCLUDING BUT NOT LIMITED TO STORM DRAINAGE, SANITARY, POTABLE WATER, FIRE PROTECTION, ELECTRICAL, TELECOMMUNICATIONS, DATA, SECURITY, SITE LIGHTING, EMERGENCY POWER, MEDICAL GAS, AND OTHER REQUIRED INFRASTRUCTURE.
15- THE DESIGN-BUILD ENTITY SHALL COORDINATE THE FINAL LAYOUT OF PLANTING AREAS, LANDSCAPE ZONES, HARDSCAPE AREAS, SITE FURNISHINGS, CURBS, WALKWAYS, RAMPS, WALLS, GUARDRAILS, BOLLARDS, SIGNAGE, LIGHTING, AND OTHER EXTERIOR IMPROVEMENTS WITH THE FINAL CIVIL, ARCHITECTURAL, LANDSCAPE, STRUCTURAL, MEP, FIRE PROTECTION, AND SECURITY DESIGN.
16- THE DESIGN-BUILD ENTITY SHALL VERIFY ALL FINAL DIMENSIONS, ELEVATIONS, ALIGNMENTS, RADII, COORDINATES, OFFSETS, SETBACKS, CLEARANCES, AND CONTROL POINTS NECESSARY TO CONSTRUCT THE WORK ACCURATELY AND WITHOUT CONFLICT WITH EXISTING CONDITIONS, ADJACENT FACILITIES, UTILITIES, OR OTHER PROJECT COMPONENTS.
17- THE DESIGN-BUILD ENTITY SHALL NOT RELY EXCLUSIVELY ON THE PRELIMINARY GRADING, DIMENSIONS, ELEVATIONS, ROADWAY CONFIGURATIONS, OR SITE FEATURES SHOWN ON THIS DRAWING FOR FINAL DESIGN, PERMITTING, COST ESTIMATING, PROCUREMENT, CONSTRUCTION STAKING, OR FIELD CONSTRUCTION.
18- ANY DISCREPANCIES BETWEEN THIS PRELIMINARY SITE PLAN, THE CERTIFIED SURVEY, EXISTING FIELD CONDITIONS, UTILITY INFORMATION, CAMPUS OPERATIONAL REQUIREMENTS, REGULATORY REQUIREMENTS, OR FINAL DESIGN REQUIREMENTS SHALL BE IDENTIFIED, COORDINATED, AND RESOLVED BY THE DESIGN-BUILD ENTITY PRIOR TO CONSTRUCTION.
19- THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR OBTAINING ALL FINAL CIVIL ENGINEERING DESIGN SERVICES, SURVEYING SERVICES, GEOTECHNICAL COORDINATION, UTILITY COORDINATION, PERMITTING COORDINATION, SITE LOGISTICS COORDINATION, AND CONSTRUCTION STAKING SERVICES REQUIRED TO COMPLETE THE SITE WORK.
20- PRIOR TO CONSTRUCTION, THE DESIGN-BUILD ENTITY SHALL PREPARE AND SUBMIT FINAL SITE GRADING PLANS, GEOMETRIC LAYOUT PLANS, DRAINAGE PLANS, UTILITY PLANS, PAVEMENT PLANS, ACCESSIBILITY PLANS, SITE DETAILS, CONSTRUCTION CONTROL INFORMATION, AND OTHER RELATED DOCUMENTS REQUIRED BY THE RFP, CONTRACT DOCUMENTS, PERMITTING AUTHORITIES, AND AUTHORITIES HAVING JURISDICTION.
21- THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR COORDINATING THE FINAL SITE DESIGN WITH ASEM, CAMPUS FACILITIES PERSONNEL, UTILITY PROVIDERS, REGULATORY AGENCIES, EMERGENCY RESPONSE REQUIREMENTS, AND OTHER AUTHORITIES HAVING JURISDICTION.
22- THE DESIGN-BUILD ENTITY SHALL PROTECT EXISTING CAMPUS OPERATIONS, ADJACENT FACILITIES, PEDESTRIAN ACCESS, VEHICULAR ACCESS, AMBULANCE ACCESS, EMERGENCY ACCESS, UTILITIES, AND LIFE-SAFETY FUNCTIONS DURING ALL PHASES OF FINAL DESIGN AND CONSTRUCTION.
23- EXISTING OR PROPOSED CONDITIONS NOT SHOWN, INCOMPLETELY SHOWN, OR SHOWN DIFFERENTLY ON THIS PRELIMINARY DRAWING SHALL NOT RELIEVE THE DESIGN-BUILD ENTITY FROM ITS RESPONSIBILITY TO PREPARE A COMPLETE, COORDINATED, SURVEY-BASED, GEOREFERENCED, PERMIT-READY, AND BUILDABLE FINAL SITE DESIGN.
24- THE INCLUSION OF THIS PRELIMINARY PROPOSED SITE GRADING AND GEOMETRIC LAYOUT PLAN IN THE RFP BRIDGING DOCUMENTS DOES NOT TRANSFER TO THE OWNER OR BRIDGING ARCHITECT THE DESIGN-BUILD ENTITY'S RESPONSIBILITY FOR FINAL CIVIL DESIGN, FINAL SITE ENGINEERING, SURVEY CONTROL, GEOMETRIC LAYOUT, GRADING, DRAINAGE, UTILITY COORDINATION, ACCESSIBILITY COMPLIANCE, CONSTRUCTION STAKING, OR PROPER CONSTRUCTION OF THE SITE WORK.
25- THE DESIGN-BUILD ENTITY SHALL ASSUME FULL RESPONSIBILITY FOR TRANSFORMING THE PRELIMINARY SITE PLANNING INTENT SHOWN ON THIS DRAWING INTO A FINAL, COORDINATED, CODE-COMPLIANT, SURVEY-BASED, GEOREFERENCED, CONSTRUCTIBLE, AND FULLY DOCUMENTED SITE DESIGN FOR THE PUERTO RICO TRAUMA HOSPITAL PROJECT.

LEGEND:

- FOOTPRINT OF PROPOSED BUILDING
- NEW RETAINING WALL
- NEW 7'-0" HIGH REINFORCED CONCRETE AND BLOCK FENCE

00.00 PROPOSED GRADING POINT ELEVATION LEVELS
00.00 EXISTING GRADING LEVELS
T.E. TOP ELEVATION

C.B. (#) NEW SUGGESTED CATCH BASINS TO BE USED TO BE CONNECTED TO EXISTING STORM SEWER SYSTEM AS REQUIRED. CATCH BASIN DEPTH TO INVERT ELEVATION SHALL BE ADAPTED FOR PROPER DRAIN SLOPE INTO EXISTING SYSTEM.

1. NEW CATCH BASINS TO BE CONNECTED AS REQUIRED TO EXISTING STORM SEWER DRAIN SYSTEM.
2. LIMIT OF EXISTING GRADING ELEVATIONS TO REMAIN.
3. LIMIT OF EXISTING PAVEMENT ELEVATIONS TO REMAIN.
4. NEW PAVED PARKING AREA TO BE BUILT FOLLOWING THE EXISTING GRADING LEVELS.
5. EXISTING ROADWAY AND WALWAY AREAS INSIDE THE PROJECT SCOPE LIMITS TO REMAIN AND SERVE THE PROPOSED PROJECT USE LAYOUT. THE AREA SHALL BE PROTECTED AND PRESERVED DURING THE CONSTRUCTION PROCESS, AND SHALL BE REPAIRED AND AND REFINISHED AS REQUIRED TO SERVE THE COMPLETED PROJECT IN ITS OPERATIONAL USE.
6. NEW RETAINING WALL.
7. TOP OF CONCRETE FENCE WALL ELEVATION OVER RETAINING WALL SHALL BE AT LEAST 27.64 M.
8. EXISTING STORM SEWER CATCH BASINS OUTSIDE FOOTPRINT SHALL REMAIN. THEY SHALL BE USED AS POINT OF CONNECTION FOR THE PROJECT STORM SEWER DRAIN PIPING AS REQUIRED.
9. NEW PLANTED AREA TO BE GRADED AT A LEVEL OF 0.10 MTS. BELOW THE SURROUNDING EDGES LEVEL OF WALKWAYS & CURBS.
10. NEW REINFORCED CONCRETE AND BLOCK FENCE IT SHALL BE AN EXTENSION OF THE PORTION OF THE EXISTING CONCRETE FENCE.
11. PORTION OF THE EXISTING REINFORCED CONCRETE AND BLOCK FENCE TO REMAIN.
12. METAL SWING PEDESTRIAN GATE.
13. NEW CATCH BASINS CONNECTED AS REQUIRED TO EXISTING STORM SEWER DRAIN SYSTEM. IT SHALL BE INSTALLED & SUPPLIED WITH AN INTEGRATED STORM SEWER LIFT STATION ASSEMBLY AS REQUIRED.

NOTES:

1. PRIOR TO THE COMMENCEMENT OF THE CONSTRUCTION WORK, THE CONTRACTOR SHALL SURVEY AND MARK IN THE FIELD THE PROPERTY BOUNDARIES AND THE BUILDING LAYOUT FOOTPRINT PERIMETER AND COLUMNS AXES USING A LICENSED SURVEYOR
2. PRIOR TO THE COMMENCEMENT OF THE CONSTRUCTION WORK, THE CONTRACTOR SHALL MARK IN THE FIELD THE LAYOUT OF ALL OF THE BUILDING FOOTPRINTS, ROADWAYS, WALKWAYS AND FENCES USING A LICENSED SURVEYOR.
3. ANY DISCREPANCIES ARISING BETWEEN THE PROPOSED LAYOUT OF THE BUILDING FOOTPRINT, ROADWAYS, WALKWAYS AND ACCESSORY STRUCTURES SHALL BE INFORMED TO THE OWNER FOR THE PROPER LAYOUT REVISION AND ADJUSTMENT WHEN REQUIRED.
4. PRIOR TO THE COMMENCEMENT OF THE CONSTRUCTION WORK, THE CONTRACTOR SHALL SURVEY AND CONFIRM IN THE FIELD THE EXISTING STORM SEWER SYSTEM LAYOUT, DISTRIBUTION AND INFORMATION RELATED:
   - A - CATCH BASINS TOP ELEVATION
   - B - CATCH BASINS INVERT ELEVATION
   - C - CATCH BASINS DIMENSIONS
   - D - POINT OF CONNECTIONS TO EXISTING ADJACENT CENTRO MEDICO STORM SEWER SYSTEM.

   THE INFORMATION SHALL BE USE AS REFERENCE TO CONNECT THE NEW LAYOUT OF PROPOSED CATCH BASINS, SHOWN HEREIN THE DRAWINGS, TO EXISTING SYSTEM USING STORM SEWER LIFT PUMPING ASSEMBLIES AS REQUIRED.

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION OBJECTIVES. DESIGN INTENT, PERFORMANCE CRITERIA, AND TECHNICAL ASSUMPTIONS ARE SUBJECT TO REFINEMENT, MODIFICATION, AND COORDINATION BY THE DESIGN-BUILD ENTITY. THESE DOCUMENTS ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION PURPOSES. THE DESIGN-BUILD ENTITY SHALL PREPARE ALL FINAL CONSTRUCTION DOCUMENTS REQUIRED FOR THE GUIDANCE OF THE WORK AND SHALL ENTITY THE SELECTED DESIGN-BUILD ENTITY THE SOLE RESPONSIBILITY FOR THE DESIGN, ADEQUACY, AND COMPLETENESS OF ALL SUCH DOCUMENTS. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, AND ACCURACY OF ALL FINAL CONSTRUCTION DOCUMENTS, SHOP DRAWINGS, AND FIELD DOCUMENTATION. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR ANY CONSTRUCTION, INSTALLATION, OR FABRICATION PERFORMED BASED ON THESE DOCUMENTS, AND SHALL NOTIFY THE OWNER AND ARCHITECT OF ANY DISCREPANCIES, ERRORS, OR OMISSIONS BEFORE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

NO.	DATE	DESCRIPTIONS

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PROJECT: PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE: SITE GRADING & LAYOUT PLAN

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. LOMBRE 1560 AVE.PONCE DE LEON, STE 100 SAN JUAN PR 00926

DRAWING NUMBER

C-1.0

GENERAL PROJECT SCOPE SUPLEMENTARY NOTES & INSTRUCTIONS

(APPLICABLE WHERE REQUIRED TO THE FULL SCOPE OF THE WORK SHOWN IN THE DRAWINGS AND THEIR NOTES)

1. THE CONTRACTOR SHALL RETAIN THE SERVICES A PUERTO RICO LICENSED AND CERTIFIED PROFESSIONAL SURVEYOR TO CONFIRM, IN THE PROJECT SITE, THE GEOMETRY OF THE PROJECT DESIGN INTENT LAYOUT, INCLUDING BUT NOT LIMITED TO, PROPOSED STRUCTURES, EXPANSIONS, ENTRANCES, VEHICULAR ACCESSES, SIDEWALKS AND WALKWAYS. THE PROPOSED DESIGN LAYOUT SHALL BE FIELD ADJUSTED AND/OR ADAPTED AS REQUIRED TO IRREGULARITIES RELATED TO THE SITE SPECIFIC CONDITIONS FOLLOWING THE DESIGN INTENT OF THE DRAWINGS. A REVISED SITE PLAN SHALL BE SUBMITTED TO THE ARCHITECT FOR ACCEPTANCE PRIOR TO STARTING THE WORK.
2. UNLESS OTHERWISE NOTED IN THE DRAWINGS, THE CONSTRUCTION OF ALL NEW PEDESTRIAN SIDEWALKS PARALELL TO ROADWAY SHALL BE EXECUTED FOLLOWING THE SAME LAYOUT, GEOMETRY, AND FORM OF THE LINE OF THE EXISTING ROADWAY WIDTH EDGE CURBS ALIGNMENT.
3. UNLESS OTHERWISE NOTED IN THE DRAWINGS, THE FINISHED LEVEL ELEVATION OF ALL NEW SIDEWALKS SHALL BE CONSTRUCTED 6" INCHES (15.25 C.M) ABOVE THE PROPOSED GRADING FINISHED LEVEL OF THE ADJACENT PUBLIC ROADWAY SURFACE EDGE.
4. UNLESS OTHERWISE NOTED IN THE DRAWINGS, THE ALIGNMENT, LAYOUT, AND WIDTH OF ALL THE COMPONENTS OF THE NEW SIDEWALKS SHALL BE BUILT EXTENDING PARALLEL FROM THE LINE OF THE NEW PUBLIC ROADWAY EDGE ALIGNMENT.
5. THE CONSTRUCTION OF SIDEWALKS SHALL BE EXECUTED AS PER THE DESIGN SCOPE INTENT SHOW IN THE DRAWINGS (SEE SHEETS AS-1.2 TO A-1.6). THE CONSTRUCTION WORK SHALL BE GUIDED BY FOLLOWING, MAINTAINING, AND ADHERING TO THE ALIGNMENTS, CURVATURES, TRANSITIONS, SLOPES, CROSS SLOPES, GRADES, RADIUS, DIAMETERS, AND INTERSECTION OF THE GEOMETRIC LAYOUT CONDITIONS OF THE NEW PUBLIC ROADWAYS.
6. ALL THE WORK AT THE ENDS AND/OR EDGES OF THE PROJECT WORK SCOPE LIMIT SHALL BE CONSTRUCTED AND COORDINATED TO ABUTT FLUSH AND LEVELED WITH THE ADJACENT EXISTING WALKWAYS AND ROADWAYS PAVEMENT FINISHED GRADING LEVEL AND EDGES. A ½" EXPANSION JOINT WITH AN EXTERIOR GRADE ELASTIC JOINT FILLER MATERIAL SHALL BE SUPPLIED AND INSTALLED BETWEEN ALL NEW AND EXISTING PAVEMENT CONSTRUCTION, WALLS, AND ADJACENT STRUCTURES.
7. NEW CARPET PLANTING SHALL BE PROVIDED ON ALL GROUNDS SURFACES INSIDE THE PROJECT LIMIT. PROVIDE TOPSOIL AND SHALL BE PLANTED WITH GRAMA ZOYZIA MANILA (ZOYSIA MATRELLA 'MANILA') IN FULL AREA CARPET PLANTING. PLANTING SHALL INCLUDE A BED CONSISTING OF A 6" DEEP TOPSOIL LAYER, 2" DEEP MULCH LAYER AND THE REQUIRED FERTILIZER MIX FOR THE PLANT TYPE. IN ADDITION, IT SHALL APPLY TO ALL NON-BUILT AND/OR NON-PAVED LOT SURFACE AREAS.
8. THE GEOMETRY AND COMPONENTS OF THE LAYOUTS AND DETAILS INCLUDED IN DRAWINGS MAY HAVE TO BE PARTIALLY FIELD ADJUSTED AND/OR ADAPTED TO MINOR IRREGULARITIES RELATED TO THE SITE-SPECIFIC CONDITIONS AT EACH LOCATION. SAID ADJUSTMENTS OR ADAPTATION SHALL BE ALLOWED IN THE CONTRACTOR PROPOSAL AND SHALL BE COORDINATED IN THE FIELD DURING THE CONSTRUCTION OF THE PROJECT.
9. ALL EXISTING UTILITY POLES, SERVICE POLES, SURVEILANCE POSTS, INFORMATION SIGNPOSTS, TRAFFIC SIGNPOSTS AND OTHER ELEMENTS SHALL BE PROTECTED AND KEPT OPERABLE DURING THE CONSTRUCTION OF THE PROJECT. THEY SHALL BE MAINTAINED OR ADAPTED WHEN REQUIRED TO REMAIN ADJACENT TO THE NEW CURB AND GUTTER. WHEN REQUIRED THEY SHALL BE REPAIRED, STRIPPED, AND PAINTED TO REMAIN OPERABLE AFTER THE CONSTRUCTION OF THE PROJECT IS COMPLETED.
10. ALL CABLING, HARDWARE AND SOFTWARE RELATED TO THE VOICE COMMUNICATION SYSTEM, INFORMATION TECHNOLOGY SYSTEM, CLOSED CIRCUIT TV SYSTEM AND ELECTRONIC ACCESS CONTROL SYSTEM WILL BE SUPPLIED AND INSTALLED BY EACH OF THE SYSTEMS OWNER'S SUBCONTRACTORS.
11. UNLESS OTHERWISE NOTED IN THE DRAWINGS, THE CONSTRUCTION OF ALL NEW PEDESTRIAN WALKWAYS INSIDE THE PROJECT SCOPE WORK LIMIT SHALL BE EXECUTED FOLLOWING THE SAME LAYOUT, GEOMETRY, AND FORM OF THE LINE OF THE EXISTING ROADWAY WIDTH EDGE CURBS ALIGNMENT.
12. UNLESS OTHERWISE NOTED IN THE DRAWINGS, THE FINISHED LEVEL ELEVATION OF ALL NEW PEDESTRIAN WALKWAYS AND SIDEWALKS SHALL BE CONSTRUCTED 6" INCHES (15.25 C.M) ABOVE THE EXISTING GRADING FINISHED LEVEL OF THE ADJACENT ROADWAY SURFACE EDGE ALONG THE PROJECT SCOPE WORK LIMIT AREAS.
13. UNLESS OTHERWISE NOTED IN THE DRAWINGS, THE ALIGNMENT, LAYOUT, AND WIDTH OF ALL THE COMPONENTS OF THE NEW WALKWAYS SHALL BE BUILT EXTENDING PARALLEL FROM THE LINE OF THE EXISTING ROADWAY EDGE ALIGNMENT.
14. A SECURITY FENCE SHALL BE PROVIDED DURING CONSTRUCTION, ALONG ALL THE SEGMENTS OF THE PERIMETER EDGES OF THE PROJECT LIMIT AREAS BEING CONSTRUCTED. THE SECURITY FENCE A 6'-0" HIGH CHAIN LINK FENCE WITH AN OPAQUE SILT FABRIC COVER.
15. ALL THE WORK AT THE ENDS AND/OR EDGES OF THE PROJECT WORK SCOPE LIMIT SHALL BE CONSTRUCTED AND COORDINATED TO ABUTT FLUSH AND LEVELED WITH THE ADJACENT EXISTING PAVEMENT FINISHED GRADING LEVEL AND EDGES. A ½" EXPANSION JOINT WITH AN EXTERIOR GRADE ELASTIC JOINT FILLER MATERIAL SHALL BE SUPPLIED AND INSTALLED BETWEEN ALL NEW AND EXISTING PAVEMENT CONSTRUCTION, WALLS, AND ADJACENT STRUCTURES.
16. ALL EXISTING UTILITIES INSIDE THE PROJECT WORK SCOPE LIMIT INCLUDING, BUT NOT LIMITED TO, JUNCTION BOXES, OUTLET COVERS, ACCESS LIDS, CATCH BASINS, DRAIN GRILLES WATER METERS, GAS METERS, FLOW REGISTERS, ETC. SHALL BE PROTECTED DURING THE CONSTRUCTION PROCESS AND REPAIRED, ADAPTED AND REINSTALLED, IN THE SAME LOCATION, WITH ALL REQUIRED COMPONENTS AND/OR PARTS TO REMAIN OPERABLE AND LEVELED FLUSH WITH THE NEW PAVEMENT FINISHES AND LEVELS.
17. ALL EXISTING FIRE HYDRANTS INSIDE THE PROJECT SCOPE WORK LIMIT SHALL BE PROTECTED AND KEPT OPERABLE DURING THE CONSTRUCTION OF THE PROJECT. THE FIRE HYDRANTS LOCATION SHALL BE MAINTAINED OR ADAPTED IF REQUIRED TO REMAIN INSIDE THE NEW OUTER PLANTING STRIP ADJACENT TO THE NEW CURB AND GUTTER. THE FIRE HYDRANTS SHALL BE REPAIRED, STRIPPED, AND PAINTED TO REMAIN OPERABLE AFTER THE CONSTRUCTION OF THE PROJECT IS COMPLETED.
18. THE GEOMETRY AND COMPONENTS OF THE LAYOUTS AND DETAILS INCLUDED IN DRAWINGS A-1.1 TO A-1.15A (17 TOTAL DRAWINGS) MAY HAVE TO BE PARTIALLY FIELD ADJUSTED AND/OR ADAPTED TO MINOR IRREGULARITIES RELATED TO THE SITE-SPECIFICCONDITIONS OF EACH LOCATION. SAID ADJUSTMENTS OR ADAPTATION SHALL BE ALLOWED IN THE CONTRACTOR PROPOSAL AND SHALL BE COORDINATED IN THE FIELD DURING THE CONSTRUCTION OF THE PROJECT.
19. EDGE OF EXISTING PAVED AREA TO REMAIN AND TO BE SAW CUT FOR THE FLUSH ABUTTING JOINT WITH NEW PAVEMENT.
20. NEW PAVEMENT ELEVATIONS ON THE EDGE OF EXISTING PAVEMENT TO REMAIN SHALL BE LEVELLED FLUSH TO CREATE A SMOOTH CONTINUATION OF THE ROAD SURFACE.

GENERAL NOTES – SITE CIVIL CONSTRUCTION WORK

(AS REQUIRED AND WHEN BY SCOPE OF WORK SHOWN IN THE CONTRACT PLANS)

1. ALL WORK SHALL INCLUDE COMPLETE SITE CIVIL CONSTRUCTION FOR AREAS OUTSIDE THE APPROX. 3,800 SM BUILDING FOOTPRINT WITHIN THE TOTAL 5,200 SM SITE.
2. WORK INCLUDES CONSTRUCTION OF CONCRETE SIDEWALKS, ACCESS ROADWAYS, CURBS, GUTTERS, DRAINAGE, AND LANDSCAPED PLANTING AREAS.
3. CONTRACTOR SHALL VERIFY SITE CONDITIONS AND COORDINATE WITH PREVIOUSLY COMPLETED EXCAVATION AND FOUNDATION WORK.
4. COMPLY WITH ALL APPLICABLE CODES INCLUDING OSHA, AASHTO (WHERE APPLICABLE), LOCAL MUNICIPAL REQUIREMENTS, AND AUTHORITIES HAVING JURISDICTION.
5. ALL WORK SHALL FOLLOW CSI DIVISIONS 31 (EARTHWORK), 32 (EXTERIOR IMPROVEMENTS), AND RELATED SECTIONS.
6. COORDINATE WORK WITH EXISTING HOSPITAL OPERATIONS. MAINTAIN SAFE ACCESS FOR EMERGENCY, SERVICE, AND PEDESTRIAN CIRCULATION AT ALL TIMES.
7. PREPARE SUBGRADE FOR ALL PAVEMENTS AND WALKWAYS. PROOF-ROLL AND COMPACT TO MINIMUM 95% MODIFIED PROCTOR.
8. REMOVE UNSUITABLE MATERIALS AND REPLACE WITH ENGINEERED FILL AS REQUIRED.
9. CONSTRUCT CONCRETE SIDEWALKS WITH MINIMUM 4" THICKNESS (UNLESS OTHERWISE SPECIFIED), WITH CONTROL JOINTS AT 5'-0" MAX SPACING. PROVIDE ADA-COMPLIANT SLOPES, CROSS-SLOPES, AND ACCESSIBLE ROUTES. PROVIDE TACTILE WARNING SURFACES AT CURB RAMPS.
10. CONSTRUCT CONCRETE ACCESS ROADWAYS DESIGNED FOR HOSPITAL SERVICE AND EMERGENCY VEHICLE LOADS.
11. PROVIDE THICKNESS AND REINFORCEMENT PER STRUCTURAL/CIVIL DESIGN.
12. ENSURE PROPER DRAINAGE SLOPES TO PREVENT WATER PONDING.
13. INSTALL CONCRETE CURBS AND GUTTERS ALONG ROADWAYS.
14. PROVIDE EXPANSION AND CONTROL JOINTS AS REQUIRED.
15. ENSURE CONTINUOUS DRAINAGE FLOW TO STORMWATER SYSTEM.
16. INSTALL STORM DRAINAGE SYSTEMS INCLUDING CATCH BASINS, AREA DRAINS, AND PIPING.
17. CONNECT TO EXISTING OR NEW STORM SYSTEM AS INDICATED.
18. PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING.
19. PROVIDE PLANTING AREAS PARALLEL TO SIDEWALKS.
20. INSTALL TOPSOIL, PLANTING SOIL MIX, AND REQUIRED FERTILIZATION.
21. SELECT PLANT MATERIAL SUITABLE FOR URBAN HEALTHCARE ENVIRONMENT AND LOW MAINTENANCE.
22. PROVIDE IRRIGATION SYSTEMS WHERE REQUIRED.
23. IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES DURING SITE WORK.
24. PREVENT SEDIMENT DISCHARGE INTO STORM SYSTEMS.
25. CONTROL DUST, NOISE, AND CONSTRUCTION TRAFFIC TO MINIMIZE IMPACT ON HOSPITAL OPERATIONS.
26. COORDINATE ALL SITE ELEMENTS WITH UTILITIES INCLUDING LIGHTING, ELECTRICAL, WATER, AND COMMUNICATION SYSTEMS.
27. ALL WORK SHALL BE SUBJECT TO INSPECTION. PROVIDE TESTING REPORTS FOR CONCRETE, COMPACTION, AND MATERIALS.
28. REMOVE ALL DEBRIS AND TEMPORARY FACILITIES. LEAVE SITE CLEAN AND READY FOR FINAL USE.
29. ALL WORK SHALL COMPLY WITH APPLICABLE CODES AND STANDARDS INCLUDING:
    - A. PUERTO RICO BUILDING CODE (PRBC) AND ADOPTED IBC
    - B. ACI 301 (SPECIFICATIONS FOR STRUCTURAL CONCRETE)
    - C. ACI 318 (BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE)
    - D. ACI 330 (CONCRETE PARKING LOTS AND PAVEMENTS)
    - E. ASTM STANDARDS FOR MATERIALS AND TESTING
    - F. AASHTO GUIDELINES FOR ROADWAY DESIGN (WHERE APPLICABLE)
    - G. ADA (AMERICANS WITH DISABILITIES ACT) ACCESSIBILITY GUIDELINES
    - H. LOCAL MUNICIPAL AND UTILITY REQUIREMENTS

GENERAL NOTES / PROPOSED ARCHITECTURAL SITE PLAN:

1- THIS PROPOSED ARCHITECTURAL SITE PLAN HAS BEEN PREPARED AS A PRELIMINARY, CONCEPTUAL, AND SUGGESTED ARCHITECTURAL SITE PLANNING DOCUMENT FOR USE AS PART OF THE DESIGN-BUILD REQUEST FOR PROPOSAL ("RFP") BRIDGING DOCUMENTS ONLY.
2- THIS DRAWING IS INTENDED TO COMMUNICATE THE OWNER'S AND BRIDGING ARCHITECT'S GENERAL ARCHITECTURAL SITE DESIGN INTENT, INCLUDING PRELIMINARY EXTERIOR PAVEMENT AREAS, WALKWAYS, PLAZAS, PEDESTRIAN CONNECTIONS, ACCESS POINTS, CANOPIES, ARCHITECTURAL SITE ELEMENTS, HARDSCAPE AREAS, PLANTING AREA INTERFACES, EXTERIOR FINISH ZONES, AND OTHER ARCHITECTURAL FEATURES RELATED TO THE ADVANCED ARCHITECTURAL DESIGN DEVELOPMENT DOCUMENTS.
3- THIS DRAWING SHALL NOT BE CONSTRUED AS A FINAL ARCHITECTURAL SITE PLAN, FINAL HARDSCAPE PLAN, FINAL LANDSCAPE PLAN, FINAL CIVIL PLAN, FINAL GRADING PLAN, FINAL CONSTRUCTION STAKING PLAN, PERMIT-READY DOCUMENT, OR CONSTRUCTION DOCUMENT.
4- THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR DEVELOPING THE FINAL, COORDINATED, COMPREHENSIVE, CODE-COMPLIANT, PERMIT-READY, AND BUILDABLE ARCHITECTURAL SITE PLANS REQUIRED FOR THE COMPLETE DESIGN AND CONSTRUCTION OF THE PROJECT.
5- THE DESIGN-BUILD ENTITY SHALL COORDINATE THE FINAL ARCHITECTURAL SITE PLAN WITH THE CERTIFIED EXISTING CONDITIONS SURVEY, FINAL EXISTING CONDITIONS SITE PLAN, FINAL GRADING AND GEOMETRIC LAYOUT PLANS, FINAL CIVIL ENGINEERING DOCUMENTS, FINAL BUILDING DESIGN, FINAL LANDSCAPE DESIGN, FINAL STRUCTURAL DESIGN, FINAL MEP/FP DESIGN, FINAL SITE UTILITY DESIGN, AND ALL OTHER PROJECT DISCIPLINES.
6- THE DESIGN-BUILD ENTITY SHALL NOT RELY EXCLUSIVELY ON THE PRELIMINARY ARCHITECTURAL SITE FEATURES, DIMENSIONS, MATERIAL INDICATIONS, PAVEMENT CONFIGURATIONS, WALKWAY LOCATIONS, SITE ELEMENTS, OR EXTERIOR FINISH AREAS SHOWN ON THIS DRAWING FOR FINAL DESIGN, PERMITTING, PROCUREMENT, COST ESTIMATING, CONSTRUCTION STAKING, OR FIELD CONSTRUCTION.
7- ALL ARCHITECTURAL SITE PLAN ELEMENTS SHOWN ON THIS DRAWING SHALL BE FIELD VERIFIED, SURVEY-BASED, DIMENSIONALLY COORDINATED, AND ADJUSTED AS REQUIRED BY THE DESIGN-BUILD ENTITY TO CONFORM TO FINAL EXISTING CONDITIONS, FINAL GRADES, FINAL DRAINAGE REQUIREMENTS, FINAL UTILITY ROUTING, FINAL ACCESSIBILITY REQUIREMENTS, AND FINAL CONSTRUCTION DOCUMENTS.
8- THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR THE FINAL DESIGN AND COORDINATION OF ALL EXTERIOR ARCHITECTURAL SITE FEATURES, INCLUDING BUT NOT LIMITED TO PAVEMENT FINISHES, WALKWAY SURFACES, PLAZAS, EXTERIOR FLOOR PATTERNS, CURBS, RAMPS, STEPS, LANDINGS, GUARDRAILS, HANDRAILS, BOLLARDS, SITE WALLS, PLANTERS, CANOPIES, BENCHES, SITE FURNISHINGS, SIGNAGE, EXTERIOR LIGHTING INTERFACES, ARCHITECTURAL SCREENING, AND OTHER SITE IMPROVEMENTS.
9- THE DESIGN-BUILD ENTITY SHALL COORDINATE ALL FINAL PAVEMENT, WALKWAY, PLAZA, AND HARDSCAPE MATERIALS WITH THE FINAL GRADING PLAN, DRAINAGE PLAN, STRUCTURAL REQUIREMENTS, SUBGRADE CONDITIONS, VEHICULAR LOADS, PEDESTRIAN LOADS, ACCESSIBILITY REQUIREMENTS, SLIP RESISTANCE REQUIREMENTS, MAINTENANCE REQUIREMENTS, AND LONG-TERM DURABILITY REQUIREMENTS.
10- THE DESIGN-BUILD ENTITY SHALL VERIFY THAT ALL FINAL ARCHITECTURAL SITE SURFACES PROVIDE PROPER SLOPES, CROSS-SLOPES, LANDINGS, TRANSITIONS, ELEVATIONS, DRAINAGE, SURFACE TEXTURE, AND ACCESSIBLE ROUTES IN COMPLIANCE WITH APPLICABLE CODES, STANDARDS, AND AUTHORITIES HAVING JURISDICTION.
11- THE DESIGN-BUILD ENTITY SHALL COORDINATE THE FINAL ARCHITECTURAL SITE PLAN WITH ALL PROPOSED AND EXISTING VEHICULAR AND PEDESTRIAN CIRCULATION ELEMENTS, INCLUDING ROADWAYS, SERVICE DRIVES, AMBULANCE ACCESS ROUTES, EMERGENCY ACCESS ROUTES, DROP-OFF AND PICK-UP AREAS, PATIENT DROP-OFF CANOPIES, PUBLIC ENTRANCES, STAFF ENTRANCES, SERVICE ENTRANCES, SIDEWALKS, CROSSWALKS, RAMPS, AND CAMPUS CONNECTIONS.
12- THE DESIGN-BUILD ENTITY SHALL ENSURE THAT ALL FINAL ARCHITECTURAL SITE ELEMENTS ARE COORDINATED WITH THE FINAL LOCATION OF BUILDING ENTRANCES, FINISHED FLOOR ELEVATIONS, CANOPIES, VESTIBULES, EXTERIOR WALLS, STOREFRONTS, DOORS, LOADING AREAS, EMERGENCY DEPARTMENT ACCESS POINTS, AMBULANCE AREAS, AND OTHER OPERATIONAL COMPONENTS OF THE HOSPITAL.
13- THE DESIGN-BUILD ENTITY SHALL COORDINATE FINAL HARDSCAPE AND ARCHITECTURAL SITE FEATURES WITH ALL SITE UTILITIES, INCLUDING BUT NOT LIMITED TO STORM DRAINAGE, SANITARY, POTABLE WATER, FIRE PROTECTION, ELECTRICAL, TELECOMMUNICATIONS, DATA, SECURITY, SITE LIGHTING, EMERGENCY POWER, MEDICAL GAS, IRRIGATION, AND OTHER REQUIRED INFRASTRUCTURE.
14- THE DESIGN-BUILD ENTITY SHALL VERIFY THAT FINAL SITE ARCHITECTURAL FEATURES DO NOT CONFLICT WITH EXISTING OR PROPOSED MANHOLES, CATCH BASINS, CLEANOUTS, VALVE BOXES, HANDHOLES, PULL BOXES, DUCT BANKS, UTILITY STRUCTURES, EQUIPMENT PADS, SWITCHGEAR, TRANSFORMERS, DRAINAGE STRUCTURES, OR OTHER SITE UTILITY COMPONENTS.
15- THE DESIGN-BUILD ENTITY SHALL COORDINATE THE FINAL ARCHITECTURAL SITE PLAN WITH THE FINAL LANDSCAPE DESIGN, INCLUDING PLANTING AREAS, TREE LOCATIONS, ROOT ZONES, PLANTERS, IRRIGATION REQUIREMENTS, SOIL DEPTHS, DRAINAGE REQUIREMENTS, LANDSCAPE EDGING, SITE FURNISHINGS, SHADE ELEMENTS, AND MAINTENANCE ACCESS.
16- THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR DEVELOPING FINAL CONSTRUCTION DETAILS FOR ALL ARCHITECTURAL SITE ELEMENTS, INCLUDING PAVEMENT SECTIONS, JOINTING, EDGE CONDITIONS, CURB INTERFACES, WALL INTERFACES, RAMP DETAILS, STAIR DETAILS, CANOPY INTERFACES, PLANTER DETAILS, DRAINAGE INTERFACES, EXPANSION JOINTS, CONTROL JOINTS, MATERIAL TRANSITIONS, AND CONNECTIONS TO EXISTING CONDITIONS.
17- THE DESIGN-BUILD ENTITY SHALL COORDINATE FINAL MATERIAL SELECTIONS, FINISHES, COLORS, TEXTURES, PATTERNS, MODULES, JOINT LAYOUTS, AND EXTERIOR ARCHITECTURAL CHARACTER WITH THE ADVANCED ARCHITECTURAL DESIGN DEVELOPMENT INTENT, FINAL BUILDING DESIGN, OWNER REQUIREMENTS, MAINTENANCE CRITERIA, INFECTION CONTROL CONSIDERATIONS, DURABILITY REQUIREMENTS, AND THE FUNCTIONAL NEEDS OF A HOSPITAL CAMPUS ENVIRONMENT.
18- THE DESIGN-BUILD ENTITY SHALL VERIFY THAT ALL FINAL EXTERIOR SURFACE MATERIALS AND ARCHITECTURAL SITE COMPONENTS ARE SUITABLE FOR THE PROJECT'S INTENDED USE, CLIMATE EXPOSURE, HEAVY PEDESTRIAN TRAFFIC, AMBULANCE AND SERVICE OPERATIONS, HOSPITAL MAINTENANCE REQUIREMENTS, EMERGENCY OPERATIONS, AND APPLICABLE CODE REQUIREMENTS.
19- THE DESIGN-BUILD ENTITY SHALL COORDINATE THE FINAL ARCHITECTURAL SITE PLAN WITH ALL REQUIRED LIFE-SAFETY, FIRE ACCESS, EMERGENCY RESPONSE, WAYFINDING, SECURITY, ACCESS CONTROL, SITE LIGHTING, SIGNAGE, AND OPERATIONAL REQUIREMENTS OF THE PUERTO RICO TRAUMA HOSPITAL AND THE EXISTING CENTRO MÉDICO CAMPUS.
20- THE DESIGN-BUILD ENTITY SHALL VERIFY ALL FINAL DIMENSIONS, ELEVATIONS, ALIGNMENTS, RADII, CONTROL POINTS, OFFSETS, COORDINATES, JOINT LAYOUTS, MATERIAL LIMITS, EDGE CONDITIONS, AND TRANSITIONS NECESSARY TO CONSTRUCT THE ARCHITECTURAL SITE WORK ACCURATELY AND WITHOUT CONFLICT WITH EXISTING CONDITIONS, PROPOSED GRADING, PROPOSED UTILITIES, ADJACENT FACILITIES, OR OTHER PROJECT COMPONENTS.
21- ANY DISCREPANCIES BETWEEN THIS PRELIMINARY ARCHITECTURAL SITE PLAN, THE PRELIMINARY EXISTING CONDITIONS SITE PLAN, THE PRELIMINARY GRADING AND GEOMETRIC LAYOUT PLAN, THE CERTIFIED SURVEY, FINAL CIVIL ENGINEERING DOCUMENTS, FIELD CONDITIONS, UTILITY INFORMATION, CAMPUS OPERATIONAL REQUIREMENTS, OR REGULATORY REQUIREMENTS SHALL BE IDENTIFIED, COORDINATED, AND RESOLVED BY THE DESIGN-BUILD ENTITY PRIOR TO CONSTRUCTION.
22- THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR PREPARING FINAL ARCHITECTURAL SITE PLANS, HARDSCAPE PLANS, FINISH PLANS, MATERIAL PLANS, SITE DETAIL DRAWINGS, ACCESSIBILITY DETAILS, SITE FURNISHING PLANS, EXTERIOR SIGNAGE COORDINATION, CANOPY INTERFACE DETAILS, AND ALL OTHER ARCHITECTURAL SITE DOCUMENTS REQUIRED FOR PERMITTING, PROCUREMENT, FABRICATION, INSTALLATION, AND CONSTRUCTION.
23- THE DESIGN-BUILD ENTITY SHALL ENSURE THAT THE FINAL ARCHITECTURAL SITE DOCUMENTS ARE FULLY COORDINATED WITH THE FINAL CIVIL GRADING PLANS, DRAINAGE PLANS, UTILITY PLANS, STRUCTURAL DETAILS, LANDSCAPE PLANS, LIGHTING PLANS, SECURITY PLANS, MEP/FP PLANS, AND CONSTRUCTION PHASING PLANS.
24- THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR COORDINATING THE FINAL ARCHITECTURAL SITE DESIGN WITH ASEM, CAMPUS FACILITIES PERSONNEL, USER GROUPS AS DIRECTED BY ASEM, UTILITY PROVIDERS, REGULATORY AGENCIES, EMERGENCY RESPONSE REQUIREMENTS, AND OTHER AUTHORITIES HAVING JURISDICTION.
25- THE DESIGN-BUILD ENTITY SHALL PROTECT EXISTING CAMPUS OPERATIONS, ADJACENT FACILITIES, PEDESTRIAN ACCESS, VEHICULAR ACCESS, AMBULANCE ACCESS, EMERGENCY ACCESS, UTILITIES, LIFE-SAFETY FUNCTIONS, AND HOSPITAL OPERATIONS DURING ALL PHASES OF FINAL DESIGN AND CONSTRUCTION.
26- EXISTING OR PROPOSED CONDITIONS NOT SHOWN, INCOMPLETELY SHOWN, OR SHOWN DIFFERENTLY ON THIS PRELIMINARY DRAWING SHALL NOT RELIEVE THE DESIGN-BUILD ENTITY FROM ITS RESPONSIBILITY TO PREPARE COMPLETE, COORDINATED, SURVEY-BASED, CODE-COMPLIANT, PERMIT-READY, BUILDABLE, AND FULLY DETAILED FINAL ARCHITECTURAL SITE DOCUMENTS.
27- THE INCLUSION OF THIS PRELIMINARY PROPOSED ARCHITECTURAL SITE PLAN IN THE RFP BRIDGING DOCUMENTS DOES NOT TRANSFER TO THE OWNER OR BRIDGING ARCHITECT THE DESIGN-BUILD ENTITY'S RESPONSIBILITY FOR FINAL ARCHITECTURAL SITE DESIGN, FINAL CIVIL COORDINATION, FINAL GRADING COORDINATION, FINAL MATERIAL SELECTIONS, FINAL DETAILING, FINAL ACCESSIBILITY COMPLIANCE, FINAL CONSTRUCTION DOCUMENTS, OR PROPER CONSTRUCTION OF THE SITE WORK.
28- THE DESIGN-BUILD ENTITY SHALL ASSUME FULL RESPONSIBILITY FOR TRANSFORMING THE PRELIMINARY ARCHITECTURAL SITE DESIGN INTENT SHOWN ON THIS DRAWING INTO A FINAL, COORDINATED, COMPREHENSIVE, CODE-COMPLIANT, SURVEY-BASED, CONSTRUCTIBLE, AND FULLY DOCUMENTED ARCHITECTURAL SITE DESIGN FOR THE PUERTO RICO TRAUMA HOSPITAL PROJECT.

BUILDING ADMINISTRATION COMPLIANCE

1- ALL WORK TO BE EXECUTED UNDER THIS CONTRACT SHALL BE DONE ONLY DURING THE HOURS APPROVED BY THE BUILDING ADMINISTRATOR.

2- ALL WORK EXECUTED UNDER THIS CONTRACT SHALL BE IN ACCORDANCE AND IN COMPLIANCE WITH THE BUILDING ADMINISTRATION REGULATIONS RELATED TO CONSTRUCTION.

NOTES:

- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING AND ARE NOT INTENDED FOR CONSTRUCTION, PERMITTING, BIDDING, FABRICATION, OR IMPLEMENTATION. THEY ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, OR IMPLEMENTATION PURPOSES. THEY ARE INTENDED ONLY TO COMMUNICATE THE DESIGN INTENT AND GUIDANCE FOR THE DESIGN-BUILD ENTITY. THE SELECTED DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR DEVELOPING THE FINAL CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT'S PERMITTING, BIDDING, AND CONSTRUCTION. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, CODE COMPLIANCE, AND CONSTRUCTABILITY OF THE FINAL DESIGN AND CONSTRUCTION DOCUMENTS. THESE DOCUMENTS CONTAINED HEREIN ARE NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMITTING PURPOSES. THE ARCHITECT AND ENGINEERING CONSULTANTS ASSUME NO RESPONSIBILITY FOR ANY CONSTRUCTION PERFORMED FROM THESE DOCUMENTS. ANY USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED AND SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT AND ENGINEERING CONSULTANTS.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS FOR THE PUERTO RICO TRAUMA HOSPITAL PROJECT. THEY ARE NOT TO BE USED SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES WHO HAVE BEEN AUTHORIZED IN WRITING BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. THEY SHALL NOT BE DISCLOSED TO ANY OTHER PERSON OR ENTITY WITHOUT THE WRITTEN CONSENT OF DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. THE REUSE, REPRODUCTION, ADAPTATION, RELEASE, OR DISCLOSURE OF THESE DOCUMENTS, IN WHOLE OR IN PART, BY ANY MEANS OR FOR ANY PURPOSE WITHOUT THE EXPRESS WRITTEN CONSENT OF DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS IS PROHIBITED. ANY UNAUTHORIZED USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS.

NO.	DATE	DESCRIPTIONS

DATE: JULY 2026

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

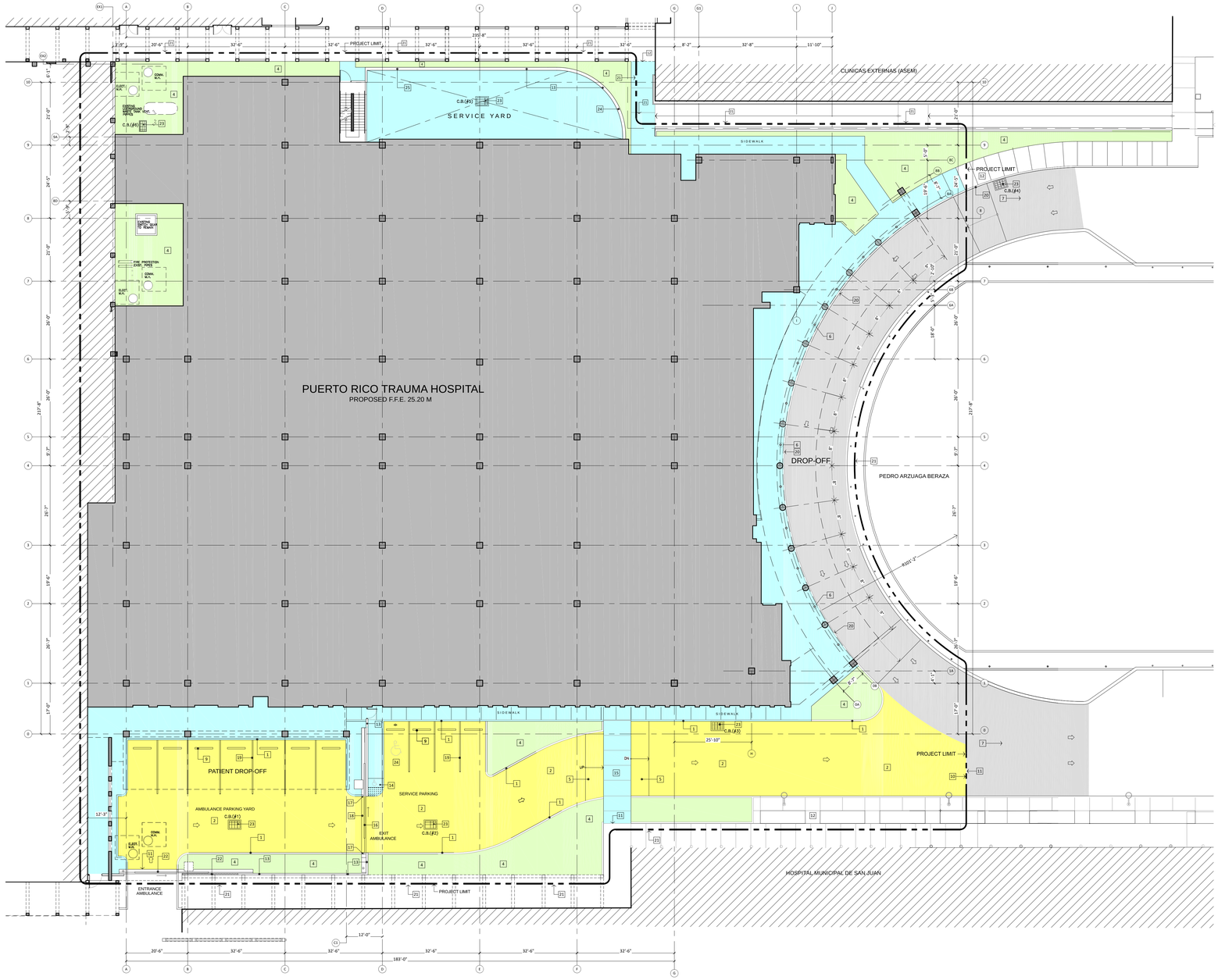
SHEET TITLE:

GENERAL NOTES & LEGENDS

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 103 SAN JUAN PR 00909

DRAWING NUMBER

AS-1.0



PROPOSED ARCHITECTURAL SITE PLAN

SCALE: 1/16"= 1'-0"

LEGEND:

(APPLICABLE WHERE REQUIRED TO THE FULL SCOPE OF THE WORK SHOWN IN THE DRAWINGS AS-1.1 & AS-1.3 TO AS-1.8 AND THEIR NOTES)

- NEW BUILDING PUERTO RICO TRAUMA HOSPITAL FOOTPRINT
- PAVED PEDESTRIAN WALKWAY PAVEMENTS TO BE CONSTRUCTED AS PER APPLICABLE NOTES.
- GROUND SOIL AREAS TO BE PREPARED FOR PLANTING AFTER FINAL FINISHED GRADING IS COMPLETED. A NEW TOPSOIL LAYER SHALL BE ADDED, AT A RATE OF 3 CUBIC YARDS PER 1,000 S.F., AND THOROUGLY LOOSENED. COMPOST, PEAT OR OTHER AGED MANURE SHALL BE ADDED AS REQUIRED FOR PROPER CARPET PLANTING.
- PROPOSED BUILDING EXPANSION REINFORCED CONCRETE ROADWAY SLAB AND/OR RAMP PAVEMENT TO BE CONSTRUCTED AS PER APPLICABLE NOTES.
- EXISTING ROADWAY AND WALWAY AREAS INSIDE THE PROJECT SCOPE LIMITS TO REMAIN AND SERVE THE PROPOSED PROJECT USE LAYOUT. THE AREA SHALL BE PROTECTED AND PRESERVED DURING THE CONSTRUCTION PROCESS, AND SHALL BE REPAIRED AND AND REFINISHED AS REQUIRED TO SERVE THE COMPLETED PROJECT IN ITS OPERATIONAL USE.
- EXISTING STRUCTURE

FINISHED FLOOR ELEVATION (F.F.E.) — EXISTING STRUCTURE GROUND LEVEL = 25.20

C.B. (#) — 24" X 36" CATCH BASIN CONNECTED AS

1. CONCRETE CURB POUR INTEGRATED WITH SIDEWALK.
2. REINFORCED CONCRETE VEHICULAR ROADWAY. REINFORCED CONCRETE SPECIFICATIONS (PSI, REINFORCING STEEL MESH, FINISH, ETC.) SHALL BE EQUAL AND IN COMPLIANCE WITH ROADWAY CONSTRUCTION SPECIFICATIONS REQUIRED INSIDE THE PROJECT WORK SCOPE LIMIT.
3. TYPICAL CONCRETE REINFORCED WALKWAYS AND/OR RAMP (ON COMPACTED GROUND) WITH A LIGHT BROOM BRUSHED CONCRETE FINISH & AND IN COMPLIANCE WITH WALKWAYS CONSTRUCTION SPECIFICATIONS INSIDE THE PROJECT WORK SCOPE LIMIT.
4. TYPICAL NEW CARPET PLANTING AREA EXTENDING FROM EDGE OF SIDEWALK AND/OR PROPERTY LIMITS UP TO PROPOSED PAVED AREAS AND/OR STRUCTURE. PROVIDE TOPSOIL AND SHALL BE PLANTED WITH GRAMA IN FULL AREA CARPET PLANTING. PLANTING SHALL INCLUDE A BED CONSISTING OF A 6" DEEP TOPSOIL LAYER, 2" DEEP MULCH LAYER AND THE REQUIRED FERTILIZER MIX FOR THE PLANT TYPE. IN ADDITION, IT SHALL APPLY TO ALL NON-BUILT AND/OR NON-PAVED LOT SURFACE AREAS.
5. REINFORCED CONCRETE VEHICULAR PAVEMENT RAMP IN COMPLIANCE WITH THE CIVIL ENGINEERING CONSTRUCTION NOTES.
6. METAL PROTECTION BOLLARD
7. EXISTING STORM SEWER CATCH BASINS TO REMAIN. IT SHALL BE INTEGRATED TO TEH EXISTING STORM SEWER SYSTEM.
8. NEW HANDICAPPED RAMP WITH SIGN & PAINTED
9. SUPPLY PRECAST WHEELSTOPS ON ALL NEW PARKING SPACES AS PER DETAILS.
10. EDGE OF ASPHALT PAVEMENT TRANSITION TO CONCRETE FINISH AS PER DETAILS.
11. EXISTING ELEVATIONS ON THE EDGE OF EXISTING PAVEMENT TO REMAIN AND TO MATCH FLUSH WITH NEW ABUTTING PAVEMENT FINISH.
12. EXISTING PAVED AREAS TO REMAIN & TO BE CUT FLUSH AND ABUTTING WITH NEW PAVEMENT FINISHES.
13. NEW 7'-0" HIGH CONCRETE WALL WITH A SMOOTH CEMENT PLASTE FINISH AND PAINTED .WHERE REQUIRED BY THE EXISTING GRADING, THE LOW WALL SHALL BE EXTENDED IN HEIGHT AS REQUIRED TO RETAIN THE TERRAIN ADJACENT TO THE WALKWAY
14. TRUNCATED DOME ADA COMPLIANT TILES (ON REINFORCED CONCRETE SLOPING SIDEWALK) TILES SHALL BE INSTALLED ON ALL THE SURFACES OF PEDESTRIAN SLOPING WALKWAY RAMPS (FULL WIDTH AND LENGTH OF RAMPS).
15. CROSSWALK BARS PAVEMENT MARKINGS. CONSTRUCTED OF HEAVY-DUTY INTERSECTION GRADE MATERIAL OF WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKINGS CROSSWALK BARS SHALL BE 1'-6" BY WIDE BY 6'- 0" LONG (SPACED AT 2'-0" ON-CENTER) AND PLACED ALIGNED WITH THE CENTER LINE OF CROSSING RAMP LANDING.
16. COMMERCIAL SLIDE GATE AND OPERATOR WITH HIGH-TRAFFIC OPERATOR. IT SHALL INCLUDE ACCESS CONTROL TECHNOLOGY. IT SHALL BE SUPPLIED AND INSTALLED AS REQUIRED, PROVIDING ALL COMPONENTS, OPERATIONAL ELEMENTS, ELECTRICAL SERVICE AND PERFORMANCE REQUIREMENT
17. SLIDING GATE SUPPORT COLUMN AT EACH END OF THE GATE OPENING WIDTH. IT SHALL BE 4" X 4" X GAUGE 16 WITH TOP METAL CAP AND INSTALLED IN A CONCRETE FOOTING.
18. SLIDING GATE CONCRETE RUNNING BASE WITH EMBEDDED METAL WHEEL RUNNING GUIDE.
19. TYPICAL PARKING LINE MARKING TO BE PAINTED WHITE WITH A FULL EVEN COAT OF HIGH-QUALITY THERMOPLASTIC ROADWAY TRAFFIC PAINT.
20. EXISTING ROADWAY TO BE PARTIALLY DEMOLISHED ALONG THE LENGTH OF THE PROJECT SIDEWALK AS REQUIRED FOR THE CONSTRUCTION OF THE NEW SIDEWALK. IT SHALL BE REPAIRED AND/OR RECONSTRUCTED FLUSH WITH THE NEW CURB & GUTTER CONSTRUCTION.
21. DISTANCE ALONG THE PROPERTY AND PROJECT LIMIT TO BE PROVIDED WITH AN 8'-0" HIGH CONSTRUCTION CYCLONE CHAIN LINK FENCE COVERED WITH AN OPAQUE SILT FABRIC COVER.
22. EXISTING ROLLING GATE AND HIGHWAY TO REMAIN OPERABLE AND TO BE PROTECTED DURING CONSTRUCTION PARKING AREA.
23. NEW CATCH BASINS TO BE CONNECTED TO EXISTING STORM SEWER SYSTEM. CATCH BASINS DEPTH TO INVERT ELEVATION SHALL BE ADAPTED FOR PROPER DRAIN SLOPE INTO EXISTING SYSTEM. STORM SEWER SYSTEM SHALL HAVE LIFT PUMPING ASSEMBLIES AS REQUIRED.
24. NEW HANDICAPPED SPACE, RAMP AND LANDING.
25. NEW RETAINING WALL AS REQUIRED AND APPLICABLE.

FINISH NOTES:

1. SEE TECHNICAL SPECIFICATION FOR ADDTIONAL COMPLIANCE INSTRUCTIONS.

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
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SCALE: AS SHOWN

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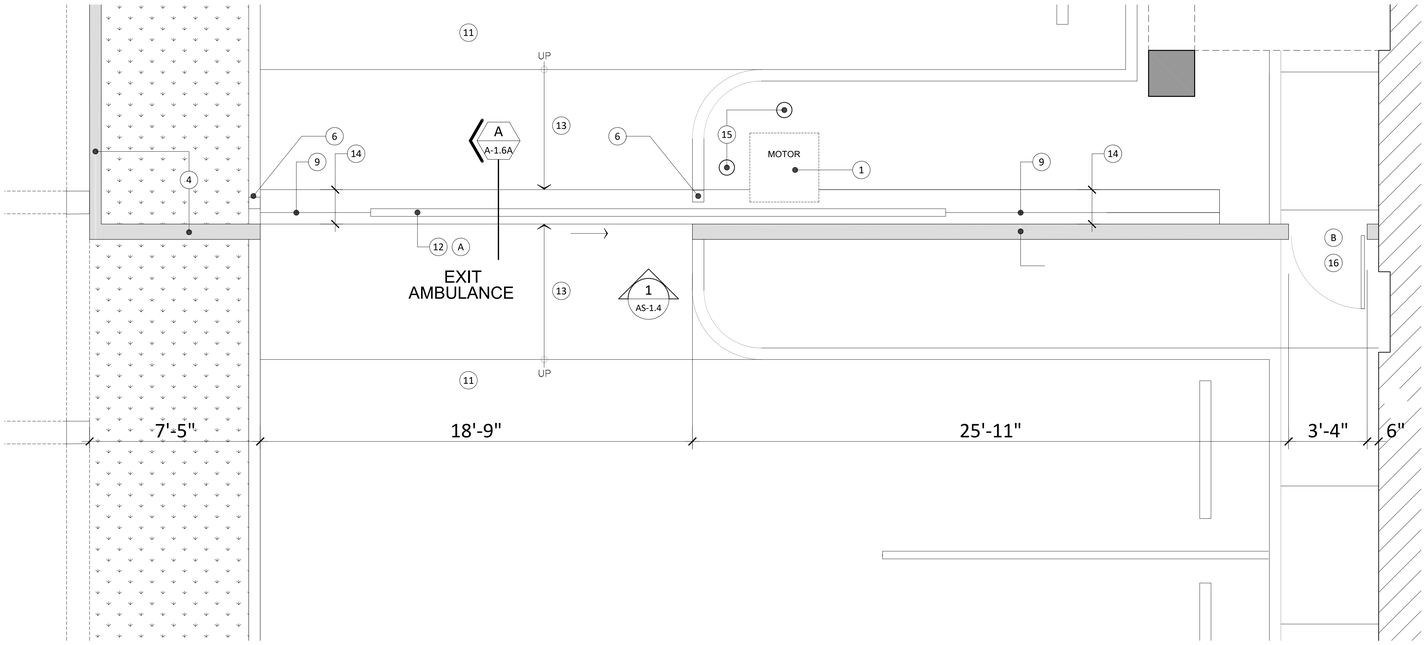
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

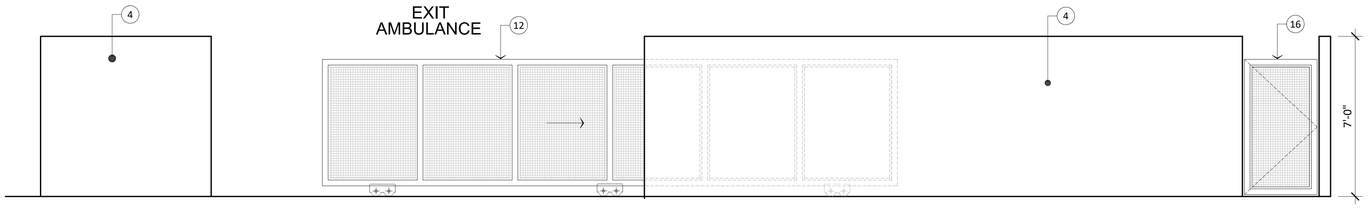
SHEET TITLE:
PROPOSED SITE PLAN

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER

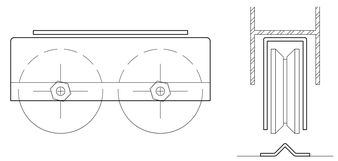
AS-1.1





TYP. ROLLING GATE ELEV. (1 / AS-1.4)

SCALE: 3/8"= 1'-0"



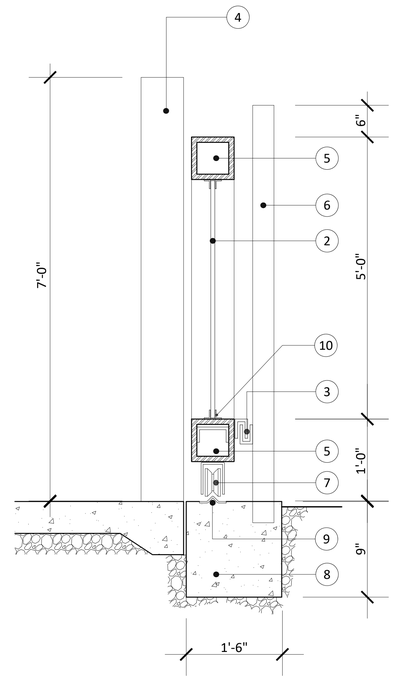
SLIDING GATE DOUBLE WHEEL ASSEMBLY (A / AS-1.4)

SCALE: NTS

SLIDING GATE WHEEL ASSEMBLY NOTES:

PROVIDE 4 WHEEL ASSEMBLIES AS FOLLOWS :

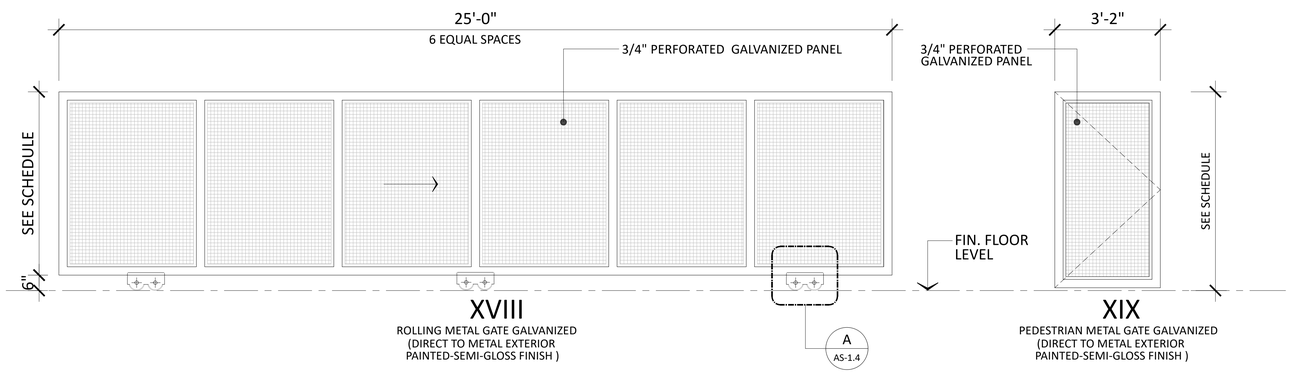
1. DOORKING (DOUBLE) TANDEM HEAVY DUTY V-WHEEL ASSEMBLY
2. 4" Ø WHEELS / SEALED ROLLER BEARINGS / PIVOTING BRACKET



TYP. ROLLING GATE SECTION (A / AS-1.4)

SCALE: NTS

DOOR TYPES



XVIII
ROLLING METAL GATE GALVANIZED
(DIRECT TO METAL EXTERIOR
PAINTED-SEMI-GLOSS FINISH)

XIX
PEDESTRIAN METAL GATE GALVANIZED
(DIRECT TO METAL EXTERIOR
PAINTED-SEMI-GLOSS FINISH)

DOOR SCHEDULE

MKD.	DOORS					HDWR. SCHED. SET	REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE/LENGHT	THICK	MATERIAL		
EXTERIOR CIVIL SITE							
A	XVIII	-	-	-	METAL	-	GALV. METAL ROLLING GATE SEE DOOR TYPES
B	XIX	-	-	-	METAL	-	GALV. METAL PEDESTRIAN GATE SEE DOOR TYPES - WITH DEAD BOLT, FLUSH BOLTS AND PADLOCK CAPABILITY

LEGEND:

1. COMMERCIAL SLIDE GATE OPERATOR WITH HIGH-TRAFFIC OPERATOR. IT SHALL INCLUDE ACCESS CONTROL TECHNOLOGY. IT SHALL BE SUPPLIED AND INSTALLED AS REQUIRED, PROVIDING ALL COMPONENTS, OPERATIONAL ELEMENTS, ELECTRICAL SERVICE AND PERFORMANCE REQUIREMENT.
2. PERFORATED METAL PANEL (GAUGE 16 - A635) WITH 3/4" OPENINGS AND PERCENTAGE DENSITY EQUAL TO EXISTING GATE TO REMAIN AND FILLET WELDED TO 4" X 4" TUBULAR METAL PERIMETER GATE FRAME.
3. DOUBLE-CHANNEL GUIDE AND ANTI TIPPING SUPPORT ASSEMBLY ANCHORED TO METAL VERTICAL GUIDE POST AND SLIDING GUIDE.
4. 7'-0" HIGH REINFORCED CONCRETE AND BLOCK FENCE.
5. 4" X 4" TUBULAR GALVANIZED METAL GATE PERIMETER FRAME (1/4" GAUGE WELDED AND PAINTED).
6. 4" X 4" X 16" GAUGE VERTICAL SUPPORT & GUIDE POST EMBEDED IN REINFORCED CONCRETE TRACK BURDER GUIDE.
7. SLIDING GATE DOUBLE WHEEL ASSEMBLY.
8. REINFORCED TRACK BASE BORDER GUIDE.
9. DOORKING 3" STEEL " V " GROOVE TRACK WHEEL GUIDE.
10. PERFORATED METAL PANEL DOUBLE 3/4" GALVANIZED SUPPORT ANGLES WELDED TO PANEL 4" X 4" GATE FRAME
11. NEW CONCRETE REINFORCED VEHICULAR DRIVEWAY.
12. METAL SLIDING GATE TO BE INSTALLED AND SUPPLIED OPERABLE INTEGRATED WITH THE GATE OPERATOR.
13. REINFORCED CONCRETE INNER VEHICULAR RAMP. REINFORCED CONCRETE SPECIFICATIONS (PSI, REINFORCING STEEL MESH, FINISH, ETC.) SHALL BE EQUAL AND IN COMPLIANCE WITH SIDEWALK CONSTRUCTION SPECIFICATIONS INSIDE THE PROJECT WORK SCOPE LIMIT.
14. SLIDING GATE CONCRETE RUNNING BASE WITH EMBEDDED METAL WHEEL RUNNING GUIDE.
15. 8" Ø METAL PROTECTION BOLLARD.
16. METAL SWING PEDESTRIAN GATE.

SUPPLEMENTARY COMPLIANCE NOTES:

1. ALL METAL WORK SHALL BE GALVANIZED. PRIMED & PAINTED FINISH.
2. MAX. CLEAR SPACING BETWEEN GALV. METAL BARS SHALL BE 4".
3. CONTRACTOR SHALL VERIFY AND CONFIRM THE EXISTING GEOMETRICAL FIELD CONDITIONS IN RELATION TO THE DIMENSIONS OF THE PROPOSED GEOMETRICAL LAY-OUT OF TYPICAL FENCES PRIOR TO PROCEEDING WITH THE CONTRACT WORK. ANY DISCREPANCIES FOUND SHALL BE INFORMED TO THE OWNER'S REPRESENTATIVE.
4. ALL METALS SHALL BE PAINTED WITH 2 COATS OF PRIMER UNIVERSAL METAL PRIMER & 2 COATS OF HIGH METAL ENAMEL - ALKYD SATIN RUST PREVENTATIVE PAINT.

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

DATE: JULY 2026
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NO.	DATE	DESCRIPTIONS

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PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
TYPICAL PRIVATE PARKING GATE ENTRANCE

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER

AS-1.2

BUILDING ADMINISTRATION COMPLIANCE:

1- ALL WORK TO BE EXECUTED UNDER THIS CONTRACT SHALL BE DONE ONLY DURING THE WORKING HOURS APPROVED BY THE BUILDING ADMINISTRATOR.

2- ALL WORK EXECUTED UNDER THIS CONTRACT SHALL BE IN ACCORDANCE AND IN COMPLIANCE WITH THE BUILDING ADMINISTRATION REGULATIONS RELATED TO CONSTRUCTION.

WORK BY OWNER:

1- ALL CABLING, HARDWARE AND SOFTWARE RELATED TO THE VOICE COMMUNICATION SYSTEM, INFORMATION TECHNOLOGY SYSTEM, CLOSED CIRCUIT TV SYSTEM AND ELECTRONIC ACCESS CONTROL SYSTEM WILL BE SUPPLIED AND INSTALLED BY EACH OF THE SYSTEMS OWNER'S SUBCONTRACTORS.

FINISH NOTES:

1. ALL COLORS, TEXTURES AND TYPES OF ALL SPECIFIED FINISHES SHALL BE SELECTED BY THE ARCHITECT FROM THE SPECIFIED BRAND NAMES.
2. EXISTING FLOOR FINISHES SHALL BE REMOVED AND EXISTING FLOOR SUBSTRATE SHALL BE REPAIRED AND LEVELED FOR PROPER INSTALLATION OF NEW FINISH.
3. ALL EXISTING WALLS TO REMAIN SHALL BE STRIPPED, REPAIRED AND PATCHED SMOOTH FOR NEW FINISH APPLICATION.
4. ALL EXTERIOR SURFACES SHALL BE FINISHED WITH A SMOOTH CEMENT FINISH PAINTED. (UNLESS OTHERWISE NOTED)
5. APPLY MAXXON M.V.P. SURFACE APPLIED VAPOR BARRIER OVER EXISTING CONCRETE SUBFLOOR WHERE REQUIRED TO CONTROL HUMIDITY AND IN ALL SPECIFIED AREAS.
6. PROVIDE WATER PROOFING AND VAPOR BARRIER SYSTEM ON ALL SLABS ON GRADE.
7. CONTRACTOR SHALL SUPPLY SAMPLES OF ALL FINISHES FOR APPROVAL BY THE ARCHITECT.
8. ALL EXISTING WALLS TO REMAIN INSIDE THE PROJECT LIMIT SHALL BE STRIPPED, REPAIRED AND PATCHED SMOOTH AND FINISHED WITH NEW GYPSUM BOARD FURRING ASSEMBLY. SEE GYPSUM BOARD LAYOUT DRAWINGS.
9. EXISTING ELECTRICAL & / OR COMMUNICATION PANEL TO BE RELOCATED, UNLESS OTHERWISE NOTED.
10. CONTRACTOR SHALL FIELD VERIFY EXISTING FLOOR LEVELS TO BE MATCHED FLUSH WITH THE PROPOSED FINISHED LEVEL OF THE PROJECT.

SUPPLEMENTARY FINISH NOTES:

1. ALL EXISTING AND NEW WALLS IN THE PERIMETER OF THE PROJECT SHALL BE EXTENDED UP TO STRUCTURAL SLAB WITH A 1 HR. FIRE RATED SEPARATION.
2. ALL EXTERIOR EXISTING COLUMNS SHALL HAVE AN E.I.F.S. FURRING AS INDICATED IN DRAWING. SEE E.I.F.S. DETAILS.
3. NEW SIDEWALK TO BE CONSTRUCTED ALIGNED WITH EXISTING SIDEWALK AND ADAPTED TO THE NEW GEOMETRICAL LAYOUT INDICATED LIMIT IN THE DRAWINGS.TROWELED CEMENT FINISH.
4. FOR BUILDING CONSTRUCTION DIMENSIONING PURPOSES GROUND FLOOR FFE XX.XX mts. SHALL EQUAL 0'-0".
5. PROVIDE WATER PROOFING PROTECTION TO ALL EXTERIOR BASEMENT WALLS, CISTERN WALLS AND RETAINING WALLS AGAINST GROUND. VOLCLAY PANELS INSTALLED AS PER MANUFACTURER'S SPECS.
6. DRAIN BOX CULVER BELOW NEW FLOOR SLAB TO PROVIDE RAIN DRAIN ACCESS TO EXISTING ROOF DRAINS AND LEADERS
7. SEE STRUCTURAL DRAWINGS FOR DETAILED SPECIFICATIONS OF NEW STEEL STRUCTURAL SYSTEM ASSEMBLY.

FIRE RESISTANT NOTE:

1-ALL EXPOSED STEEL BEAMS SHALL HAVE A SPRAYED FIRE RESISTANT MATERIAL TO OBTAIN A RATING OF NO LESS THAN ONE HOUR AS PER THE LATEST LEGALLY ADOPTED EDITION APPLICABLE TO THE PROJECT OF THE PUERTO RICO BUILDING CODE.

2-ALL EXPOSED STEEL COLUMNS SHALL HAVE A FIRE RESISTANT ENCASEMENT WITH A RATING OF NO LESS THAN THAN ONE HOUR UP TO 6" ABOVE SUSPENDED CEILING AND A ONE HOUR SPRAYED MATERIAL UP TO STRUCTURAL SLAB AS PER HE LATEST LEGALLY ADOPTED EDITION APPLICABLE TO THE PROJECT OF THE PUERTO RICO BUILDING CODE.

NOTE

FINAL DIMENSIONS OF STRUCTURAL CONCRETE WALLS AND ELEMENTS SHALL BE AS SPECIFIED IN STRUCTURAL DRAWINGS.

IMAGING DEPARTMENT EQUIPMENT COMPLIANCE NOTES:

1. IN ADDITION TO ALL THE CONSTRUCTION DOCUMENTS, THE CONTRACTOR MUST COORDINATE AND PERFORM THE WORK RELATED TO THE INSTALLATION OF THE EQUIPMENT IN THE IMAGING DEPARTMENT IN COMPLIANCE WITH THE MANUFACTURERS SITE-SPECIFIC REQUIREMENT GUIDANCE.
2. CONTRACTOR SHALL OBTAIN FROM THE OWNER THE SPECIFICATIONS AND INSTALLATION REQUIREMENTS FOR THE EQUIPMENT TO BE INSTALLED IN THE FOLLOWING ROOMS:
   A. CT SCAN (ROOM 1039)
   B. X-RAY (ROOM 1044)
3. CONTRACTOR SHALL SUPPLY ALL THE REQUIRED MATERIAL AND WORK TO EXECUTE ALL THE EQUIPMENT MANUFACTURERS SPECIFICATION AND INSTALLATION RECOMMENDATIONS TO ENSURE THE PROPER ROUGH-IN FACILITIES FOR EQUIPMENT INSTALLATION AND OPERATIONS.
4. ALL WALLS, DOORS AND GLASS PANELS, IN THE ABOVE MENTIONED ROOMS, SHOWN TO BE CONSTRUCTED WITH THE SHIELDING REQUIREMENTS BY THE MANUFACTURER OF THE EQUIPMENT SHALL BE VALIDATED BY THE OWNER'S CERTIFIED RADIOLOGY PHYSIC.
5. ELECTRICAL REQUIREMENT OF THE EQUIPMENTS IN THE IMAGING DEPARTMENT LISTED HERE IN SHALL BE CONFIRMED AND COORDINATED WITH THE OWNER AND MANUFACTURER AS REQUIRED FOR THE PROPER SUPPLY OF THE ELECTRICAL SERVICE REQUIREMENT INCLUDING VOLTAGE, AMPERAGE, AND TOTAL ELECTRICAL LOAD.
6. EXISTING FLOOR LEVEL IN ROOMS 1039 (CT SCAN &, 1044 (X-RAY) SHALL BE LEVELED & PLUM AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE EQUIPMENTS.

TYPICAL E.I.F.S. FAÇADE CONSTRUCTION COMPLIANCE:

EXTERIOR INSULATION AND FINISH SYSTEM (E.I.F.S.) SHALL BE EQUAL TO STO THERM NEXT (HI-DG1-SYSTEM) HURRICANE IMPACT SYSTEM.

1. PROTECT EXPOSED E.I.F.S. AT PARAPET FROM WEATHER DAMAGE DURING CONSTRUCTION UNTIL PERMANENTLY PROTECTED WITH COPING.
2. EXTEND DIMENSION OF COPING OVERLAP FOR MULTI-STORY CONSTRUCTION / COASTAL REGIONS TO PREVENT WIND DRIVEN RAIN FROM ENTERING BEHIND SYSTEM.
3. ALL E.I.F.S. ASSEMBLY MATERIALS & INSTALLATION SHALL COMPLY WITH APPLICABLE REQUIREMENTS OF THE LATEST VERSION OF THE PUERTO RICO BUILDING CODE INCLUDING WIND RESISTANCE AND THE IMPACT OF AIR BORNE MISSILES.
4. ALL E.I.F.S. INSTALLATION SHALL BE PLUMB & LEVELED.
5. ALL INSTALLATION OF E.I.F.S. OVER EXISTING SURFACES SHALL BE EXECUTED FOLLOWING E.I.F.S. MANUFACTURER'S RECOMMENDATIONS, MEANS & METHODS.
6. EXTERIOR E.I.F.S. SHALL HAVE AN INTEGRATED PAINT FINISH.
7. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ARCHITECTS APPROVAL.
8. ALL E.I.F.S. SHALL BE ANCHORED TO STEEL STUDS @ MAXIMUM RECOMMENDED SPACING BY MANUFACTURER'S SPECIFICATIONS FOR HURRICANE IMPACT RESISTANT SYSTEM.
9. ALL E.I.F.S. SHALL BE INSTALLED WITH GALVANIZED METAL STUDS.

GENERAL ROOF NOTES:

1-ROOF SLOPES 1/4" PER/FOOT

2-ARROWS INDICATES SLOPES

3-SLOPES SHALL BE GIVEN WITH LIGHTWEIGHT CONRETE FILL. ——►

4-THE BUILT-UP WEATHERPROOFING ROOFING SYSTEM SHALL BE EQUAL OR SIMILAR IN PERFORMANCE AND COMPLIANCE TO THE FOLLOWING ASSEMBLY:

A. OWENS CORNING FOAMLAR XPS TAPERED ROOFING INSULATION. WITH A SLOPE OF 1/4" PER FOOT AND MINIMUN THICKNESS AT LOW DRAIN POINTS OF 2".

B. DANOSA ESTERDAN R-36-4 BITUMEN BASE MEMBRANE.

C. DANOSA ESTERDAN RM-PLUS BITUMEN TOP MEMBRANE.

5-ALL ROOF DRAINS SHALL BE 3"Ø.

6-UNLESS OTHERWISE NOTED IN DRAWINGS ALL RAIN LEADERS SHALL BE 3"Ø.

7-CAP & REGLET FLASHINGS SHALL BE PROVIDED WHERE REQUIRED TO ENSURE PROPER WEATHER-PROOFING OF ALL ROOFS WITHIN THE PROJECT. LIMIT.

8-ROOFS SUBSTRATE SHALL BE PREPARED AS REQUIRED BY BY MANUFACTURER FOR PROPER APPLICATION OF THE WATER PROOFING SYSTEM.

ALUMINUM FLASHING NOTES

1 - SILICONE BUILDING SEALANT AT ALL EXP. & CONST. JOINTS SHALL BE DOW CORNING 790 OR APPRVED EQUAL.

2 - SILICONE SEALANT INSTALLATION SHALL STRICTLY FOLLOWS MANUFACTURER RECOMENDATIONS.

3 - EXPANSION JOINT COVER SHALL BE STYLE "CF" - EXTERIOR COVER TYPE "N" & FLANGE METAL OF ALUM. 0.032 AS MANUFACTURER BY MANVILLE ROOFING SYSTEMS DIV. FOR BELLOWS WIDTH SELECTION & JOINT COVER INSTALLATION STRICTLY FOLLOWS MANUFACT. INSTRUCTION.

4 - ALL SLOPES SHALL BE MONOLITHIC WITH STRUCTURAL SLAB & 1/4" / FT. SLOPES.

5 - GENERAL CONTRACTOR SHALL GUARANTEE THE WATER SEAL OF ALL ROOF SURFACES.

6 - GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES AT JOB SITE TO GUARANTY THE PROPER CONNECTION AN FREE DISCHARGE BY GRAVITY OF ALL RAIN LEADERS FROM ROOF.

SUPPLEMENTARY NOTES:

1- SEE STRUCTURAL DRAWINGS FOR DETAILED SPECIFICATIONS OF NEW STEEL STRUCTURAL SYSTEM ASSEMBLY.

2. LOCATION OF NEW STEEL STRUCTURAL COLUMNS SHALL BE AS SPECIFIED IN STRUCTURAL DRAWINGS AND SHALL BE ANCHORED ALIGNED WITH THE EXISTING STRUCTURAL CONCRETE COLUMNS AS SHOWN IN THE DRAWINGS.

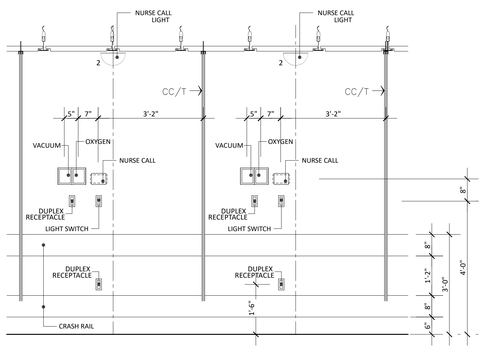
3. DIMENSIONS, SPACING AND LOCATIONS OF EXISTING CONCRETE COLUMNS, TO SUPPORT NEW STEEL STRUCTURAL SYSTEM, SHALL BE FIELD VERIFIED AND CONFIRMED PRIOR TO ERECTION OF THE NEW PROPOSED STEEL STRUCTURAL EXPANSION.

LEGEND:

- EXISTING STRUCTURE
- NEW CONCRETE BLOCK WALL 6" OR 8" EXTENDED UP TO STRUCTURAL SLAB
- REINFORCED CONCRETE WALL OR COLUMN
- NEW GYPSUM BOARD WALL
- EXISTING WALL OPENING TO BE FILLED WITH GYPSUM BOARD WALL (TO MATCH WIDTH OF EXISTING WALL)
- 5/8" GYPSUM BOARD WALL WITH 1/8" LEAD SHIELDED PANEL UP TO HUNG CEILING.
- 3" GYPSUM BOARD FURRING OVER EXISTING AND / OR NEW CONCRETE BLOCK WALL. SEE TYPICAL FURRING DETAILS IN GYPSUM BOARD TYPICAL DETAILS SHEET.
- EXTERIOR INSULATION AND FINISH SYSTEM (EIFS) EQUAL TO STO THERM NEXT (HI-DGI-SYSTEM) INSTALLED WITH GALVANIZED METAL STUDS.

- 105 — SPACE NUMBER
- 4 — DOOR NUMBER / DOOR IDENTIFICATION
- EX — EXISTING DOOR TO REMAIN
- A — WINDOWS I.D.
- 1 — FIXED LOUVER NUMBER
- A / A-2 — PARTIAL ELEVATION NUMBER / SHEET NUMBER
- A / A-3 — SECTION NUMBER / SHEET NUMBER
- 1 / A-3 — WALL SECTION NUMBER / SHEET NUMBER
- 1 / A-3 — DETAIL IDENTIFICATION / SHEET NUMBER
- P1 — PLUMBING FIXTURE ID.
- F.V. — FIELD VERIFY
- N.I.C. — NOT INCLUDED IN CONTRACT
- RED DOTTED SYMBOLS INDICATE FURNITURE & EQUIPMENT NOT IN CONTRACT
- P.B. — 8"Ø PIPE BOLLARDS

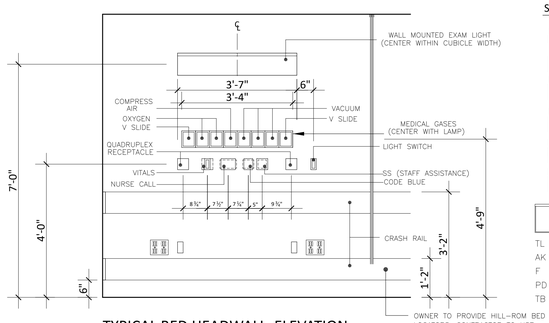
TYPICAL MEDICAL GASES DRAWINGS:



TYP. ELEVATION

SCALE: 3/4"=1'-0"

VERIFY MEDICAL GASES MECHANICAL DRAWING FOR SPECIFY QUANTITY OF OUTLETS (MEDICAL GASES, ELECTRICAL, ETC.)



TYPICAL BED HEADWALL ELEVATION

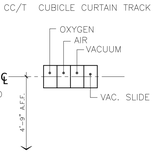
NOT TO SCALE

NOTE:

1. FIXTURE AND SYMBOL LOCATIONS SHOWN ARE TYPICAL AND MAY NOT BE PROJECT-SPECIFIC. VERIFY ELECTRICAL AND MECHANICAL DRAWINGS FOR SPECIFIC QUANTITIES AND LOCATIONS
2. VERIFY MECHANICAL MEDICAL GASES DRAWINGS FOR SPECIFIC QUANTITY OF OUTLETS (MEDICAL GASES, ELECTRICAL, ETC.)
3. VERIFY ELECTRICAL DRAWINGS FOR SPECIFIC QUANTITY OF OUTLETS (RECEPTACLES, SWITCHES, NURSE CALL, ETC.)

SYMBOLS LEGEND

- F — DUPLEX OUTLET
- QUAD OUTLET
- P — PHONE PORT
- LS — LIGHT SWITCH
- NC — NURSE CALL
- D — DATA PORT OUTLET
- FILM ILLUMINATOR (X-RAY)
- TL TASK LIGHTING
- AK ARTICULATING BOARD
- F FILE DRAWER
- PD PENCIL DRAWER
- TB TACK BOARD
- PAPER TOWEL DISPENSER
- SD — SOAP DISPENSER
- CR CRASH RAIL
- HR HAND RAIL
- CG CORNER GUARD
- MG MEDICAL GAS OUTLET
- CA CABLE T.V.
- CC/T CUBICLE CURTAIN TRACK



NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2014
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

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NO.	DATE	DESCRIPTIONS

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
GENERAL FLOOR PLAN NOTES, LEGEND & DETAILS

DE LA TORRE - ESTEVEZ
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URB. OMSBE 1509 AVE. PONCE DE LEON, STE. 105 SAN JUAN PR 00926

DRAWING NUMBER

A-1.0

GENERAL NOTES – SOUND AND VIBRATION ATTENUATION
DESIGN-BUILD RFP / BRIDGING DOCUMENTS

A. GENERAL REQUIREMENTS

1. THE DESIGN-BUILD ENTITY SHALL PROVIDE SOUND ATTENUATION AND VIBRATION CONTROL FOR ALL SPACES, EQUIPMENT ROOMS, SHAFTS, WALL ASSEMBLIES, FLOOR/CEILING ASSEMBLIES, ROOF ASSEMBLIES, DOORS, LOUVERS, DUCTS, PIPING, CONDUIT, PENETRATIONS, AND EQUIPMENT SUPPORTS REQUIRED TO MAINTAIN THE ACOUSTIC PERFORMANCE OF THE NEW PUERTO RICO TRAUMA HOSPITAL.
2. ACOUSTICAL DESIGN SHALL ADDRESS AIRBORNE NOISE, STRUCTURE-BORNE NOISE, IMPACT NOISE, EQUIPMENT NOISE, LOW-FREQUENCY NOISE, VIBRATION TRANSMISSION, REVERBERATION CONTROL, AND FLANKING SOUND TRANSMISSION.
3. SOUND AND VIBRATION CONTROL SHALL BE COORDINATED WITH THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, EQUIPMENT, LIFE-SAFETY, INFECTION-CONTROL, AND MAINTENANCE REQUIREMENTS OF THE PROJECT.
4. THE DESIGN-BUILD ENTITY SHALL COMPLY WITH THE LATEST ADOPTED EDITIONS OF APPLICABLE HEALTHCARE ACOUSTIC REQUIREMENTS, INCLUDING FGI ACOUSTIC CRITERIA, ASHRAE NOISE AND VIBRATION CRITERIA, ANSI/ASA ROOM NOISE EVALUATION CRITERIA, ASTM SOUND TRANSMISSION STANDARDS, APPLICABLE ENVIRONMENTAL NOISE REQUIREMENTS, AND REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.
5. WHERE CODES, STANDARDS, OWNER REQUIREMENTS, EQUIPMENT MANUFACTURER REQUIREMENTS, OR ACOUSTIC CONSULTANT RECOMMENDATIONS DIFFER, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.
6. FINAL ACOUSTICAL CRITERIA SHALL BE CONFIRMED BY THE DESIGN-BUILD ENTITY BASED ON FINAL EQUIPMENT SELECTION, FINAL ROOM ADJACENCIES, FINAL WALL AND FLOOR ASSEMBLIES, FINAL DUCT ROUTING, FINAL PENETRATIONS, AND FINAL ROOFTOP EQUIPMENT LOCATIONS.

B. MINIMUM PROJECT ACOUSTICAL PERFORMANCE CRITERIA

THE FOLLOWING TABLE ESTABLISHES MINIMUM PROJECT DESIGN CRITERIA. FINAL CRITERIA SHALL BE VERIFIED AND ADJUSTED AS REQUIRED BY THE LATEST ADOPTED FGI REQUIREMENTS, PROJECT-SPECIFIC ACOUSTIC ANALYSIS, EQUIPMENT SOUND DATA, AND AHJ REVIEW.

Space / Condition	Maximum Background Noise from Building Systems	Minimum Sound Isolation Target	Notes
Patient rooms	NC/RC/RNC 35-40 maximum; 40-45 dBA maximum	STC/STCc 45 between patient rooms	Use stricter target near rooftop equipment or other major noise sources.
ICU / critical care patient areas	NC/RC/RNC 30-35 target; 35-40 dBA target	STC/STCc 45 minimum; STC/STCc 50 where adjacent to public, service, or mechanical areas	Provide enhanced protection for rest, recovery, alarms, and clinical communication.
Patient room floor-to-floor separation	As required to meet patient room criteria	STC/STCc 50 target	Coordinate slabs, ceiling plenums, shafts, and penetrations.
Exam rooms / consultation rooms / treatment rooms	NC/RC/RNC 40 maximum; 45 dBA maximum	STC/STCc 45 minimum; STC/STCc 50 where confidentiality is required	Provide speech privacy and acoustic separation.
Offices / administrative spaces	NC/RC/RNC 35-40 target; 40-45 dBA target	STC/STCc 45 minimum; STC/STCc 50 for confidential offices	Coordinate doors, glazing, ceilings, and partitions.
Conference rooms / meeting rooms	NC/RC/RNC 35 maximum; 40 dBA maximum	STC/STCc 50 target	Provide speech privacy and low background noise.
Corridors / public areas	NC/RC/RNC 45 maximum; 50 dBA maximum	As required by adjacent spaces	Control reverberation and speech transfer.
Medication safety zones / medication rooms	NC/RC/RNC 40 maximum; 45 dBA maximum	STC/STCc 45 minimum	Provide acoustic conditions that support concentration and reduce distraction.
Toilet rooms adjacent to occupied or public spaces	As required by adjacent space	STC/STCc 45 minimum	Control plumbing noise and room-to-room sound transfer.
Mechanical rooms / electrical rooms / equipment rooms adjacent to occupied spaces	Adjacent occupied spaces shall meet their required NC/RC/RNC criteria	STC 55 minimum; STC 60 or greater where adjacent to patient care or noise-sensitive areas	Criteria applies to receiving spaces, not to the equipment room itself.
Generator rooms, chiller rooms, substations, transformer rooms, switchgear rooms	Adjacent occupied spaces shall meet required criteria	STC 60 target minimum, with enhanced low-frequency control	Provide acoustic treatment, silencers, sound-rated openings, and vibration isolation as required.
Rooftop equipment near patient room windows	Interior patient room criteria shall be maintained	Exterior wall, glazing, roof, and screen assemblies shall be coordinated for required OITC/STC performance	Prevent direct equipment noise at patient room windows and façades.

C. BASEMENT EQUIPMENT ROOM SOUND ATTENUATION

1. THE DESIGN-BUILD ENTITY SHALL PROVIDE ENHANCED SOUND ATTENUATION AT ALL BASEMENT ROOMS CONTAINING MAJOR ELECTRO-MECHANICAL SYSTEMS, INCLUDING CHILLER ROOMS, GENERATOR ROOMS, SUBSTATIONS, TRANSFORMER ROOMS, SWITCHGEAR ROOMS, ELECTRICAL ROOMS, MECHANICAL ROOMS, PUMP ROOMS, FAN ROOMS, COMPRESSOR ROOMS, FUEL SYSTEM ROOMS, AND OTHER EQUIPMENT ROOMS PRODUCING SIGNIFICANT NOISE OR VIBRATION.
2. CONCRETE WALLS, CONCRETE BLOCK WALLS, STRUCTURAL SLABS, DOORS, LOUVERS, DUCTS, SHAFTS, SLEEVES, AND PENETRATIONS ENCLOSING EQUIPMENT ROOMS SHALL FUNCTION AS COMPLETE ACOUSTIC SEPARATION ASSEMBLIES.
3. CONCRETE WALLS ENCLOSING NOISY EQUIPMENT ROOMS SHALL PROVIDE SUFFICIENT MASS, CONTINUITY, SEALING, AND ISOLATION TO MEET THE REQUIRED STC, NC, RC, RNC, AND DBA CRITERIA FOR ADJACENT SPACES.
4. CONCRETE MASONRY UNIT WALLS ENCLOSING NOISY EQUIPMENT ROOMS SHALL BE FULL-HEIGHT TO THE UNDERSIDE OF THE STRUCTURE ABOVE AND SHALL BE DESIGNED TO ACHIEVE THE REQUIRED ACOUSTIC PERFORMANCE THROUGH APPROPRIATE BLOCK WEIGHT, GROUTING, SEALING, CONTINUITY, AND PENETRATION CONTROL.
5. LIGHTWEIGHT, UNSEALED, PARTIAL-HEIGHT, OR ACOUSTICALLY DISCONTINUOUS MASONRY CONSTRUCTION SHALL NOT BE USED WHERE EQUIPMENT ROOM SOUND ATTENUATION IS REQUIRED.
6. ALL JOINTS, SLAB INTERSECTIONS, WALL-TO-STRUCTURE INTERFACES, SLEEVES, CONDUIT PENETRATIONS, PIPING PENETRATIONS, DUCT PENETRATIONS, AND OTHER OPENINGS SHALL BE ACOUSTICALLY SEALED.
7. DOORS, FRAMES, LOUVERS, DAMPERS, TRANSFER OPENINGS, ACCESS PANELS, AND DUCTWORK SERVING NOISY EQUIPMENT ROOMS SHALL NOT REDUCE THE REQUIRED ACOUSTICAL PERFORMANCE OF THE ENCLOSURE.
8. GENERATOR ROOMS, CHILLER ROOMS, SUBSTATIONS, TRANSFORMER ROOMS, AND SWITCHGEAR ROOMS SHALL RECEIVE SPECIFIC ACOUSTIC ANALYSIS DUE TO POTENTIAL HIGH SOUND LEVELS, TONAL NOISE, LOW-FREQUENCY NOISE, AND STRUCTURE-BORNE VIBRATION.
9. GENERATOR EXHAUST SYSTEMS, AIR INTAKE OPENINGS, DISCHARGE OPENINGS, LOUVERS, AND VENTILATION PATHS SHALL INCLUDE SILENCERS, ACOUSTIC LOUVERS, ACOUSTIC PLENUMS, OR OTHER ATTENUATION MEASURES AS REQUIRED.
10. EQUIPMENT ROOM ATTENUATION SHALL PROTECT PATIENT CARE AREAS, STAFF AREAS, PUBLIC AREAS, ADMINISTRATIVE AREAS, AND ALL OCCUPIED SPACES LOCATED ABOVE, BESIDE, OR CONNECTED TO THE EQUIPMENT ROOMS BY SHAFTS, SLABS, CORRIDORS, OR SERVICE SPACES.

D. ROOFTOP AND SECOND LEVEL EQUIPMENT SOUND ATTENUATION

1. MECHANICAL AND ELECTRICAL EQUIPMENT LOCATED ON THE ROOF OF THE SECOND LEVEL, OR ANY ROOF AREA ADJACENT TO PATIENT ROOMS, PATIENT ROOM WINDOWS, CLINICAL SPACES, OFFICES, OR OTHER OCCUPIED AREAS, SHALL BE ACOUSTICALLY CONTROLLED.
2. ROOFTOP EQUIPMENT SHALL BE SELECTED, LOCATED, SCREENED, ENCLOSED, SILENCED, AND ISOLATED AS REQUIRED TO MAINTAIN THE REQUIRED INTERIOR NOISE CRITERIA AT ADJACENT PATIENT ROOMS AND OTHER NOISE-SENSITIVE SPACES.
3. EQUIPMENT SHALL NOT DISCHARGE NOISE DIRECTLY TOWARD PATIENT ROOM WINDOWS UNLESS ACOUSTIC ANALYSIS DEMONSTRATES THAT THE REQUIRED INTERIOR NOISE CRITERIA WILL BE MAINTAINED.
4. ACOUSTIC SCREENS, SOUND BARRIERS, EQUIPMENT ENCLOSURES, ACOUSTIC LOUVERS, DUCT SILENCERS, LINED DUCTWORK, VIBRATION-ISOLATED CURBS, FLEXIBLE CONNECTIONS, AND OTHER ATTENUATION MEASURES SHALL BE PROVIDED WHERE REQUIRED.
5. EXTERIOR WALL AND WINDOW ASSEMBLIES ADJACENT TO ROOFTOP EQUIPMENT SHALL BE COORDINATED FOR REQUIRED STC AND OITC PERFORMANCE.
6. ROOFTOP EQUIPMENT SHALL NOT TRANSMIT OBJECTIONABLE VIBRATION, HUM, RUMBLE, TONAL NOISE, OR STRUCTURE-BORNE SOUND INTO PATIENT ROOMS OR OTHER OCCUPIED SPACES.

E. INTERIOR SOUND ATTENUATION

1. INTERIOR SOUND ATTENUATION SHALL BE PROVIDED WHERE REQUIRED FOR PATIENT PRIVACY, STAFF CONFIDENTIALITY, SPEECH PRIVACY, CLINICAL PERFORMANCE, ACOUSTIC COMFORT, AND HEALTHCARE BEST PRACTICES.
2. SOUND ATTENUATING PARTITIONS SHALL BE PROVIDED BETWEEN PATIENT ROOMS, EXAM ROOMS, CONSULTATION ROOMS, TREATMENT ROOMS, OFFICES, CONFERENCE ROOMS, MEDICATION ROOMS, STAFF WORK AREAS, CLEAN AND SOILED WORKROOMS, TOILET ROOMS, PUBLIC CORRIDORS, FAMILY WAITING AREAS, AND OTHER SPACES REQUIRING PRIVACY OR NOISE CONTROL.
3. INTERIOR PARTITIONS REQUIRING SOUND ATTENUATION SHALL EXTEND TO THE UNDERSIDE OF THE STRUCTURE ABOVE UNLESS AN ACOUSTICALLY EQUIVALENT ASSEMBLY IS PROVIDED AND DOCUMENTED.
4. CEILING PLENUMS, RECESSED DEVICES, BACK-TO-BACK OUTLETS, TRANSFER GRILLES, RETURN AIR PATHS, DUCTS, PIPING, CONDUIT, AND PENETRATIONS SHALL BE COORDINATED TO AVOID FLANKING SOUND TRANSMISSION.
5. DOORS SERVING ACOUSTICALLY SENSITIVE ROOMS SHALL BE COORDINATED WITH THE REQUIRED WALL RATING AND SHALL INCLUDE SOUND-RATED CONSTRUCTION, SEALS, GASKETING, OR AUTOMATIC DOOR BOTTOMS WHERE REQUIRED.
6. PATIENT ROOMS, EXAM ROOMS, CONSULTATION ROOMS, OFFICES, AND CONFERENCE ROOMS SHALL PROVIDE SPEECH PRIVACY APPROPRIATE TO HEALTHCARE USE AND PROTECTION OF CONFIDENTIAL PATIENT INFORMATION.
7. PUBLIC CORRIDORS, WAITING AREAS, NURSE STATIONS, STAFF AREAS, AND FAMILY AREAS SHALL INCLUDE ACOUSTICAL ABSORPTION AS REQUIRED TO REDUCE REVERBERATION AND SUPPORT A CALM HEALTHCARE ENVIRONMENT.

F. TYPICAL GENERIC SOUND ATTENUATION MATERIALS AND MEASURES

THE DESIGN-BUILD ENTITY SHALL SELECT FINAL MATERIALS AND ASSEMBLIES BASED ON TESTED ACOUSTIC PERFORMANCE, INFECTION-CONTROL REQUIREMENTS, DURABILITY, MAINTAINABILITY, FIRE-RESISTANCE RATINGS, MOISTURE RESISTANCE, AND COMPATIBILITY WITH THE FINAL DESIGN.

Condition	Typical Generic Materials / Measures
Concrete equipment room walls	Cast-in-place concrete, precast concrete, sealed joints, sealed penetrations, acoustical sealant, resilient isolation where required.
Concrete block equipment room walls	Heavy-weight CMU, fully grouted CMU where required, full-height masonry, sealed joints, sealed top-of-wall condition, sealed penetrations.
Interior sound-rated partitions	Multiple layers of gypsum board, sound attenuation insulation, staggered studs, double studs, resilient channels, acoustic sealant, full-height construction.
Patient room / exam room partitions	Sound attenuation batt insulation, sealed gypsum assemblies, sealed electrical boxes, acoustically treated penetrations, full-height partitions.
Equipment room doors	Sound-rated hollow metal doors, sound-rated frames, perimeter gasketing, door bottoms, threshold seals, acoustic vestibules where required.
Louvers and air openings	Acoustic louvers, duct silencers, lined plenums, intake silencers, discharge silencers, sound traps, acoustic baffles.
Ductwork	Duct silencers, lined ductwork where permitted, flexible duct connectors, low-noise duct design, acoustic boots, sealed duct penetrations.
Piping and conduit penetrations	Sleeves, resilient packing, acoustical sealant, firestopping compatible with acoustic performance, flexible connections.
Ceilings and reverberation control	Acoustic ceiling panels, high-NRC ceiling systems, acoustic wall panels, washable acoustic finishes suitable for healthcare use.
Rooftop equipment	Acoustic screens, acoustic barriers, equipment enclosures, vibration-isolated curbs, spring isolators, neoprene isolators, flexible connectors.
Generators and chillers	Acoustic enclosures, intake silencers, exhaust silencers, vibration isolation, inertia bases, housekeeping pads, flexible connections.
Pumps and rotating equipment	Spring isolators, neoprene pads, inertia bases, flexible pipe connectors, resilient pipe supports.
Transformers and substations	Vibration isolation pads, resilient mounts, acoustic room enclosure, sealed penetrations, low-frequency hum control.

G. VIBRATION ATTENUATION

1. THE DESIGN-BUILD ENTITY SHALL PROVIDE VIBRATION ATTENUATION FOR ALL MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, AND SPECIALTY EQUIPMENT CAPABLE OF TRANSMITTING VIBRATION TO THE STRUCTURE OR OCCUPIED SPACES.
2. EQUIPMENT REQUIRING VIBRATION CONTROL SHALL INCLUDE CHILLERS, COOLING TOWERS, AIR HANDLING UNITS, EXHAUST FANS, PUMPS, GENERATORS, TRANSFORMERS, COMPRESSORS, ROOFTOP UNITS, PACKAGED EQUIPMENT, FUEL SYSTEM EQUIPMENT, AND OTHER ROTATING, RECIPROCATING, OR VIBRATION-PRODUCING EQUIPMENT.
3. BASEMENT EQUIPMENT SHALL BE ISOLATED FROM THE BUILDING STRUCTURE TO PREVENT VIBRATION TRANSMISSION TO PATIENT CARE AREAS, STAFF AREAS, PUBLIC AREAS, OFFICES, AND OTHER OCCUPIED SPACES.
4. ROOFTOP EQUIPMENT LOCATED ABOVE, BESIDE, OR NEAR PATIENT ROOMS AND PATIENT ROOM WINDOWS SHALL BE VIBRATION-ISOLATED TO PREVENT STRUCTURE-BORNE NOISE AND PERCEPTIBLE VIBRATION.
5. VIBRATION CONTROL SHALL BE COORDINATED WITH SEISMIC ANCHORAGE, STRUCTURAL SUPPORTS, EQUIPMENT CURBS, HOUSEKEEPING PADS, INERTIA BASES, PIPE SUPPORTS, DUCT SUPPORTS, CONDUIT SUPPORTS, FLEXIBLE CONNECTIONS, AND MANUFACTURER REQUIREMENTS.
6. RIGID CONNECTIONS THAT BYPASS VIBRATION ISOLATION SHALL NOT BE PERMITTED WHERE THEY COMPROMISE THE REQUIRED VIBRATION CONTROL PERFORMANCE.
7. PIPES, DUCTS, CONDUITS, SUPPORTS, HANGERS, AND EQUIPMENT CONNECTIONS ASSOCIATED WITH VIBRATION-PRODUCING EQUIPMENT SHALL BE ISOLATED AS REQUIRED TO PREVENT FLANKING VIBRATION PATHS.
8. STRUCTURE-BORNE SOUND FROM VIBRATION-PRODUCING EQUIPMENT SHALL NOT EXCEED THE REQUIRED ROOM NOISE CRITERIA OF THE AFFECTED RECEIVING SPACES.
9. VIBRATION CONTROL SYSTEMS SHALL BE COMPATIBLE WITH THE PROJECT'S SEISMIC DESIGN REQUIREMENTS AND SHALL NOT REDUCE LIFE-SAFETY PERFORMANCE, ANCHORAGE, EQUIPMENT ACCESS, MAINTAINABILITY, OR OPERATIONAL RELIABILITY.

H. MINIMUM VIBRATION PERFORMANCE CRITERIA

THE FOLLOWING VIBRATION CRITERIA SHALL BE VERIFIED BY THE DESIGN-BUILD ENTITY AND ADJUSTED WHERE MORE STRINGENT REQUIREMENTS ARE REQUIRED BY FGI, ASHRAE, EQUIPMENT MANUFACTURERS, SENSITIVE MEDICAL EQUIPMENT, OR THE AHJ.

Area / Condition	Maximum Vibration Design Criteria
Patient rooms and patient care areas	6,000 micro-inches/second peak velocity maximum, or more stringent criteria where required
Operating rooms and treatment rooms	4,000 micro-inches/second peak velocity maximum, or more stringent criteria where required
Administrative areas	8,000 micro-inches/second peak velocity maximum, or more stringent criteria where required
Public circulation areas	8,000 micro-inches/second peak velocity maximum, or more stringent criteria where required
Sensitive medical equipment areas	Manufacturer's written vibration criteria shall govern
Rooftop equipment adjacent to patient rooms	No perceptible vibration in patient rooms; structure-borne sound shall not exceed room noise criteria

I. VERIFICATION AND COORDINATION

1. THE DESIGN-BUILD ENTITY SHALL PROVIDE ACOUSTICAL CALCULATIONS, EQUIPMENT SOUND DATA, EQUIPMENT VIBRATION DATA, WALL ASSEMBLY DATA, DOOR AND LOUVER ACOUSTIC DATA, VIBRATION ISOLATION SCHEDULES, AND OTHER DOCUMENTATION REQUIRED TO DEMONSTRATE COMPLIANCE.
2. FINAL EQUIPMENT SELECTIONS SHALL INCLUDE MANUFACTURER SOUND POWER DATA, SOUND PRESSURE DATA, OCTAVE-BAND DATA, VIBRATION DATA, AND RECOMMENDED VIBRATION ISOLATION REQUIREMENTS.
3. FIELD CONDITIONS, SUBSTITUTIONS, EQUIPMENT CHANGES, WALL ASSEMBLY CHANGES, ROOF EQUIPMENT CHANGES, AND ROUTING CHANGES SHALL NOT REDUCE THE REQUIRED SOUND OR VIBRATION ATTENUATION PERFORMANCE.
4. INSTALLED ACOUSTIC AND VIBRATION CONTROL MEASURES SHALL BE VERIFIED DURING CONSTRUCTION AND COMMISSIONING AS REQUIRED TO CONFIRM COMPLIANCE WITH THE FINAL DESIGN CRITERIA.
5. ANY CONDITION THAT MAY COMPROMISE PATIENT ROOM ACOUSTIC COMFORT, SPEECH PRIVACY, EQUIPMENT NOISE CONTROL, OR VIBRATION ISOLATION SHALL BE CORRECTED BY THE DESIGN-BUILD ENTITY PRIOR TO PROJECT ACCEPTANCE.

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

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NO.	DATE	DESCRIPTIONS

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
GENERAL NOTES – SOUND AND VIBRATION ATTENUATION

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1580 AVE. PONCE DE LEON, STE 103 SAN JUAN PR 00909

DRAWING NUMBER

A-1.0A

GENERAL NOTES – SMOKE COMPARTMENTALIZATION AND FIRE-RATED SEPARATION
DESIGN-BUILD RFP / BRIDGING DOCUMENTS

A. GENERAL REQUIREMENTS

1. THE DESIGN-BUILD ENTITY SHALL PROVIDE SMOKE COMPARTMENTALIZATION, SMOKE BARRIERS, SMOKE PARTITIONS, FIRE BARRIERS, FIRE PARTITIONS, HORIZONTAL ASSEMBLIES, SHAFT ENCLOSURES, AND FIRE WALLS AS REQUIRED BY THE LATEST ADOPTED APPLICABLE CODES, HEALTHCARE REGULATIONS, LIFE-SAFETY REQUIREMENTS, AND AUTHORITIES HAVING JURISDICTION.
2. SMOKE AND FIRE-RATED SEPARATIONS SHALL SUPPORT THE HOSPITAL'S DEFEND-IN-PLACE LIFE-SAFETY STRATEGY, PATIENT RELOCATION, SMOKE CONTAINMENT, FIRE CONTAINMENT, EGRESS PROTECTION, AND CONTINUITY OF CRITICAL HEALTHCARE OPERATIONS.
3. THE FINAL DESIGN SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE PUERTO RICO BUILDING CODE, INTERNATIONAL BUILDING CODE AS ADOPTED, NFPA 101 LIFE SAFETY CODE AS ADOPTED, NFPA 99 HEALTH CARE FACILITIES CODE AS ADOPTED, FGI GUIDELINES AS APPLICABLE, FIRE MARSHAL REQUIREMENTS, AND ALL APPLICABLE AUTHORITIES HAVING JURISDICTION.
4. WHERE THE DRAWINGS, SPECIFICATIONS, CODE ANALYSIS, LIFE-SAFETY PLANS, OR AHJ REQUIREMENTS DIFFER, THE MOST STRINGENT FIRE-RESISTANCE, SMOKE-RESISTANCE, AND LIFE-SAFETY REQUIREMENT SHALL GOVERN.
5. FIRE-RATED AND SMOKE-RATED ASSEMBLIES SHALL BE CONTINUOUS, COMPLETE, COORDINATED, AND CONSTRUCTIBLE AS INTEGRATED LIFE-SAFETY SYSTEMS, NOT AS ISOLATED WALL TYPES.
6. ALL RATED WALLS, SMOKE BARRIERS, FIRE BARRIERS, FIRE WALLS, SHAFT ENCLOSURES, HORIZONTAL ASSEMBLIES, PROTECTED OPENINGS, JOINTS, PENETRATIONS, DAMPERS, DOORS, GLAZING, ACCESS PANELS, AND FIRESTOPPING SYSTEMS SHALL BE COORDINATED ACROSS ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, MEDICAL GAS, TECHNOLOGY, AND EQUIPMENT DRAWINGS.
7. LIFE-SAFETY PLANS SHALL IDENTIFY THE REQUIRED LOCATIONS OF SMOKE COMPARTMENTS, SMOKE BARRIERS, FIRE BARRIERS, FIRE WALLS, EXIT ENCLOSURES, SHAFTS, HORIZONTAL EXITS, FIRE-RATED CORRIDORS, AND OTHER RATED ASSEMBLIES REQUIRED FOR CODE COMPLIANCE.
8. FLOOR PLANS AND WALL TYPE PLANS SHALL BE COORDINATED WITH THE LIFE-SAFETY PLANS SO THAT EACH REQUIRED RATED ASSEMBLY IS PROPERLY IDENTIFIED, RATED, DETAILED, SEALED, PROTECTED, AND MAINTAINED.

B. MINIMUM FIRE AND SMOKE SEPARATION CRITERIA

Assembly / Condition	Typical Minimum Rating / Requirement	Primary Purpose	Notes
Smoke barrier	1-hour fire-resistance rating minimum, unless a more stringent requirement applies	Divides the hospital floor into smoke compartments	Shall resist the passage of smoke and extend continuously as required by code.
Smoke compartment	Maximum area and travel distances shall comply with adopted code	Supports defend-in-place patient relocation	Group I-2 smoke compartments shall be sized and arranged in accordance with adopted code and AHJ requirements.
Smoke partition	Rating as required by adopted code and life-safety analysis	Limits smoke transfer at corridors or other required locations	Shall resist smoke passage and be sealed at joints and penetrations.
Fire barrier	1-hour, 2-hour, 3-hour, or greater as required by code	Separates hazardous areas, shafts, exits, occupancies, incidental uses, and fire areas	Rating shall be based on final code analysis and life-safety plans.
Fire partition	Rating as required by code	Separates corridors, dwelling/sleeping units where applicable, tenant separations, or other required areas	Use only where permitted by code for the specific condition.
Shaft enclosure	Rating as required by code, typically 1-hour or 2-hour depending on height and condition	Protects vertical openings and concealed shafts	Coordinate with ducts, piping, conduit, medical gas, and access panels.
Horizontal assembly	Rating as required by code	Provides fire-resistance separation between floors or uses	Coordinate slab penetrations, floor openings, and firestopping.
Fire wall	Rating as required by IBC Table 706.4 and adopted code; Group I occupancies typically require 3-hour fire walls unless a permitted exception applies	Creates separate buildings or fire areas as defined by code	Shall be used only where required or specifically shown by the final code analysis.
Fire door assembly	Rating and smoke protection as required by wall type and code	Protects openings in rated or smoke-resistive assemblies	Door, frame, hardware, glazing, gasketing, closer, and threshold shall be coordinated as a complete assembly.
Fire/smoke damper	Rating and listing as required by code	Protects duct and air-transfer penetrations	Coordinate with mechanical systems and access requirements.
Firestopping system	Rating equal to the assembly penetrated, unless otherwise permitted by code	Maintains rating at penetrations and joints	Shall be listed, tested, compatible, and coordinated with each assembly.

C. SMOKE COMPARTMENTALIZATION

1. THE DESIGN-BUILD ENTITY SHALL PROVIDE SMOKE COMPARTMENTS IN PATIENT CARE AREAS AND OTHER REQUIRED HOSPITAL AREAS IN ACCORDANCE WITH THE ADOPTED CODE, NFPA 101, IBC, FGI REQUIREMENTS, AND AHJ REVIEW.
2. SMOKE COMPARTMENTS SHALL BE ARRANGED TO SUPPORT HORIZONTAL PATIENT RELOCATION, STAFF RESPONSE, FIRE DEPARTMENT OPERATIONS, AND DEFEND-IN-PLACE LIFE-SAFETY PROCEDURES.
3. EACH SMOKE COMPARTMENT SHALL PROVIDE THE REQUIRED AREA, TRAVEL DISTANCE, EGRESS CAPACITY, REFUGE CAPACITY, EXIT ACCESS, AND SEPARATION FROM ADJACENT SMOKE COMPARTMENTS.
4. SMOKE COMPARTMENT BOUNDARIES SHALL ALIGN WITH SMOKE BARRIERS, RATED CORRIDORS, HORIZONTAL EXITS, FIRE BARRIERS, SHAFTS, DOORS, DAMPERS, AND OTHER LIFE-SAFETY COMPONENTS REQUIRED TO MAINTAIN THE SMOKE COMPARTMENT.
5. SMOKE COMPARTMENT BOUNDARIES SHALL BE CONTINUOUS FROM EXTERIOR WALL TO EXTERIOR WALL, SMOKE BARRIER TO SMOKE BARRIER, OR OTHER APPROVED RATED CONSTRUCTION AS REQUIRED TO PROVIDE A COMPLETE SMOKE SEPARATION.
6. SMOKE COMPARTMENT LAYOUTS SHALL BE COORDINATED WITH PATIENT BED COUNTS, CLINICAL OPERATIONS, NURSING UNIT ORGANIZATION, STAFF VISIBILITY, DOOR SWINGS, EGRESS ROUTES, EQUIPMENT MOVEMENT, BED MOVEMENT, AND EMERGENCY RESPONSE.
7. SMOKE COMPARTMENT BOUNDARIES SHALL NOT BE INTERRUPTED BY UNPROTECTED OPENINGS, UNSEALED PENETRATIONS, UNPROTECTED TRANSFER GRILLES, UNPROTECTED DUCTWORK, OR DISCONTINUOUS CEILING OR WALL CONDITIONS.
8. SMOKE COMPARTMENTATION SHALL BE MAINTAINED DURING FINAL DESIGN DEVELOPMENT, CONSTRUCTION, COMMISSIONING, AND OCCUPANCY.

D. SMOKE BARRIERS AND SMOKE PARTITIONS

1. SMOKE BARRIERS SHALL BE PROVIDED WHERE REQUIRED TO FORM SMOKE COMPARTMENTS, SEPARATE PATIENT CARE AREAS, PROTECT HORIZONTAL EXITS, AND COMPLY WITH HEALTHCARE LIFE-SAFETY REQUIREMENTS.
2. SMOKE BARRIERS SHALL BE MINIMUM 1-HOUR FIRE-RESISTANCE-RATED CONSTRUCTION, UNLESS A HIGHER RATING IS REQUIRED BY THE ADOPTED CODE, LIFE-SAFETY ANALYSIS, OR AHJ.
3. SMOKE BARRIERS SHALL RESIST THE PASSAGE OF SMOKE AND SHALL BE CONTINUOUS THROUGH CONCEALED SPACES, ABOVE CEILINGS, BELOW RAISED FLOORS, AND AT WALL-TO-SLAB, WALL-TO-DECK, AND WALL-TO-WALL INTERSECTIONS.
4. SMOKE PARTITIONS SHALL BE PROVIDED WHERE REQUIRED BY CODE TO RESIST THE TRANSFER OF SMOKE BETWEEN SPACES, CORRIDORS, AND OTHER AREAS IDENTIFIED BY THE LIFE-SAFETY PLANS.
5. JOINTS, INTERSECTIONS, PERIMETER CONDITIONS, HEAD-OF-WALL CONDITIONS, BOTTOM-OF-WALL CONDITIONS, AND PENETRATIONS IN SMOKE BARRIERS AND SMOKE PARTITIONS SHALL BE SEALED WITH MATERIALS AND SYSTEMS APPROPRIATE FOR THE REQUIRED SMOKE-RESISTIVE PERFORMANCE.
6. DOORS IN SMOKE BARRIERS AND SMOKE PARTITIONS SHALL COMPLY WITH THE REQUIRED FIRE RATING, SMOKE RATING, SELF-CLOSING OR AUTOMATIC-CLOSING OPERATION, POSITIVE LATCHING, GASKETING, UNDERCUT LIMITATIONS, AND HARDWARE REQUIREMENTS ESTABLISHED BY CODE.
7. GLAZING LOCATED IN SMOKE BARRIERS, SMOKE PARTITIONS, FIRE-RATED WALLS, OR FIRE-RATED DOORS SHALL BE FIRE-RATED, SMOKE-RATED, SAFETY-RATED, AND LISTED FOR THE REQUIRED APPLICATION.
8. DUCTS AND AIR-TRANSFER OPENINGS PENETRATING SMOKE BARRIERS OR SMOKE PARTITIONS SHALL BE PROTECTED WITH SMOKE DAMPERS, FIRE/SMOKE DAMPERS, OR OTHER APPROVED PROTECTION AS REQUIRED BY CODE.

E. FIRE BARRIERS, FIRE PARTITIONS, AND HORIZONTAL ASSEMBLIES

1. FIRE BARRIERS SHALL BE PROVIDED WHERE REQUIRED TO SEPARATE OCCUPANCIES, FIRE AREAS, HAZARDOUS AREAS, SHAFTS, EXITS, HORIZONTAL EXITS, INCIDENTAL USES, UTILITY SPACES, AND OTHER CODE-REQUIRED SEPARATIONS.
2. FIRE BARRIERS SHALL HAVE THE FIRE-RESISTANCE RATING REQUIRED BY THE ADOPTED CODE AND FINAL LIFE-SAFETY ANALYSIS.
3. FIRE BARRIERS SHALL BE CONTINUOUS FROM THE TOP OF THE FLOOR OR FOUNDATION BELOW TO THE UNDERSIDE OF THE FIRE-RESISTANCE-RATED FLOOR, ROOF, OR FLOOR/CEILING ASSEMBLY ABOVE, UNLESS OTHERWISE PERMITTED BY CODE.
4. FIRE PARTITIONS SHALL BE PROVIDED WHERE PERMITTED AND REQUIRED BY THE ADOPTED CODE FOR CORRIDOR SEPARATIONS, TENANT SEPARATIONS, SLEEPING UNIT SEPARATIONS, OR OTHER APPLICABLE CONDITIONS.
5. HORIZONTAL ASSEMBLIES SHALL PROVIDE THE REQUIRED FIRE-RESISTANCE RATING BETWEEN FLOORS, BETWEEN DIFFERENT USES, ABOVE HAZARDOUS SPACES, BELOW OCCUPIED AREAS, AND AT OTHER LOCATIONS REQUIRED BY CODE.
6. FIRE-RATED FLOOR AND ROOF ASSEMBLIES SHALL BE COORDINATED WITH STRUCTURAL SYSTEMS, SLAB PENETRATIONS, SHAFTS, STAIRS, ELEVATORS, MECHANICAL OPENINGS, PLUMBING PENETRATIONS, ELECTRICAL PENETRATIONS, MEDICAL GAS PENETRATIONS, AND FIRESTOPPING SYSTEMS.
7. ANY PENETRATION THROUGH A FIRE BARRIER, FIRE PARTITION, SHAFT ENCLOSURE, HORIZONTAL ASSEMBLY, OR RATED FLOOR/CEILING ASSEMBLY SHALL BE PROTECTED WITH AN APPROVED LISTED FIRESTOPPING SYSTEM EQUAL TO THE REQUIRED RATING OF THE ASSEMBLY.

F. FIRE WALLS

1. FIRE WALLS SHALL BE PROVIDED ONLY WHERE REQUIRED BY THE FINAL CODE ANALYSIS, LIFE-SAFETY STRATEGY, BUILDING AREA LIMITATIONS, CONSTRUCTION TYPE, OCCUPANCY SEPARATION, OR AHJ DIRECTION.
2. FIRE WALLS SHALL HAVE THE FIRE-RESISTANCE RATING REQUIRED BY IBC TABLE 706.4, THE ADOPTED PUERTO RICO BUILDING CODE, NFPA REQUIREMENTS, AND AHJ REVIEW.
3. FOR GROUP I HEALTHCARE OCCUPANCIES, FIRE WALLS SHALL BE DESIGNED AS MINIMUM 3-HOUR FIRE-RESISTANCE-RATED CONSTRUCTION UNLESS THE ADOPTED CODE PERMITS A DIFFERENT RATING FOR THE SPECIFIC CONSTRUCTION TYPE AND CONDITION.
4. FIRE WALLS SHALL CREATE SEPARATE BUILDINGS OR FIRE AREAS AS DEFINED BY CODE AND SHALL BE COORDINATED WITH STRUCTURAL DESIGN, SEISMIC DESIGN, EXPANSION JOINTS, ROOF CONSTRUCTION, EXTERIOR WALL CONSTRUCTION, PARAPETS, OPENINGS, PENETRATIONS, AND FIRESTOPPING.
5. OPENINGS IN FIRE WALLS SHALL BE LIMITED AND PROTECTED AS REQUIRED BY CODE.
6. PENETRATIONS THROUGH FIRE WALLS SHALL BE MINIMIZED AND SHALL BE PROTECTED WITH LISTED FIRESTOPPING SYSTEMS, FIRE DAMPERS, FIRE/SMOKE DAMPERS, SLEEVES, AND RATED ASSEMBLIES AS REQUIRED BY CODE.
7. FIRE WALL CONTINUITY SHALL BE MAINTAINED THROUGH CONCEALED SPACES, ROOF CONDITIONS, EXTERIOR WALL INTERSECTIONS, STRUCTURAL INTERFACES, AND SERVICE PENETRATIONS.

G. OPENINGS, DOORS, GLAZING, AND HARDWARE

1. OPENINGS IN SMOKE BARRIERS, SMOKE PARTITIONS, FIRE BARRIERS, FIRE PARTITIONS, FIRE WALLS, SHAFT ENCLOSURES, AND HORIZONTAL ASSEMBLIES SHALL BE LIMITED TO THOSE REQUIRED FOR FUNCTION, EGRESS, BUILDING SYSTEMS, AND CODE-COMPLIANT OPERATION.
2. FIRE-RATED AND SMOKE-RATED DOORS SHALL BE LISTED, LABELED, SELF-CLOSING OR AUTOMATIC-CLOSING WHERE REQUIRED, POSITIVE-LATCHING WHERE REQUIRED, AND COORDINATED WITH THE REQUIRED WALL RATING.
3. RATED DOOR ASSEMBLIES SHALL INCLUDE THE DOOR, FRAME, GLAZING, VISION PANELS, LOUVERS WHERE PERMITTED, HARDWARE, GASKETING, CLOSERS, THRESHOLDS, HOLD-OPEN DEVICES, ACCESS CONTROL, AND SMOKE SEALS REQUIRED FOR THE APPLICABLE CONDITION.
4. DOOR UNDERCUTS, PERIMETER GAPS, HARDWARE PENETRATIONS, ELECTRIC STRIKES, CARD READERS, MAGNETIC HOLD-OPENS, POWER TRANSFERS, AND ACCESS-CONTROL DEVICES SHALL NOT COMPROMISE THE REQUIRED FIRE OR SMOKE PERFORMANCE.
5. RATED GLAZING SHALL BE LISTED AND LABELED FOR THE REQUIRED FIRE-PROTECTION, FIRE-RESISTANCE, SMOKE-CONTROL, SAFETY-GLAZING, AND IMPACT REQUIREMENTS APPLICABLE TO THE LOCATION.
6. FIRE-RATED ACCESS PANELS, FIRE-RATED DAMPERS, FIRE/SMOKE DAMPERS, AND RATED INSPECTION DOORS SHALL BE PROVIDED WHERE REQUIRED TO MAINTAIN THE RATING AND ALLOW REQUIRED MAINTENANCE ACCESS.

H. PENETRATIONS, JOINTS, AND FIRESTOPPING

1. ALL PENETRATIONS IN RATED WALLS, SMOKE BARRIERS, SMOKE PARTITIONS, FIRE BARRIERS, FIRE WALLS, SHAFT ENCLOSURES, AND HORIZONTAL ASSEMBLIES SHALL BE PROTECTED WITH LISTED FIRESTOPPING SYSTEMS APPROPRIATE FOR THE PENETRATING ITEM AND ASSEMBLY.
2. FIRESTOPPING SYSTEMS SHALL BE SELECTED TO MATCH THE WALL, FLOOR, ROOF, SHAFT, JOINT, OR BARRIER CONDITION BEING PENETRATED.
3. FIRESTOPPING SHALL MAINTAIN THE REQUIRED FIRE-RESISTANCE RATING, SMOKE-RESISTANCE PERFORMANCE, MOVEMENT CAPABILITY, AND COMPATIBILITY WITH ADJACENT MATERIALS.
4. HEAD-OF-WALL JOINTS, BOTTOM-OF-WALL JOINTS, PERIMETER JOINTS, EXPANSION JOINTS, SEISMIC JOINTS, CURTAIN WALL EDGES, SLAB EDGES, AND RATED ASSEMBLY INTERSECTIONS SHALL BE PROTECTED WITH APPROVED JOINT SYSTEMS.
5. MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, MEDICAL GAS, COMMUNICATIONS, NURSE CALL, SECURITY, AND TECHNOLOGY PENETRATIONS SHALL BE COORDINATED BEFORE CONSTRUCTION TO AVOID UNPROTECTED OR EXCESSIVE PENETRATIONS THROUGH RATED ASSEMBLIES.
6. MULTIPLE SMALL PENETRATIONS, BACK-TO-BACK ELECTRICAL BOXES, RECESSED CABINETS, ACCESS PANELS, PLUMBING CARRIERS, MEDICAL GAS OUTLETS, AND OTHER CONCEALED ELEMENTS SHALL NOT COMPROMISE THE REQUIRED RATING OR SMOKE-RESISTIVE PERFORMANCE.
7. FIRESTOPPING AND SMOKE SEALING SHALL REMAIN ACCESSIBLE FOR INSPECTION WHERE REQUIRED AND SHALL BE DOCUMENTED FOR FUTURE MAINTENANCE.

I. BASEMENT, EQUIPMENT ROOMS, AND SERVICE AREAS

1. BASEMENT ELECTRO-MECHANICAL ROOMS, GENERATOR ROOMS, CHILLER ROOMS, SUBSTATIONS, TRANSFORMER ROOMS, SWITCHGEAR ROOMS, FUEL SYSTEM ROOMS, PUMP ROOMS, MECHANICAL ROOMS, ELECTRICAL ROOMS, AND OTHER SERVICE AREAS SHALL BE SEPARATED FROM OCCUPIED SPACES AND EGRESS PATHS BY THE FIRE-RESISTANCE-RATED CONSTRUCTION REQUIRED BY CODE.
2. HAZARDOUS, INCIDENTAL, UTILITY, FUEL, ELECTRICAL, GENERATOR, AND MECHANICAL SPACES SHALL RECEIVE THE FIRE-RATED SEPARATION, OPENING PROTECTION, SMOKE SEPARATION, FIRE SUPPRESSION, VENTILATION PROTECTION, AND DETECTION REQUIREMENTS ESTABLISHED BY THE FINAL CODE ANALYSIS.
3. SHAFTS, VERTICAL RISERS, DUCT CHASES, PIPE CHASES, CABLE PATHWAYS, AND SERVICE OPENINGS EXTENDING FROM THE BASEMENT TO UPPER FLOORS SHALL BE ENCLOSED, SEALED, AND PROTECTED AS REQUIRED TO PREVENT VERTICAL FIRE AND SMOKE MIGRATION.
4. RATED SEPARATIONS AT BASEMENT EQUIPMENT ROOMS SHALL BE COORDINATED WITH ACOUSTICAL REQUIREMENTS, VIBRATION ISOLATION, EQUIPMENT ACCESS, MAINTENANCE CLEARANCES, DOOR SIZES, VENTILATION OPENINGS, LOUVERS, DUCTS, DAMPERS, AND FIRE SUPPRESSION SYSTEMS.

J. COORDINATION AND VERIFICATION

1. THE DESIGN-BUILD ENTITY SHALL PROVIDE FINAL LIFE-SAFETY PLANS, CODE ANALYSIS, RATED WALL PLANS, SMOKE COMPARTMENT PLANS, EGRESS PLANS, FIRESTOPPING DETAILS, DOOR RATING SCHEDULES, DAMPER SCHEDULES, AND RATED ASSEMBLY DOCUMENTATION FOR REVIEW.
2. THE FINAL CONSTRUCTION DOCUMENTS SHALL CLEARLY IDENTIFY EACH FIRE-RATED, SMOKE-RATED, AND SMOKE-RESISTIVE ASSEMBLY, INCLUDING REQUIRED RATING, EXTENT, CONTINUITY, OPENING PROTECTION, AND PENETRATION PROTECTION.
3. RATED WALL TAGS, LIFE-SAFETY PLANS, DOOR SCHEDULES, PARTITION TYPES, CEILING PLANS, MECHANICAL PLANS, ELECTRICAL PLANS, PLUMBING PLANS, FIRE PROTECTION PLANS, AND STRUCTURAL PLANS SHALL BE FULLY COORDINATED.
4. SUBSTITUTIONS, ROUTING CHANGES, EQUIPMENT CHANGES, SHAFT CHANGES, WALL TYPE CHANGES, CEILING CHANGES, DOOR CHANGES, OR FIELD MODIFICATIONS SHALL NOT REDUCE THE REQUIRED FIRE-RESISTANCE, SMOKE-RESISTANCE, OR LIFE-SAFETY PERFORMANCE.
5. THE DESIGN-BUILD ENTITY SHALL INSPECT, VERIFY, AND DOCUMENT FIRESTOPPING, RATED ASSEMBLIES, SMOKE BARRIERS, SMOKE COMPARTMENTS, RATED DOORS, DAMPERS, AND PROTECTED PENETRATIONS PRIOR TO CONCEALMENT AND BEFORE PROJECT ACCEPTANCE.
6. ANY UNPROTECTED PENETRATION, DISCONTINUOUS RATED ASSEMBLY, MISSING SMOKE SEAL, MISSING FIRESTOPPING, IMPROPERLY RATED DOOR, UNPROTECTED OPENING, OR NON-COMPLIANT SMOKE COMPARTMENT CONDITION SHALL BE CORRECTED PRIOR TO OCCUPANCY.

NOTES:
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  NOT FOR CONSTRUCTION.

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NO.	DATE	DESCRIPTIONS

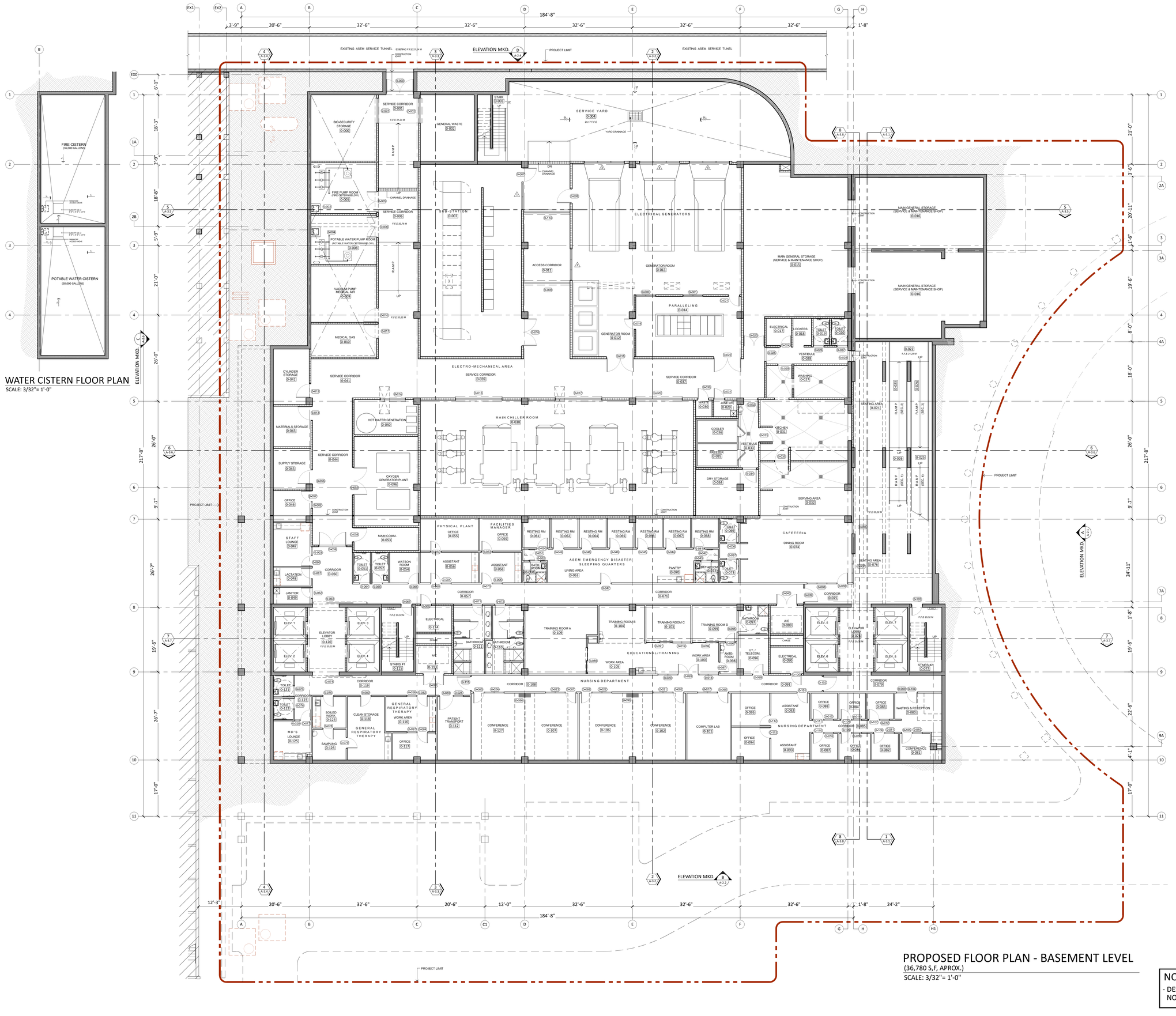
DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
GENERAL SMOKE COMPART. & FIRE-RATED SEPARATION NOTES

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER
A-1.0B



WATER CISTERN FLOOR PLAN

SCALE: 3/32"= 1'-0"

PROPOSED FLOOR PLAN - BASEMENT LEVEL

(36,780 S,F, APROX.)

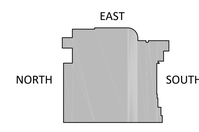
SCALE: 3/32"= 1'-0"

SPACE PROGRAM:

ELECTRO-MECHANICAL AREA
- MAIN ELECTROMECHANICAL UTILITY SERVICES
- CENTRAL BUILDING SUPPORT SYSTEMS

ADMINISTRATIVE AND OPERATIONAL SUPPORT
- NURSING DEPARTMENT – EDUCATIONAL / TRAINING AREA
- FACILITIES MANAGER
- PHYSICAL PLANT
- ASEM EMERGENCY DISASTER CONTROL CENTER SLEEPING QUARTERS

SUPPORT SERVICES
- MAIN GENERAL STORAGE
- CAFETERIA SERVICES
- STAFF SUPPORT AREA
- MD'S SUPPORT AREA
- PATIENT TRANSPORT
- GENERAL RESPIRATORY THERAPY



PROJECT REFERENCE ORIENTATION KEY PLAN

NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2016
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

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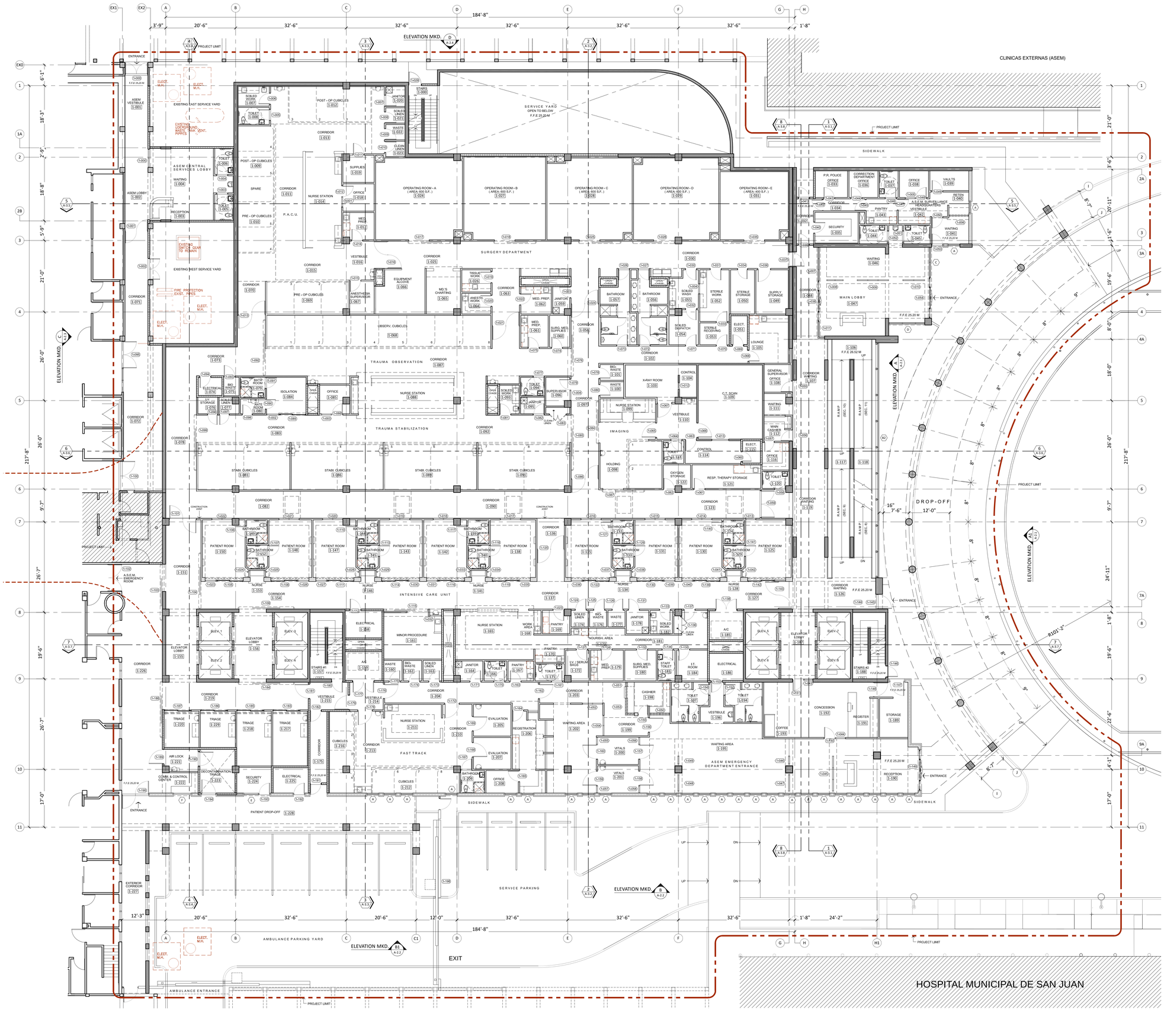
PROJECT: PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE: PROPOSED FLOOR PLAN - BASEMENT LEVEL

DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS
URB. CARIBE 1580 AVE.PONCE DE LEON, STE 103 SAN JUAN PR 00926

DRAWING NUMBER

A-1.1



SPACE PROGRAM:

TRAUMA HOSPITAL MAIN ENTRANCE
- MAIN LOBBY
- ENTRANCE AND RECEPTION
- VISITOR'S SUPPORT AND WAITING AREAS

ASEM EMERGENCY DEPARTMENT ENTRANCE
- PUBLIC ENTRANCE AND RECEPTION
- REGISTRATION
- SUPPORT AND WAITING AREAS
- TRIAGE SERVICES
- FAST TRACK PATIENT CARE AND SUPPORT AREAS
- EMERGENCY DEPARTMENT SUPPORT FUNCTIONS
- CONCESSION RETAIL SPACE

ASEM CENTRAL SERVICES BUILDING VISITOR'S ENTRANCE
- MAIN LOBBY
- ENTRANCE AND RECEPTION
- VISITOR'S SUPPORT AND WAITING AREAS

AMBULANCE ENTRANCE AND CLOSED PARKING YARD
- AMBULANCE ENTRANCE
- 7 AMBULANCE PATIENT DROP-OFF
- AMBULANCE TRIAGE
- DECONTAMINATION
- SECURITY CONTROL
- COMMUNICATIONS AND CONTROL CENTER
- AMBULANCE EXIT AND SERVICE PARKING

TRAUMA STABILIZATION AND OBSERVATION UNIT
- 8 STABILIZATION CUBICLES
- 8 OBSERVATION CUBICLES
- 1 ISOLATION ROOM
- SUPPORT AREAS

TRAUMA SURGICAL SERVICES
- 5 OPERATING ROOMS
- PRE-OPERATIVE SERVICES
- POST-ANESTHESIA RECOVERY SERVICES
- SUPPORT AREAS

IMAGING SERVICES
- COMPUTED TOMOGRAPHY (CT)
- DIAGNOSTIC RADIOLOGY (X-RAY)
- SUPPORT AREAS

TRAUMA INTENSIVE CARE UNIT
- 10 PRIVATE ICU ROOMS
- SUPPORT AREAS

ASEM SURVEILLANCE HEADQUARTERS
- P.R. POLICE OFFICE
- CORRECTION DEPARTMENT OFFICE
- SUPERVISOR'S OFFICE
- SUPPORT AREAS
- SECURITY AND CCTV CONTROL ROOM

ADMINISTRATIVE SUPPORT
- GENERAL SUPERVISOR
- MAIN CASHIER AND SUPERVISOR'S OFFICE
- SUPPORT AREAS

PROPOSED FLOOR PLAN - FIRST LEVEL

(41,050 S.F. APROX.)

SCALE: 3/32"= 1'-0"

EAST / NORTH / SOUTH / WEST

PROJECT REFERENCE ORIENTATION KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PROPOSALS FOR DESIGN-BUILD SERVICES FOR THE PROJECT DESCRIBED HEREIN. THEY ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION. THEY ARE INTENDED TO PROVIDE PERFORMANCE CRITERIA AND GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR THE DEVELOPMENT OF ALL CONSTRUCTION DOCUMENTS, AND SHALL BE SOLELY RESPONSIBLE FOR THE COORDINATION, COMPLETENESS, ENGINEERING, PROFICIENCY, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS AND THEIR CONSULTANTS ASSUME NO RESPONSIBILITY FOR THE USE OF THESE DOCUMENTS BY ANY PARTY OTHER THAN THE OWNER AND ITS AUTHORIZED AGENTS. THEY ARE NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS CONTAINED HEREIN, AND SHALL NOT BE RESPONSIBLE FOR ANY CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES. THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS AND THEIR CONSULTANTS FOR USE SOLELY WITH RESPECT TO THIS PROJECT. ALL COPYRIGHTS, INCLUDING COMMON LAW RIGHTS, ARE RESERVED BY THE ARCHITECT AND THE CONSULTANTS. THESE DOCUMENTS SHALL NOT BE USED IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF THE ARCHITECT. ANY UNAUTHORIZED USE, REPRODUCTION, DISCLOSURE, MODIFICATION, RELIANCE, OR RESALE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS STRICTLY PROHIBITED AND MAY RESULT IN LEGAL ACTION. BY ACCESSING OR USING THESE DOCUMENTS, YOU AGREE TO INDEMNIFY AND HOLD HARMLESS THE ARCHITECT AND THE CONSULTANTS FROM ANY CLAIMS, DAMAGES, OR LIABILITIES ARISING FROM YOUR USE OF THESE DOCUMENTS. ANY MODIFICATIONS MADE TO THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT AND THE CONSULTANTS.

NO.	DATE	DESCRIPTIONS

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

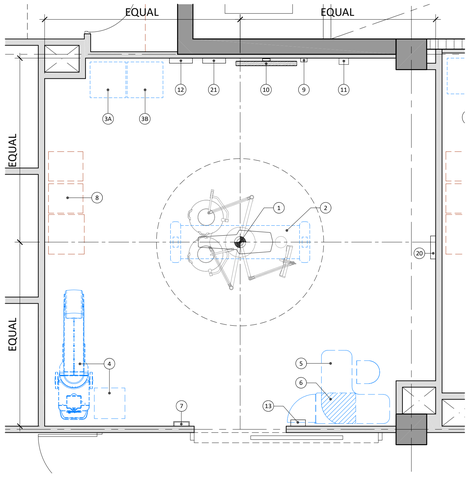
PROJECT: PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE: PROPOSED FLOOR PLAN - FIRST LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00920

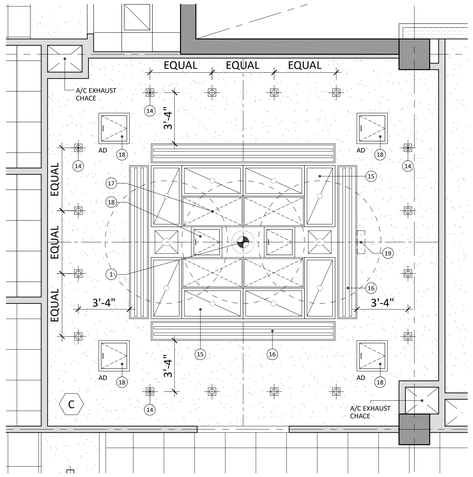
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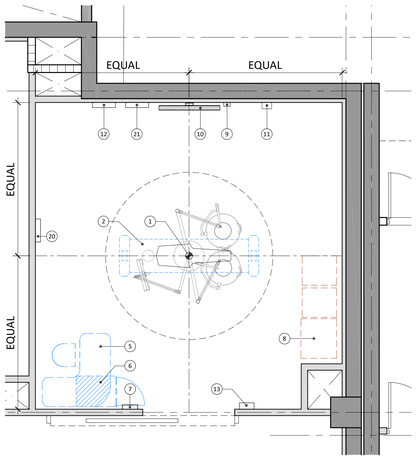
TYP. OPERATING ROOMS LAYOUT PLAN BLOW-UP (SPACES 1-024, 1-027, 1-028, 1-029)

SCALE: 1/4"= 1'-0"



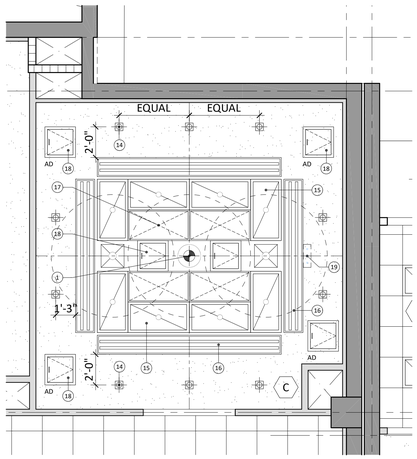
TYP. OPERATING CEILING PLAN BLOW-UP (SPACES 1-024, 1-027, 1-028, 1-029)

SCALE: 1/4"= 1'-0"



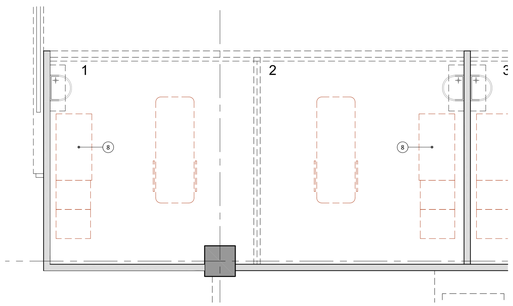
OPERATING ROOM LAYOUT PLAN BLOW-UP (SPACE 1-031)

SCALE: 1/4"= 1'-0"



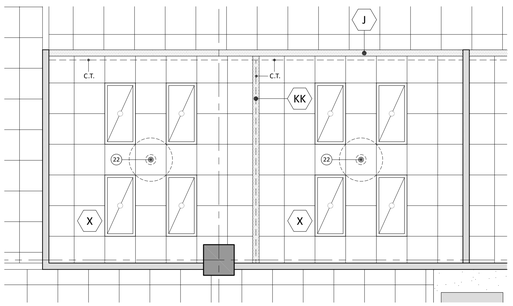
OPERATING CEILING PLAN BLOW-UP (SPACE 1-031)

SCALE: 1/4"= 1'-0"



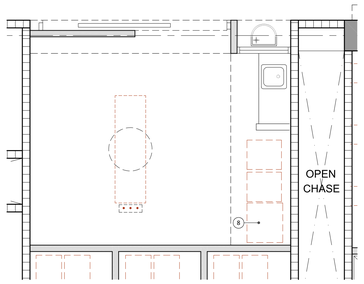
TYP. STABILIZATION CUBICLE LAYOUT BLOWUP (SPACES 1-081, 1-086, 1-089, 1-091)

SCALE: 1/4"= 1'-0"



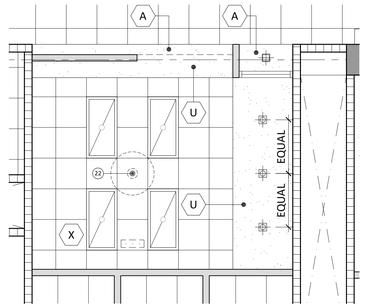
TYP. STABILIZATION CUBICLE CEILING PLAN BLOW-UP (SPACES 1-081, 1-086, 1-089, 1-091)

SCALE: 1/4"= 1'-0"



MINOR PROCEDURE LAYOUT PLAN BLOW-UP (SPACES 1-161, 2-068, 4-046, 5-046, 6-046, 7-050)

SCALE: 1/4"= 1'-0"



MINOR PROCEDURE LAYOUT PLAN BLOW-UP (SPACES 1-161, 2-068, 4-046, 5-046, 6-046, 7-050)

SCALE: 1/4"= 1'-0"

LEGEND:

- SURGICAL LIGHTCENTROID LOCATION
- RECESSED CONE TYPE DOWN-LIGHT LED FIXTURE (OPERATING ROOM SEALED TYPE WHERE APPLICABLE)
- AD — 24" X 24" STAINLESS STEEL PLENUM ACCESS DOOR. SUSPENDED CLG. SHALL BE REINFORCED FOR REQUIRED FRAME. (SURGICAL ROOM GRADE)
- RECESSED 24" x 48" LED LIGHTING FIXTURE (OPERATING ROOM SEALED TYPE WHERE APPLICABLE)
- OPERATING LAMP BASE PLATE & COLUMN
- 24" X 48" HEPA FILTER IN A/C ASSEMBLY
- LAMINAR FLOW LINEAR A/C DIFFUSER
- MEDICAL GASES SUPPLY CONNECTION BOX (PLENUM MOUNTED) TO BE FIELD LOCATED. SEE MECHANICAL DWGS.
- UTILITY SERVICE DOUBLE BOOM WITH STRUCTURAL SUPPORT HUNG BASE INSIDE PLENUM.
- RED DOTTED SYMBOLS DENOTE FURNITURE & EQUIPMENTS NOT IN CONTRACT
- BLUE SYMBOLS DENOTE MOVABLE MEDICAL PROCEDURE EQUIPMENTS NOT IN CONTRACT
- RECESSED 24" x 24" LED LIGHTING FIXTURE (OPERATING ROOM SEALED TYPE WHERE APPLICABLE)
- PROCEDURE SURGICAL LAMP BASE PLATE & COLUMN
- C.T. - CURTAIN TRACK
- (A) 5/8" SUSPENDED GYPSUM BOARD CEILING PAINTED @ 7'-6" A.F.F.
- (C) 5/8" MOISTURE RESISTANT OPERATING ROOM GYPSUM BOARD CEILING @ 9'-6" A.F.F. WITH WATER BASED EPOXY CLEAN ROOM PAINT FINISH.
- (J) 5/8" GYPSUM BOARD CEILING @ 8'-6" A.F.F. WITH WATER BASED EPOXY CLEAN ROOM PAINT FINISH.
- (U) 5/8" MOISTURE RESISTANT OPERATING ROOM GYPSUM BOARD CEILING @ 8'-6" A.F.F. WITH WATER BASED EPOXY CLEAN ROOM PAINT FINISH.
- (X) 24"X 24" SQUARE LAY-IN GASKETED CEILING TILES @ 9'-6" A.F.F. CLEAN ROOM TYPE MYLAR FINISH, INSTALLED ON REQUIRED CLEAN ROOM SUSPENSION SYSTEM ASSEMBLY.
- (KK) 5/8" GYPSUM BOARD CEILING SOFFIT @ 9'-6" A.F.F. WITH WATER BASED EPOXY CLEAN ROOM PAINT FINISH.

OPERATION ROOM EQUIPMENT DESCRIPTION LEGEND

1	SURGICAL O.R. THREE-LIGHT HEAD LAMP(CEILING MOUNTED)	14	RECESSED OPERATING ROOM GRADE LED CONE LIGHTING FIXTURE
2	SURGICAL TABLE SYSTEM TO BE SUPPLIED BY OWNER & INSTALLED BY CONTRACTOR	15	RECESSED 24" X 48" OPERATING ROOM GRADE LED LIGHTING FIXTURE
3A	SURGICAL NAVIGATION SYS. TO BE SUPPLIED BY OWNER & INSTALLED BY CONTRACTOR	16	LAMINAR FLOW A/C DIFFUSER
3B	SURGICAL NAVIGATION SYS. TO BE SUPPLIED BY OWNER & INSTALLED BY CONTRACTOR	17	HEPA FILTER ASSEMBLY 24" X 48"
4	O-ARM SURGICAL IMAGING SYSTEM TO BE SUPPLIED & INSTALLED BY OWNER	18	24" X 24" OPERATING ROOM GRADE STAINLESS STEEL PLENUM ACCESS HATCH
5	WORK STATION	19	MEDICAL GASES FLOW METER BOX COLUMN (CEILING MOUNTED / STAINLESS STEEL) WITH THE FOLLOWING CAPACITIES: 2 OXYGEN HOOKUP OUTLETS, 2 VACUUM HOOKUP OUTLETS, 1 NITROGEN HOOKUP OUTLET, 1 NITROUS OXIDE HOOKUP OUTLET
6	COMPUTER WORK STATION	20	MEDICAL GASES FLOW METER BOX (WALL MOUNTED / STAINLESS STEEL) WITH THE FOLLOWING CAPACITIES: 1 OXYGEN HOOKUP OUTLETS, 1 VACUUM HOOKUP OUTLETS, 1 NITROUS OXIDE HOOKUP OUTLET, 1 MEDICAL AIR HOOKUP OUTLET
7	OPERATING ROOM LIGHTING CONTROL DIMMERS	21	MEDICAL GAS FLOW METER BOX (WALL MOUNTED / STAINLESS STEEL) WITH THE FOLLOWING CAPACITY: 1 NITROGEN HOOKUP OUTLET
8	AUTOMATED MEDICATION DISPENSING SYSTEM	22	PROCEDURE LAMP TO BE SUPPLIED BY OWNER & INSTALLED BY CONTRACTOR
9	RECORDING THERMOSTAT @ 6'-0" A.F.F. SEE MECHANICAL DRAWINGS.		
10	WALL MOUNTED 46" LCD MONITOR		
11	CLOCK AND ELAPSED TIME RECORDER @ 6'-6" A.F.F.		
12	FILM VIEWER-N.I.C.		
13	SURGICAL LIGHTING VARIABLE INTENSITY CONTROL @ 5'-0" A.F.F-N.I.C.		

CEILING MOUNTED OPERATING ROOMS EQUIPMENT NOTES

(TYPICAL OPERATING CEILING EQUIPMENT MOUNTING ASSEMBLY REQUIREMENTS DETAILS)

APPLICABLE FOR ALL CEILING-MOUNTED SURGICAL LIGHTING FIXTURES & EQUIPMENT COLUMNS. STRUCTURAL SUPPORT AND MOUNTING ASSEMBLY SHALL BE FOR A RATED LOAD OF UP TO 450 LBS. INSTALLATION SHALL BE IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

1. APPLICABLE TO ALL CEILING MOUNTED EQUIPMENT LOCATIONS SHOWN IN THE DRAWINGS HEREIN WITH NUMBERS, (1) (16) (17) (18) (19)
2. PROVIDE A MINIMUM ¾" THICK A36 STEEL MOUNTING PLATE (MINIMUM DIMENSIONS: 14" X 14") MECHANICALLY ANCHORED TO STRUCTURAL SLAB OR BEAM WITH FOUR (4) MINIMUM ¾" DIAMETER HILTI KWIK BOLT TZ2 (OR APPROVED EQUAL) WITH MINIMUM 5" EMBEDMENT. TORQUE PER MANUFACTURER'S RECOMMENDATIONS.
3. SUSPEND FIXTURE SUPPORT USING FOUR (4) Ø1" ASTM A193 B7 FULLY THREADED RODS WITH HEAVY HEX NUTS AND LOCK WASHERS AT TOP AND BOTTOM. DOUBLE-NUT ALL CONNECTIONS AND TORQUE TO 90–100 FT-LBS.
4. INSTALL TWO (2) LATERAL BRACES MINIMUM, AT 45° ANGLE FROM SUSPENSION TO STRUCTURE, USING 2" X 2" X ¼" ANGLE IRON OR UNISTRUT WITH SEISMIC-RATED GUSSET PLATES. BRACES TO BE ATTACHED TO INDEPENDENT STRUCTURAL MEMBERS TO PREVENT.
5. ATTACH SURGICAL LIGHT MANUFACTURER'S INTERFACE PLATE TO ROD ASSEMBLY. LEVEL FIXTURE MOUNTING PLATE TO WITHIN ⅛". ENSURE BOLT PATTERNS ALIGN EXACTLY WITH FIXTURE BASE.
6. PROVIDE ESCUTCHEON OR SEALED RING AT CEILING PENETRATION FOR INFECTION CONTROL AND FIRE RATING. DO NOT ALLOW ANY FIXTURE LOAD TO BE TRANSFERRED TO CEILING GRID.
7. ELECTRICAL CONDUIT AND JUNCTION BOX SHALL BE MOUNTED ABOVE CEILING, ACCESSIBLE, AND SHALL ALLOW FOR FINAL FIXTURE ADJUSTMENT. COORDINATE ALL POWER AND CONTROL REQUIREMENTS WITH ELECTRICAL DRAWINGS AND FIXTURE MANUFACTURER.
8. CONTRACTOR SHALL SUBMIT INSTALLATION DRAWINGS AND OBTAIN APPROVAL FROM STRUCTURAL ENGINEER PRIOR TO FABRICATION OR INSTALLATION. FIELD-VERIFY CONDITIONS AND PROVIDE AS-BUILT DRAWINGS. PROVIDE INSTALLATION CERTIFICATION BY LICENSED STRUCTURAL ENGINEER STATING THE SYSTEM IS INSTALLED TO SAFELY SUPPORT A 450 LB SURGICAL LIGHT FIXTURE WITH MINIMUM 2.0 SAFETY FACTOR.
9. STRUCTURE ABOVE SHALL BE VERIFIED TO SUPPORT A MINIMUM LOAD OF 2,250 LBS (5X SAFETY FACTOR). COORDINATE WITH STRUCTURAL ENGINEER AND PROVIDE SUPPLEMENTAL FRAMING AS REQUIRED.

SUPLEMENTARY EQUIPMENT NOTES:

(APPLICABLE TO ALL MEDICAL EQUIPMENT SUPPLIED BY THE OWNER)

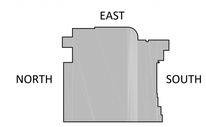
1. PRIOR TO THE INSTALLATION OF ALL THE EQUIPMENT (SOC, SIN & SCC) SPECIFIED HEREIN, THE CONTRACTOR SHALL REQUEST FROM THE OWNER THE FINAL CONFIRMATION LIST OF THE EQUIPMENT WITH ALL THE ELECTRICAL & PLUMBING REQUIREMENTS.
2. ALL FURNITURE AND EQUIPMENT IDENTIFIED TO BE SUPPLIED BY THE OWNER AND INSTALLED BY THE CONTRACTOR (SOC) SHALL BE INSTALLED ACCORDINGLY BY THE CONTRACTOR IN COMPLIANCE WITH ALL THE UTILITIES (DRAIN, ELECTRICAL, WATER, EXHAUST, ETC.) INSTALLATION SPECIFICATION REQUIREMENTS OF THE MANUFACTURER.
3. ALL EQUIPMENT DEFINED AS SOC (SUPPLIED BY OWNER & INSTALLED BY CONTRACTOR) SHALL BE INSTALLED IN ACCORDANCE WITH ALL MANUFACTURER'S SPECIFICATIONS, REQUIREMENTS AND INSTALLATION PARAMETERS RELATED, BUT NOT LIMITED TO:
   1. BIOMEDICAL SUPPORT
   2. CALIBRATION
   3. INSTALLATION REQUIREMENTS
   4. START-UP
   5. UTILITIES HOOK-UPS
   6. TECHNICAL SUPPORT & GUIDANCE
   7. ASSEMBLY
   8. VALIDATION
4. CONTRACTOR SHALL EXECUTE THE WORK IN COORDINATION & BY SUB-CONTRACTING ALL REQUIRED OWNERS MEDICAL EQUIPMENT SPECIALISTS, SUPPLIERS & VENDOR'S.
5. WHERE APPLICABLE, WATER SUPPLY AND DRAIN REQUIREMENTS SHALL BE PROVIDED FOR ALL NEW AND EXISTING EQUIPMENTS, AND FOR FUTURE EQUIPMENT SHOWN HEREIN AS REQUIRED FOR PROPER EQUIPMENT OPERATION.
6. CONTRACTOR SHALL VERIFY THE DIMENSIONS OF ALL NEW AND EXISTING EQUIPMENTS PRIOR TO THE CONSTRUCTION OF INSTALLATION OPENINGS & UTILITIES SUPPLIES.
7. WHERE APPLICABLE, CONTRACTOR SHALL PROVIDE ALL WATER AND DRAIN UTILITIES REQUIREMTNS FOR NEW AND EXISTING REPROCESSING SINK BAYS.
8. WHERE APPLICABLE, ALL EQUIPMENT SPECIFIED IN THE LEGEND HEREIN THAT REQUIRE WATER AND DRAIN UTILITIES ,SHALL BE INSTALLED AS INSTRUCTED IN THE PLUMBING DRAWINGS AND/OR AS REQUIRED, WITH ALL THE FIXTURES AND FITTINGS, TO THE PROPOSED WATER AND DRAIN UTILITY LINES. INSTALLATION SHALL BE EXECUTED AND CERTIFIED, FOR PROPER OPERATION, BY A LICENCED MASTER PLUMBER.

OPERATING ROOMS EQUIPMENT NOTES:

1. CONTRACTOR SHALL SUPPLY & INSTALL ALL SURGICAL LAMPS & UTILITY SERVICE BOOMS STRUCTURAL SUPPORT INSIDE THE PLENUM AS REQUIRED BY THE EQUIPMENT MANUFACTURER'S INSTALLATION GUIDELINES. THE STRUCTURAL SUPPORT SHALL BE IN ACCORDANCE WITH BUILDING CODE REQUIREMENTS (INCLUDING SEISMIC REQUIREMENTS) & CERTIFIED BY A CONTRACTOR RETAINED STRUCTURAL ENGINEER.
2. LED SURGICAL LAMP WILL BE SUPPLIED BY OWNER & INSTALLED BY CONTRACTOR.
3. ALL STRUCTURAL SUPPORT FOR SURGICAL LED LAMPS & UTILITY SERVICE EQUIPMENT BOOM SHALL HAVE THE REQUIRED APPLIED LOAD CAPACITY SPECIFIED BY THE MANUFACTURER.

WORK BY OWNER:

1. ALL CABLING, HARDWARE AND SOFTWARE RELATED TO THE VOICE COMMUNICATION SYSTEM, INFORMATION TECHNOLOGY SYSTEM, CLOSED CIRCUIT TV SYSTEM AND ELECTRONIC ACCESS CONTROL SYSTEM WILL BE SUPPLIED AND INSTALLED BY EACH OF THE SYSTEMS OWNER'S SUBCONTRACTORS.



PROJECT REFERENCE ORIENTATION KEY PLAN

NOT TO SCALE

NOTES:
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NOT FOR CONSTRUCTION.

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NO.	DATE	DESCRIPTIONS

DATE: JULY 2026

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APPROVED BY:

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PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

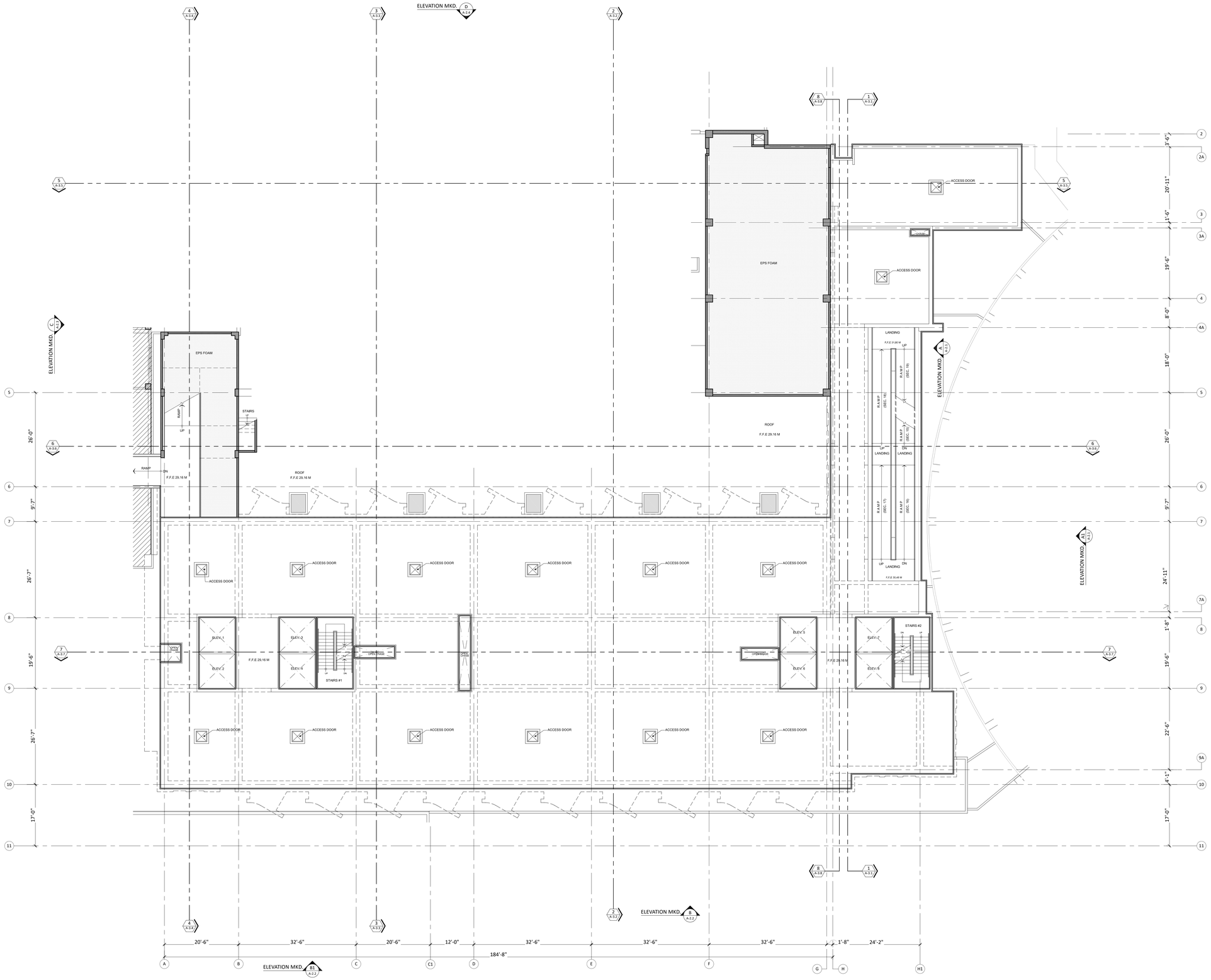
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OPERATING ROOM EQUIPMENT LIST

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE PONCE DE LEON, STE. 103 SAN JUAN PR 00926

DRAWING NUMBER

A-1.2A



GENERAL NOTES – INTERSTITIAL ISOLATION LEVEL AND SEISMIC RESILIENCE

1. THE INTERSTITIAL ISOLATION LEVEL IS INTENDED TO ACCOMMODATE THE SEISMIC BASE ISOLATION SYSTEM AND PROVIDE THE REQUIRED SEPARATION BETWEEN THE SUPERSTRUCTURE AND THE SUBSTRUCTURE.
2. THE DESIGN-BUILD ENTITY SHALL PRESERVE THE FUNCTIONAL INTENT OF THE INTERSTITIAL ISOLATION LEVEL AS A DEDICATED SEISMIC-RESILIENCE ZONE AND SHALL NOT INTRODUCE ELEMENTS THAT RESTRICT, BRIDGE, OR COMPROMISE THE REQUIRED MOVEMENT OF THE ISOLATED STRUCTURE.
3. THE DESIGN-BUILD ENTITY SHALL COORDINATE THE FINAL ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, MEDICAL GAS, COMMUNICATIONS, AND LIFE-SAFETY DESIGN AT THE INTERSTITIAL ISOLATION LEVEL TO MAINTAIN THE REQUIRED SEISMIC SEPARATION AND MOVEMENT CAPACITY.
4. BASE ISOLATORS SHALL BE INCORPORATED AS PART OF THE BUILDING'S SEISMIC-RESILIENCE STRATEGY TO REDUCE THE TRANSFER OF EARTHQUAKE FORCES FROM THE GROUND TO THE OCCUPIED HOSPITAL STRUCTURE.
5. THE BASE ISOLATION SYSTEM SHALL BE DESIGNED TO IMPROVE POST-EARTHQUAKE OPERATIONAL CONTINUITY, PROTECT CRITICAL HOSPITAL FUNCTIONS, AND REDUCE DAMAGE TO STRUCTURAL, ARCHITECTURAL, AND BUILDING SERVICE SYSTEMS.
6. THE DESIGN-BUILD ENTITY SHALL MAINTAIN ALL REQUIRED SEISMIC CLEARANCES, MOVEMENT JOINTS, ACCESS ZONES, INSPECTION AREAS, AND MAINTENANCE PROVISIONS ASSOCIATED WITH THE BASE ISOLATION SYSTEM.
7. ARCHITECTURAL PARTITIONS, SHAFTS, STAIRS, ELEVATORS, RAMPS, UTILITY PENETRATIONS, PIPING, DUCTWORK, CONDUITS, EQUIPMENT SUPPORTS, AND OTHER BUILDING COMPONENTS CROSSING THE ISOLATION PLANE SHALL BE DESIGNED TO ACCOMMODATE THE ANTICIPATED SEISMIC DISPLACEMENT WITHOUT LOSS OF REQUIRED PERFORMANCE.
8. THE DESIGN-BUILD ENTITY SHALL PROVIDE FLEXIBLE, ARTICULATED, OR OTHERWISE COMPATIBLE CONNECTIONS WHERE BUILDING SYSTEMS CROSS THE SEISMIC ISOLATION PLANE, AS REQUIRED TO MAINTAIN SERVICE CONTINUITY DURING AND AFTER A SEISMIC EVENT.
9. NO RIGID ARCHITECTURAL, STRUCTURAL, OR UTILITY CONNECTION SHALL BE PROVIDED ACROSS THE ISOLATION PLANE UNLESS SPECIFICALLY ENGINEERED TO ACCOMMODATE THE REQUIRED SEISMIC MOVEMENT WITHOUT COMPROMISING THE BASE ISOLATION SYSTEM.
10. ACCESS TO THE INTERSTITIAL ISOLATION LEVEL SHALL BE MAINTAINED FOR INSPECTION, TESTING, MAINTENANCE, REPAIR, AND REPLACEMENT OF BASE ISOLATORS AND RELATED SEISMIC COMPONENTS.
11. THE INTERSTITIAL ISOLATION LEVEL SHALL BE COORDINATED TO AVOID CONFLICTS BETWEEN BASE ISOLATORS, STRUCTURAL ELEMENTS, UTILITIES, DRAINAGE, FIRE PROTECTION, LIGHTING, ACCESS ROUTES, AND MAINTENANCE CLEARANCES.
12. THE DESIGN-BUILD ENTITY SHALL PROTECT THE ISOLATION LEVEL FROM WATER INTRUSION, UNCONTROLLED DRAINAGE, DEBRIS ACCUMULATION, CORROSION, UNAUTHORIZED STORAGE, AND OTHER CONDITIONS THAT COULD AFFECT THE PERFORMANCE, INSPECTION, OR MAINTENANCE OF THE BASE ISOLATION SYSTEM.
13. THE DESIGN-BUILD ENTITY SHALL PROVIDE ADEQUATE LIGHTING, ACCESS CONTROL, SAFETY PROVISIONS, AND MAINTAINABLE PATHWAYS WITHIN THE INTERSTITIAL ISOLATION LEVEL AS REQUIRED FOR AUTHORIZED INSPECTION AND MAINTENANCE PERSONNEL.
14. THE FINAL DESIGN SHALL MAINTAIN THE ARCHITECTURAL AND OPERATIONAL INTENT SHOWN IN THESE BRIDGING DOCUMENTS WHILE ALLOWING THE STRUCTURAL ENGINEER OF RECORD TO FINALIZE THE BASE ISOLATION SYSTEM IN ACCORDANCE WITH THE REQUIRED SEISMIC PERFORMANCE CRITERIA.
15. THE DESIGN-BUILD ENTITY SHALL COORDINATE THE BASE ISOLATION SYSTEM WITH THE APPROVED STRUCTURAL NARRATIVE, APPLICABLE SEISMIC DESIGN CRITERIA, GOVERNING CODES, HEALTHCARE OPERATIONAL REQUIREMENTS, AND AUTHORITIES HAVING JURISDICTION.
16. THE INTERSTITIAL ISOLATION LEVEL SHALL NOT BE USED FOR UNRELATED STORAGE, OCCUPANCY, OR FUNCTIONS THAT INTERFERE WITH SEISMIC MOVEMENT, INSPECTION ACCESS, MAINTENANCE ACCESS, LIFE SAFETY, OR THE LONG-TERM PERFORMANCE OF THE BASE ISOLATION SYSTEM.
17. ALL FINAL DIMENSIONS, CLEARANCES, ACCESS REQUIREMENTS, MOVEMENT ALLOWANCES, AND COMPONENT LAYOUTS AT THE INTERSTITIAL ISOLATION LEVEL SHALL BE VERIFIED AND COORDINATED BY THE DESIGN-BUILD ENTITY DURING FINAL DESIGN.
18. THE DESIGN-BUILD ENTITY SHALL DEMONSTRATE, THROUGH FINAL DESIGN DOCUMENTATION, THAT THE INTERSTITIAL ISOLATION LEVEL AND BASE ISOLATION SYSTEM SUPPORT THE HOSPITAL'S REQUIRED SEISMIC RESILIENCE, LIFE-SAFETY PERFORMANCE, AND OPERATIONAL CONTINUITY OBJECTIVES.

SPACE PROGRAM:

SEISMIC PROTECTION SYSTEM

- DEDICATED SEISMIC ISOLATION LEVEL LOCATED BETWEEN THE FIRST AND SECOND FLOORS.
- PROVIDES EARTHQUAKE PROTECTION AND OPERATIONAL RESILIENCE FOR THE HOSPITAL STRUCTURE.

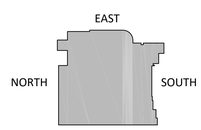
LEGEND:

SURFACES (FLOOR AND/OR ROOF) TO BE RAISED, AS REQUIRED AND NOTED IN THE DRAWINGS, USING RIGID LOAD-BEARING EXPANDED POLYSTYRENE (EPS) FOAM FILL TOPPED WITH A 4" THICK LIGHTWEIGHT TOPPING REINFORCED WITH WIRE MESH (BLACK LOW CARBON STEEL) TO INSTALL THE SPECIFIED FLOOR FINISH.

PROPOSED FLOOR PLAN INTERSTITIAL ISOLATION LEVEL

(19,165 S.F. APROX.)

SCALE: 3/32"= 1'-0"



PROJECT REFERENCE ORIENTATION KEY PLAN

NOT TO SCALE

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD PROCUREMENT AND CONSTRUCTION OF THE PUERTO RICO TRAUMA HOSPITAL AND PUERTO RICO MEDICAL CENTER PROJECT. THEY ARE NOT INTENDED TO BE USED FOR PERMITTING, BIDDING, FABRICATION, FAROUTSENT, OR CONSTRUCTION OF ANY PORTION OF THE PROJECT. THEY ARE PROVIDED AS GUIDANCE FOR THE DESIGN-BUILD ENTITY. THE SELECTED DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENDORSEMENT, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL ALSO BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, AND ACCURACY OF ALL SHOP DRAWINGS, FABRICATION DRAWINGS, AND AS-BUILT DRAWINGS. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT COORDINATION, COMPLETENESS, AND ACCURACY OF ALL TECHNICAL INFORMATION CONTAINED HEREIN, AND SHALL NOT RELY ON THESE DOCUMENTS FOR SUCH PURPOSES. ANY UNAUTHORIZED REPRODUCTION OR USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS AND ARE THE PROPERTY OF THE ARCHITECT. THEY ARE PROVIDED FOR REFERENCE AND COORDINATION SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES AUTHORIZED BY THE ARCHITECT. ANY UNAUTHORIZED REPRODUCTION, DISTRIBUTION, MODIFICATION, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT THE ARCHITECT'S PRIOR WRITTEN CONSENT. ANY UNAUTHORIZED USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT AND ITS CONSULTANTS.

NO.	DATE	DESCRIPTIONS

DATE: JULY 2026

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:

PROPOSED FLOOR PLAN - INTERSTITIAL ISOLATION LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
CRIB, CARIBE 1580 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER

A-1.2B

SPACE PROGRAM:

TRAUMA INTENSIVE CARE UNIT
- 18 PRIVATE ICU ROOMS
- 2 ISOLATION ROOMS
- SUPPORT AREAS
- MINOR PROCEDURE ROOM
- STAFF AND FACULTY SUPPORT AREAS

COMMUNITY SUPPORT
- 120-SEAT EDUCATIONAL AND MULTIPURPOSE AUDITORIUM

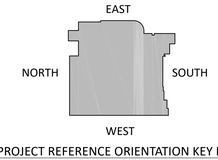
VISITOR'S SUPPORT AREAS
- WAITING AREA
- EXTERIOR TERRACE
- NON-DENOMINATIONAL MEDITATION SPACE
- VISITOR SUPPORT SERVICES

ASEM CENTRAL SERVICES BUILDING INTER-CONNECTION
- ENCLOSED CORRIDOR CONNECTOR BETWEEN TRAUMA HOSPITAL AND ASEM CENTRAL SERVICES BUILDING

PROPOSED FLOOR PLAN - SECOND LEVEL

(20,850 S.F. APROX.)

SCALE: 3/32"= 1'-0"



PROJECT REFERENCE ORIENTATION KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PROPOSALS FOR DESIGN-BUILD SERVICES FOR THE PROJECT DESCRIBED HEREIN. THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS (DLTE), INTENT, PERFORMANCE CRITERIA, AND DESIGN CONCEPTS. THESE DOCUMENTS ARE NOT SUITABLE FOR BIDDING, FABRICATION, OR PERMITTING PURPOSES AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, OR PROCUREMENT. THEY ARE INTENDED SOLELY TO COMMUNICATE THE DESIGN INTENT AND GUIDANCE FOR THE DESIGN-BUILD ENTITY. THE SELECTED DESIGN-BUILD ENTITY IS RESPONSIBLE FOR DEVELOPING ALL CONSTRUCTION DOCUMENTS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY IS SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, AND COMPLIANCE OF ALL DESIGN AND CONSTRUCTION DOCUMENTS WITH APPLICABLE CODES, REGULATIONS, AND PROJECT REQUIREMENTS. DLTE MAKES NO WARRANTIES, EXPRESS OR IMPLIED, REGARDING THE SUFFICIENCY OF THESE DOCUMENTS FOR BIDDING OR CONSTRUCTION PURPOSES. ANY RELIANCE ON THESE DOCUMENTS FOR BIDDING, PERMITTING, OR CONSTRUCTION IS AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DLTE.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS (DLTE), INTENDED ONLY FOR THE SPECIFIC PROJECT AND PURPOSE DESCRIBED HEREIN. THEY ARE NOT SUITABLE FOR BIDDING, PERMITTING, FABRICATION, OR CONSTRUCTION. THEY ARE INTENDED SOLELY TO COMMUNICATE THE DESIGN INTENT AND GUIDANCE FOR THE DESIGN-BUILD ENTITY. THE SELECTED DESIGN-BUILD ENTITY IS RESPONSIBLE FOR DEVELOPING ALL CONSTRUCTION DOCUMENTS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY IS SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, AND COMPLIANCE OF ALL DESIGN AND CONSTRUCTION DOCUMENTS WITH APPLICABLE CODES, REGULATIONS, AND PROJECT REQUIREMENTS. DLTE MAKES NO WARRANTIES, EXPRESS OR IMPLIED, REGARDING THE SUFFICIENCY OF THESE DOCUMENTS FOR BIDDING OR CONSTRUCTION PURPOSES. ANY RELIANCE ON THESE DOCUMENTS FOR BIDDING, PERMITTING, OR CONSTRUCTION IS AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DLTE. ANY REPRODUCTION, MODIFICATION, DISTRIBUTION, OR PUBLIC DISCLOSURE OF THESE DOCUMENTS WITHOUT THE EXPRESS WRITTEN CONSENT OF DLTE IS STRICTLY PROHIBITED.

NO.	DATE	DESCRIPTIONS

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

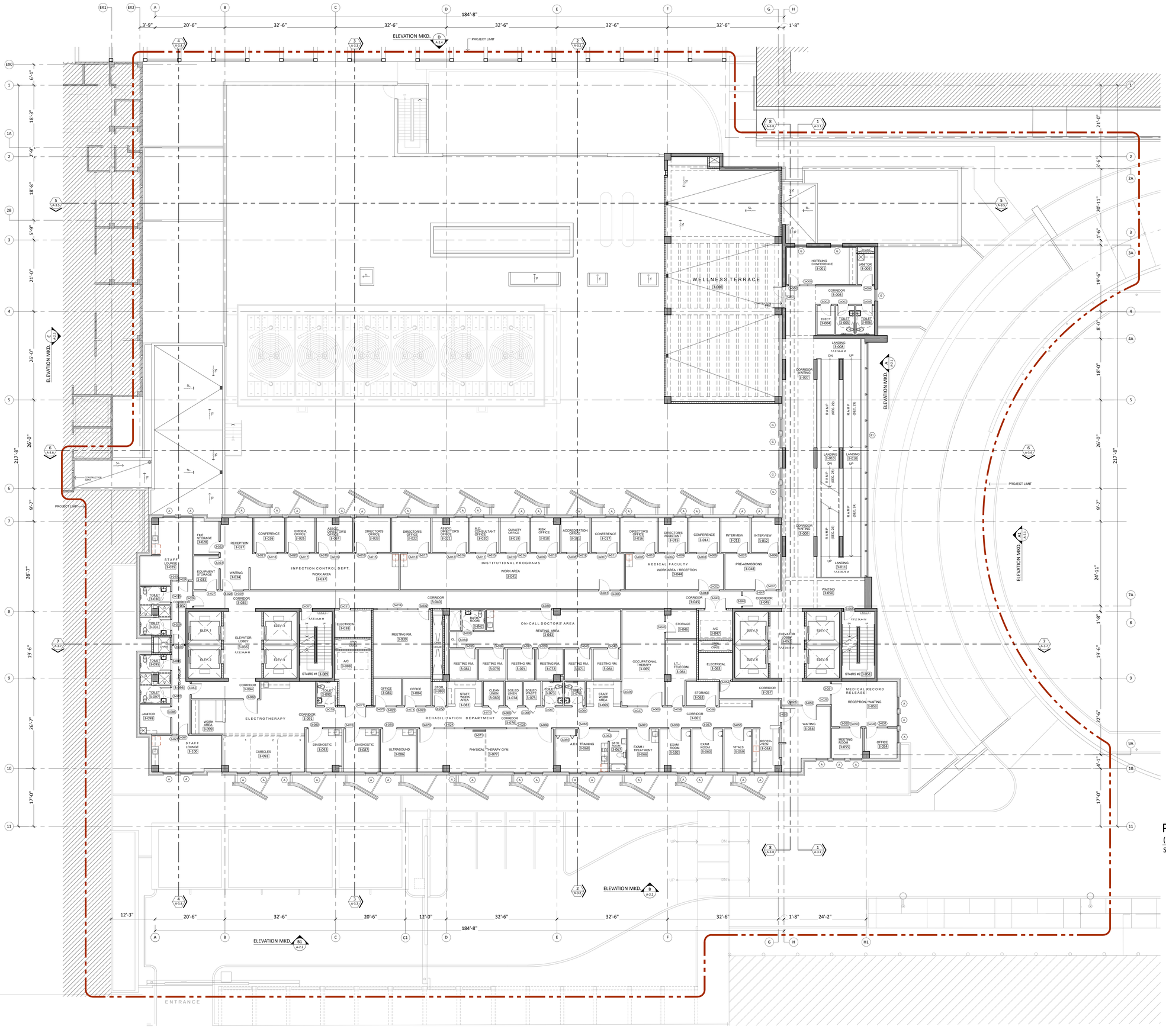
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
PROPOSED FLOOR PLAN - SECOND LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER

A-1.3



SPACE PROGRAM:

VISITOR'S SUPPORT AREAS
- WAITING AREA
- VISITOR SUPPORT SERVICES

REHABILITATION DEPARTMENT
- PHYSICAL THERAPY GYM
- OCCUPATIONAL THERAPY
- INPATIENT REHABILITATION SERVICES
- OUTPATIENT REHABILITATION SERVICES
- ELECTROTHERAPY
- SUPPORT AREAS

MEDICAL FACULTY
- MEDICAL FACULTY OFFICES

OPERATIONAL SUPPORT SERVICES
- PRE-ADMISSIONS
- INFECTION CONTROL
- INSTITUTIONAL PROGRAMS
- MEDICAL RECORD RELEASE
- SUPPORT AREAS
- ON-CALL DOCTOR'S AREA

PATIENT WELLNESS
- PRIVATE EXTERIOR THERAPEUTIC PATIENT WELLNESS TERRACE

PROPOSED FLOOR PLAN - THIRD LEVEL

(17,650 S.F. APROX.)

SCALE: 3/32"= 1'-0"

PROJECT REFERENCE ORIENTATION KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION OBJECTIVES. DESIGN INTENT, PERFORMANCE CRITERIA, AND TECHNICAL ASSESSMENTS ARE PRESENTED TO GUIDE THE DESIGN-BUILD ENTITY. THESE DOCUMENTS ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION PURPOSES. THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR DEVELOPING CONSTRUCTION DOCUMENTS THAT COMPLY WITH APPLICABLE CODES AND REGULATIONS AND FOR OBTAINING ALL REQUIRED PERMITS AND APPROVALS. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, AND ACCURACY OF ALL CONSTRUCTION DOCUMENTS, SHOP DRAWINGS, AND FIELD CONDITIONS. ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT SHALL BE PREPARED BY THE DESIGN-BUILD ENTITY AND ITS CONSULTANTS AND SHALL BE SUBMITTED TO THE OWNER FOR REVIEW AND ACCEPTANCE PRIOR TO CONSTRUCTION. THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR ANY DEVIATIONS FROM THE DESIGN INTENT, PERFORMANCE CRITERIA, AND TECHNICAL INFORMATION CONTAINED HEREIN, AND SHALL NOTIFY THE OWNER OF ANY SUCH DEVIATIONS. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR ANY ERRORS, OMISSIONS, OR CONFLICTS IN THE CONSTRUCTION DOCUMENTS AND FOR ANY CONSEQUENCES ARISING FROM THEIR USE. THE DESIGN-BUILD ENTITY SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND THE ARCHITECT FROM ANY CLAIMS, DAMAGES, OR LIABILITIES RESULTING FROM THE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS AND ARE THE PROPERTY OF THE ARCHITECT. THESE DOCUMENTS ARE PROVIDED SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES AUTHORIZED BY THE ARCHITECT. REPRODUCTION, DISTRIBUTION, OR DISCLOSURE OF THESE DOCUMENTS, IN WHOLE OR IN PART, BY ANY MEANS WITHOUT THE ARCHITECT'S PRIOR WRITTEN CONSENT IS PROHIBITED. ANY UNAUTHORIZED USE, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT. THE USER SHALL INDEMNIFY AND HOLD HARMLESS THE ARCHITECT AGAINST ALL CLAIMS, DAMAGES, AND EXPENSES ARISING FROM SUCH UNAUTHORIZED USE.

NO.	DATE	DESCRIPTIONS

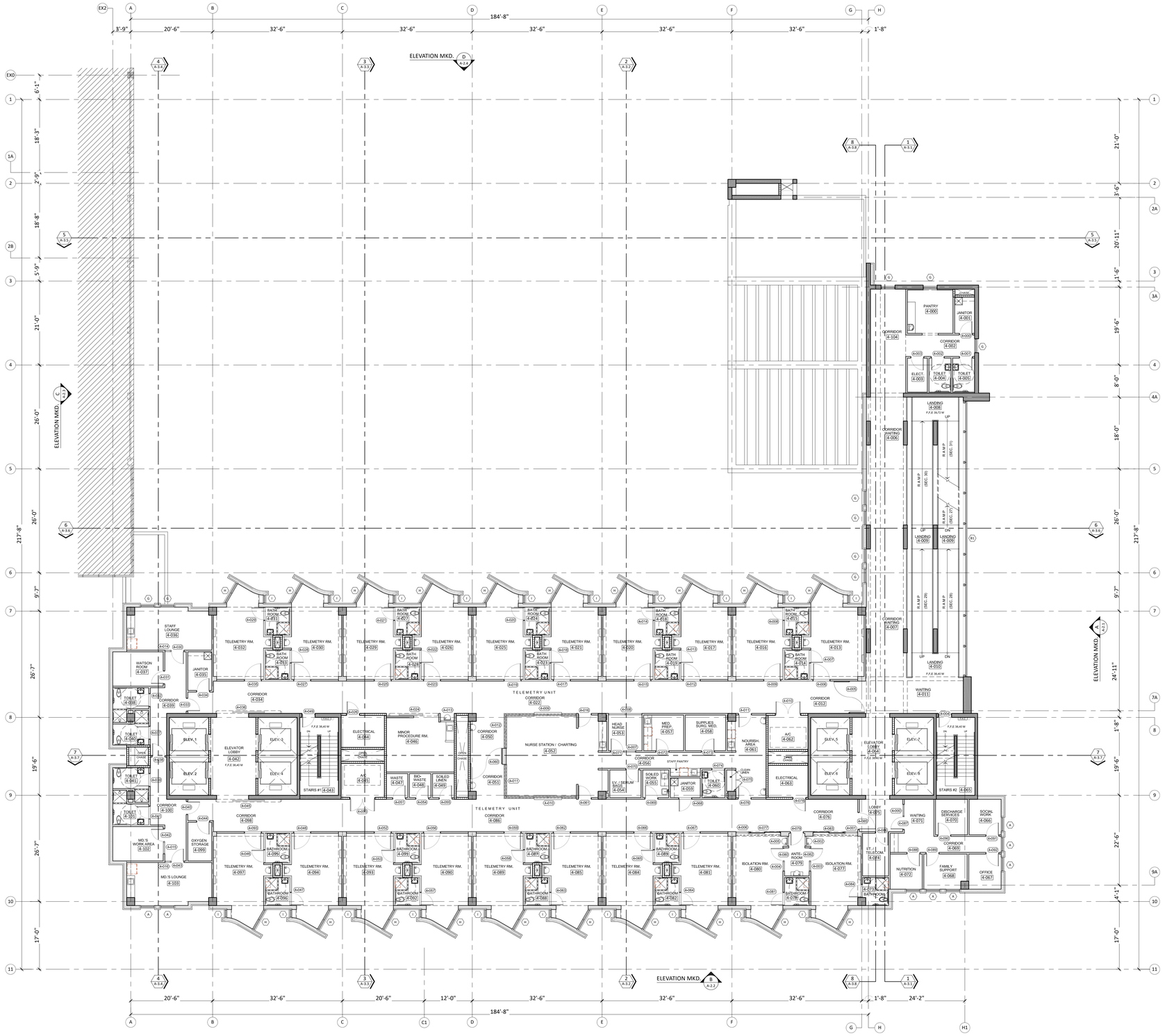
PROJECT: PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE: PROPOSED FLOOR PLAN - THIRD LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
CALLE LORIMER 1509 AVE PONCE DE LEON, STE. 105 SAN JUAN PR 00926

DRAWING NUMBER

A-1.4



PROPOSED FLOOR PLAN - FOURTH LEVEL

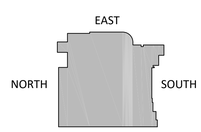
(18,350 S.F. APROX.)

SCALE: 3/32"= 1'-0"

SPACE PROGRAM:

VISITOR'S SUPPORT AREAS
- WAITING AREA
- VISITOR SUPPORT SERVICES

TRAUMA TELEMETRY NURSING UNIT
- 18 PRIVATE PATIENT ROOMS (SURGE CAPACITY + 18)
- 2 ISOLATION ROOMS
- SUPPORT AREAS
- MINOR PROCEDURE ROOM
- STAFF AND FACULTY SUPPORT AREAS



PROJECT REFERENCE ORIENTATION KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION. THE DESIGN-BUILD ENTITY, ARCHITECTS, DESIGN-INTENT, PERFORMANCE CRITERIA, AND SPECIFICATIONS. THESE DOCUMENTS ARE NOT COMPLETE AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION. THEY ARE PROVIDED TO THE DESIGN-BUILD ENTITY AS GUIDANCE FOR THE DESIGN-BUILD ENTITY'S SELECTED DESIGN-BUILD ENTITY. THE DESIGN-BUILD ENTITY IS SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, AND CODE COMPLIANCE OF ALL CONSTRUCTION DOCUMENTS. THE DESIGN-BUILD ENTITY SHALL INDEPENDENTLY VERIFY ALL DIMENSIONS, CONDITIONS, AND REQUIREMENTS AND ASSUMES ALL RESPONSIBILITY FOR ANY ERRORS, OMISSIONS, OR DEVIATIONS FROM APPLICABLE CODES AND STANDARDS. ANY RELIANCE ON THESE DOCUMENTS IS AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. THEY ARE NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY PURPOSE OTHER THAN THE PROJECT SPECIFICALLY IDENTIFIED HEREIN. THEY ARE SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES WHO HAVE EXECUTED A WRITTEN AGREEMENT WITH DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. ANY UNAUTHORIZED USE, REPRODUCTION, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS STRICTLY PROHIBITED AND SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. THE USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS.

NO.	DATE	DESCRIPTIONS

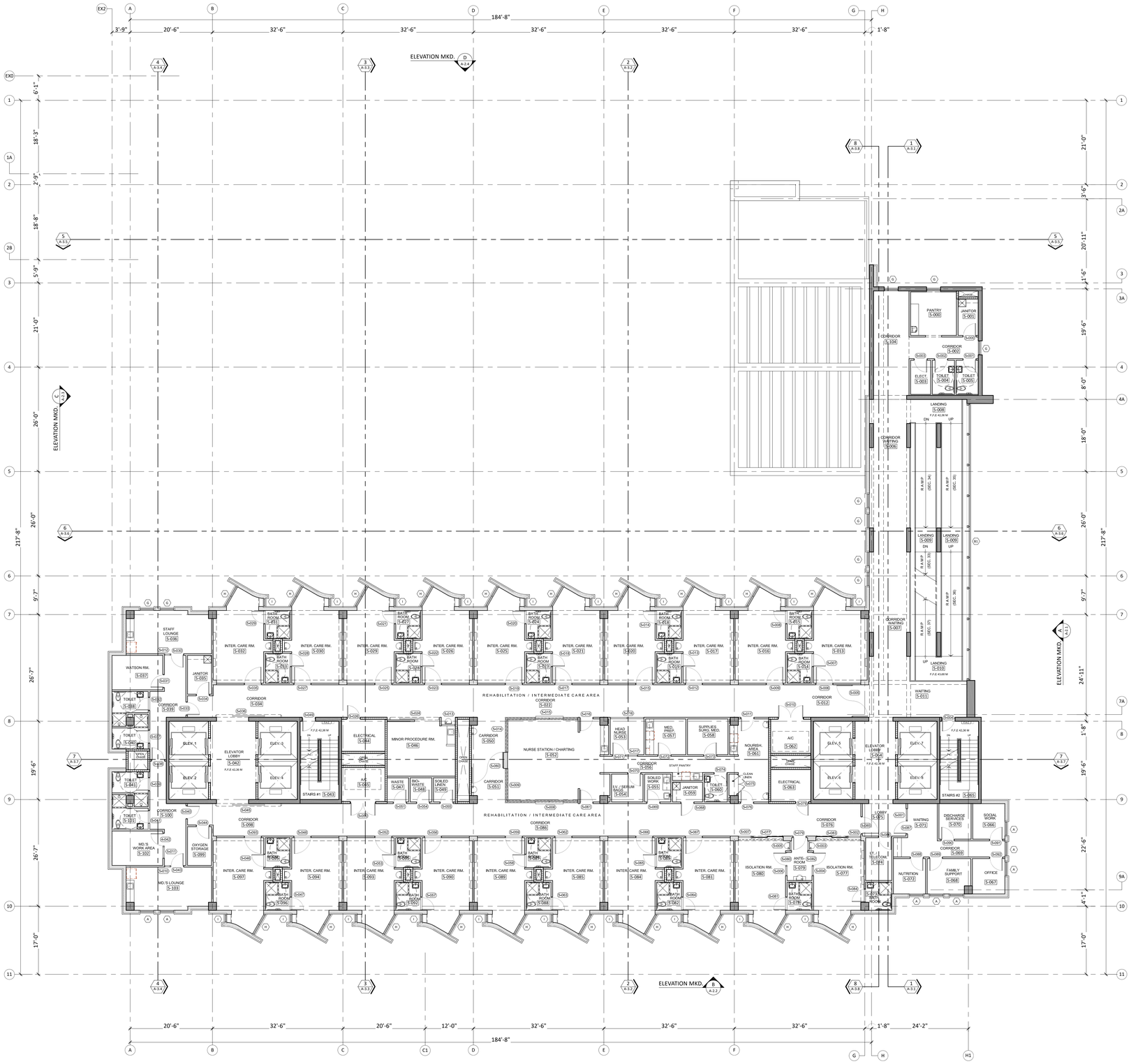
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
PROPOSED FLOOR PLAN - FOURTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1504 AVE.PONCE DE LEON, STE 103 SAN JUAN PR 00909

DRAWING NUMBER

A-1.5



PROPOSED FLOOR PLAN - FIFTH LEVEL

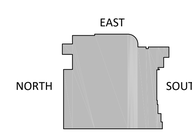
(18,350 S.F. APROX.)

SCALE: 3/32"= 1'-0"

SPACE PROGRAM:

VISITOR'S SUPPORT AREAS
- WAITING AREA
- VISITOR SUPPORT SERVICES

TRAUMA REHABILITATION AND INTERMEDIATE CARE UNIT
- 18 PRIVATE PATIENT ROOMS (SURGE CAPACITY + 18)
- 2 ISOLATION ROOMS
- SUPPORT AREAS
- MINOR PROCEDURE ROOM
- STAFF AND FACULTY SUPPORT AREAS



PROJECT REFERENCE ORIENTATION KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION. THE ARCHITECTS, DESIGN-INTENT, PERFORMANCE CRITERIA, AND SPECIFICATIONS CONTAINED HEREIN ARE TO BE USED BY THE DESIGN-BUILD ENTITY FOR THE PURPOSE OF PREPARING THEIR DESIGN-BUILD PROPOSAL. THESE DOCUMENTS ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR PREPARING ALL DOCUMENTS AND SHOP DRAWINGS NECESSARY FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION, AND SHALL USE THESE DOCUMENTS ONLY AS A GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PERMITTING, BIDDING, FABRICATION, AND CONSTRUCTION OF THE PROJECT. THE ARCHITECTS ARE NOT RESPONSIBLE FOR THE DESIGN-BUILD ENTITY'S DOCUMENTS, AND SHALL NOT BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, OR ACCURACY OF THE DESIGN-BUILD ENTITY'S DOCUMENTS. THE DESIGN-BUILD ENTITY SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS AND ARE PROTECTED BY COPYRIGHT LAWS. THEY ARE NOT TO BE USED BY ANY PERSON OR ENTITY FOR ANY PURPOSE UNLESS SPECIFICALLY AUTHORIZED IN WRITING BY THE ARCHITECTS. THEY ARE SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES SPECIFICALLY AUTHORIZED BY THE ARCHITECTS. ANY UNAUTHORIZED USE, REPRODUCTION, DISCLOSURE, MODIFICATION, RELIANCE, OR RESALE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS STRICTLY PROHIBITED AND MAY RESULT IN LEGAL ACTION. BY ACCESSING OR USING ANY PART OF THESE DOCUMENTS, THE USER AGREES TO INDEMNIFY AND HOLD HARMLESS THE ARCHITECTS FROM ANY CLAIMS, LOSSES, OR DAMAGES ARISING FROM SUCH USE.

NO.	DATE	DESCRIPTIONS

DATE: JULY 2026

DRAWN BY:

APROVED BY:

SCALE: AS SHOWN

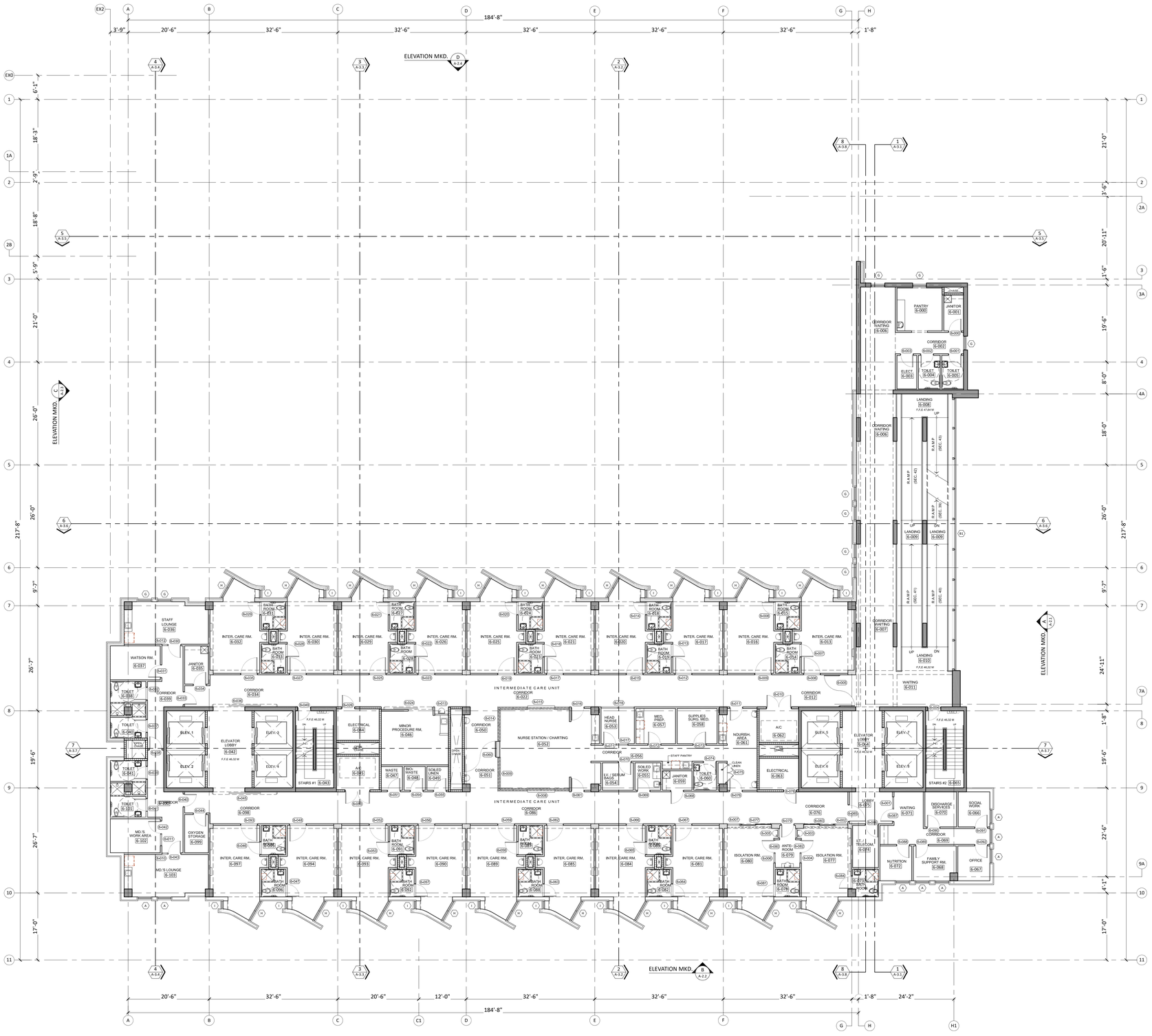
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

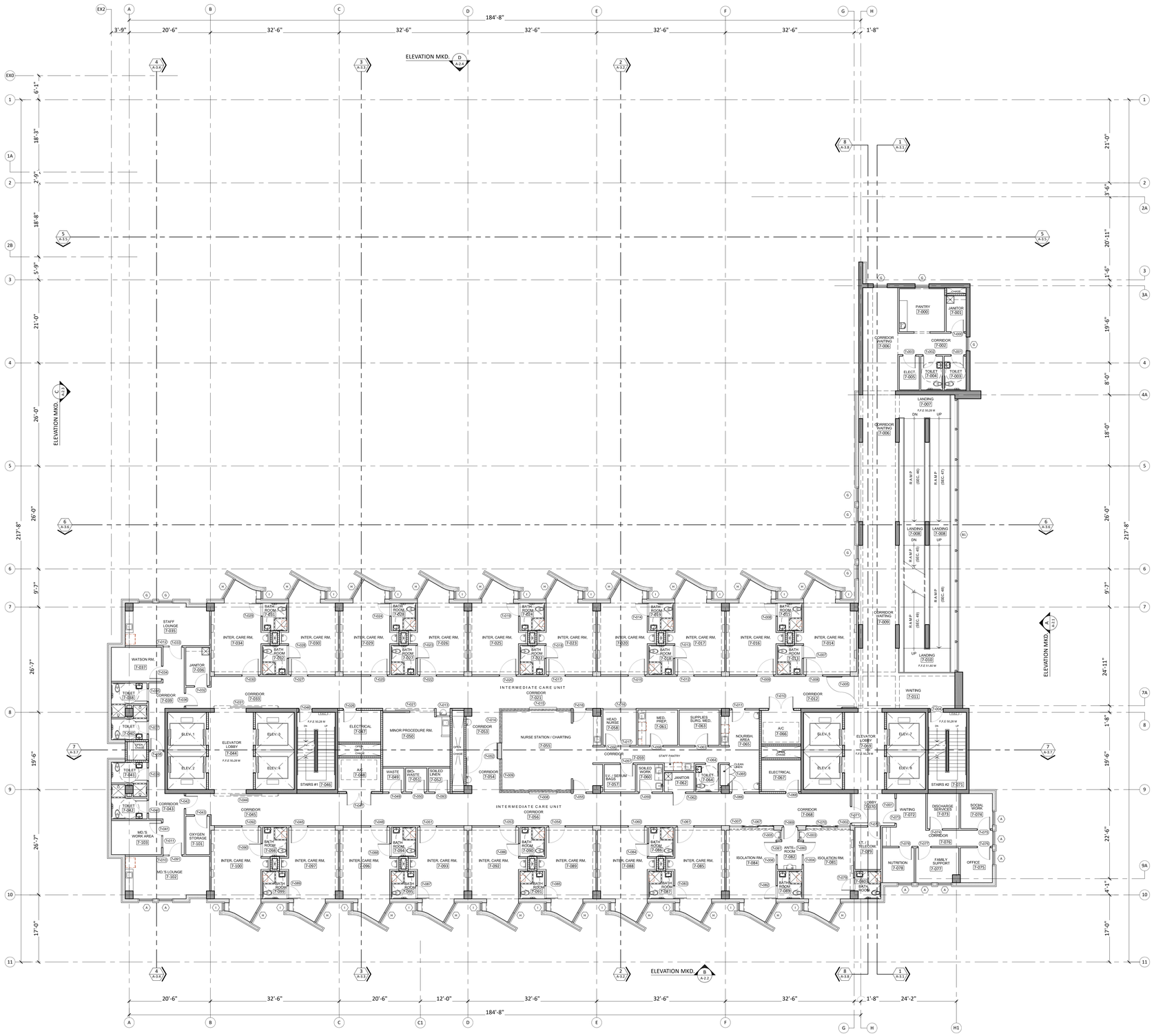
SHEET TITLE:
PROPOSED FLOOR PLAN - FIFTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1504 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER

A-1.6


184'-8"
3'-9"
20'-6"
32'-6"
32'-6"
32'-6"
32'-6"
32'-6"
1'-8"
ELEVATION MKD.
ELEVATION MKD.
ELEVATION MKD.
ELEVATION MKD.
INTERMEDIATE CARE UNIT
INTERMEDIATE CARE UNIT
NURSE STATION / CHARTING
CORRIDOR
CORRIDOR
CORRIDOR



PROPOSED FLOOR PLAN - SEVENTH LEVEL

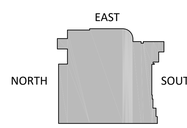
(18,350 S.F. APROX.)

SCALE: 3/32"= 1'-0"

SPACE PROGRAM:

VISITOR'S SUPPORT AREAS
- WAITING AREA
- VISITOR SUPPORT SERVICES

TRAUMA INTERMEDIATE CARE UNIT
- 18 PRIVATE PATIENT ROOMS (SURGE CAPACITY + 18)
- 2 ISOLATION ROOMS
- SUPPORT AREAS
- MINOR PROCEDURE ROOM
- STAFF AND FACULTY SUPPORT AREAS



PROJECT REFERENCE ORIENTATION KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

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NO.	DATE	DESCRIPTIONS

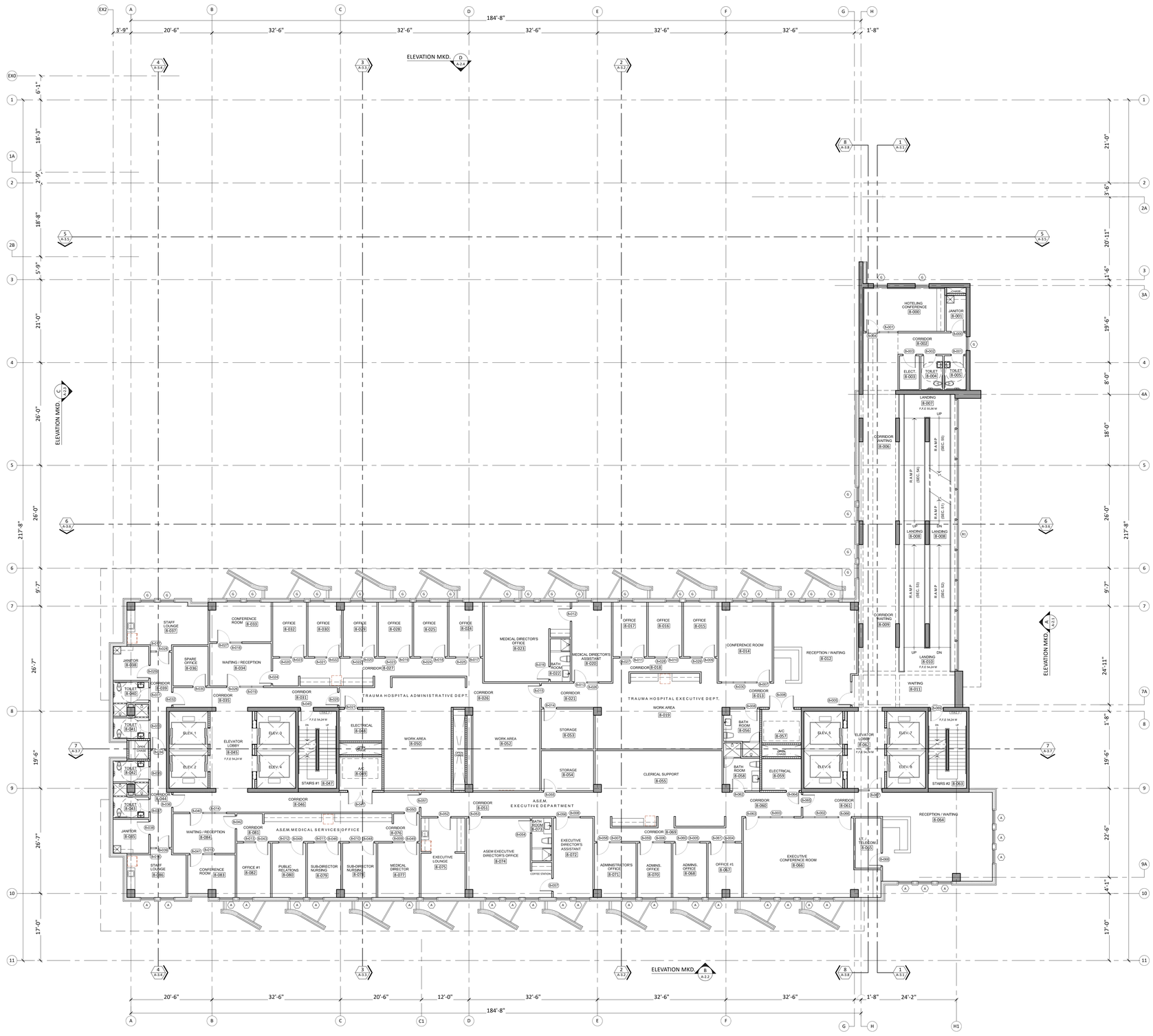
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
PROPOSED FLOOR PLAN - SEVENTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON. STE 105 SAN JUAN PR 00926

DRAWING NUMBER

A-1.8



SPACE PROGRAM:

VISITOR'S SUPPORT AREAS
- WAITING AREA
- VISITOR SUPPORT SERVICES

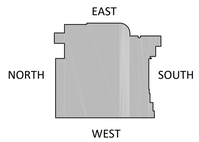
TRAUMA HOSPITAL ADMINISTRATION
- TRAUMA HOSPITAL EXECUTIVE DEPARTMENT
- TRAUMA HOSPITAL ADMINISTRATIVE DEPARTMENT
- SUPPORT AREAS

ASEM ADMINISTRATION
- ASEM EXECUTIVE DEPARTMENT
- ASEM ADMINISTRATIVE OFFICES
- ASEM MEDICAL SERVICES OFFICES
- SUPPORT AREAS

PROPOSED FLOOR PLAN - EIGHTH LEVEL

(17, 650 S.F. APROX.)

SCALE: 3/32"= 1'-0"



PROJECT REFERENCE ORIENTATION KEY PLAN

NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
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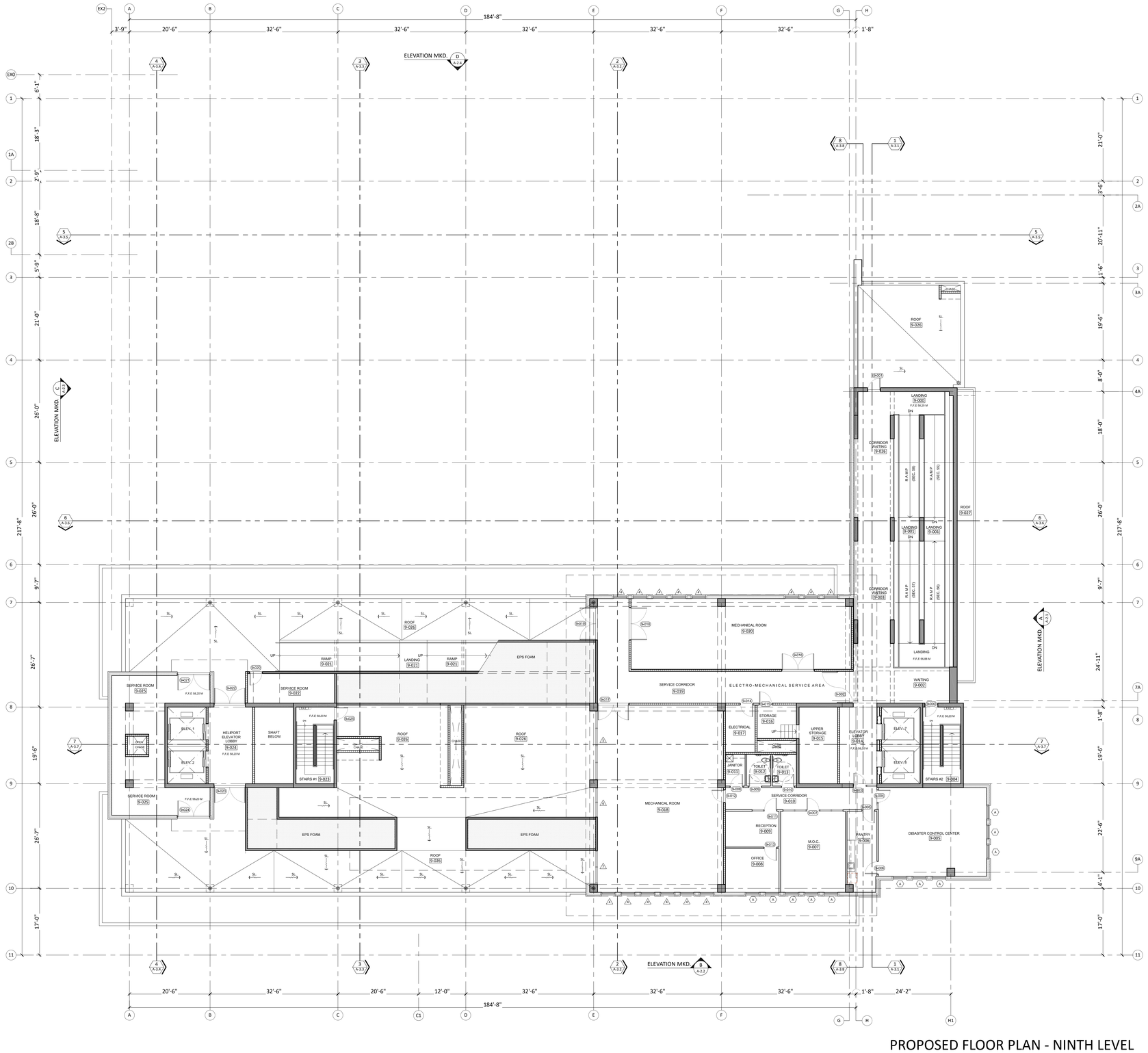
DATE: JULY 2020

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

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PROPOSED FLOOR PLAN - NINTH LEVEL

(9,050 S.F. APROX.)

SCALE: 3/32"= 1'-0"

LEGEND:

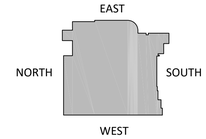
SURFACES (FLOOR AND/OR ROOF) TO BE RAISED, AS REQUIRED AND NOTED IN THE DRAWINGS, USING RIGID LOAD-BEARING EXPANDED POLYSTYRENE (EPS) FOAM FILL TOPPED WITH A 4" THICK LIGHTWEIGHT TOPPING REINFORCED WITH WIRE MESH (BLACK LOW CARBON STEEL) TO INSTALL THE SPECIFIED FLOOR FINISH.

SPACE PROGRAM:

EMERGENCY OPERATIONS
- DISASTER CONTROL CENTER
- MONITORING OPERATIONS CENTER
- SUPPORT AREAS
- VISITORS WAITING

BUILDING INFRASTRUCTURE
- ELECTRO-MECHANICAL SERVICE AREA
- STORAGE AREAS
- SERVICE ROOM

HELIPORT SUPPORT
- DEDICATED HELIPORT ELEVATOR CORE
- ACCESS RAMP TO THE SERVICE HOLDING TERRACE AND HELIPORT LANDING PAD.



PROJECT REFERENCE ORIENTATION KEY PLAN
NOT TO SCALE

NOTES:
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DATE: AUGUST 13, 2016
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NO.	DATE	DESCRIPTIONS

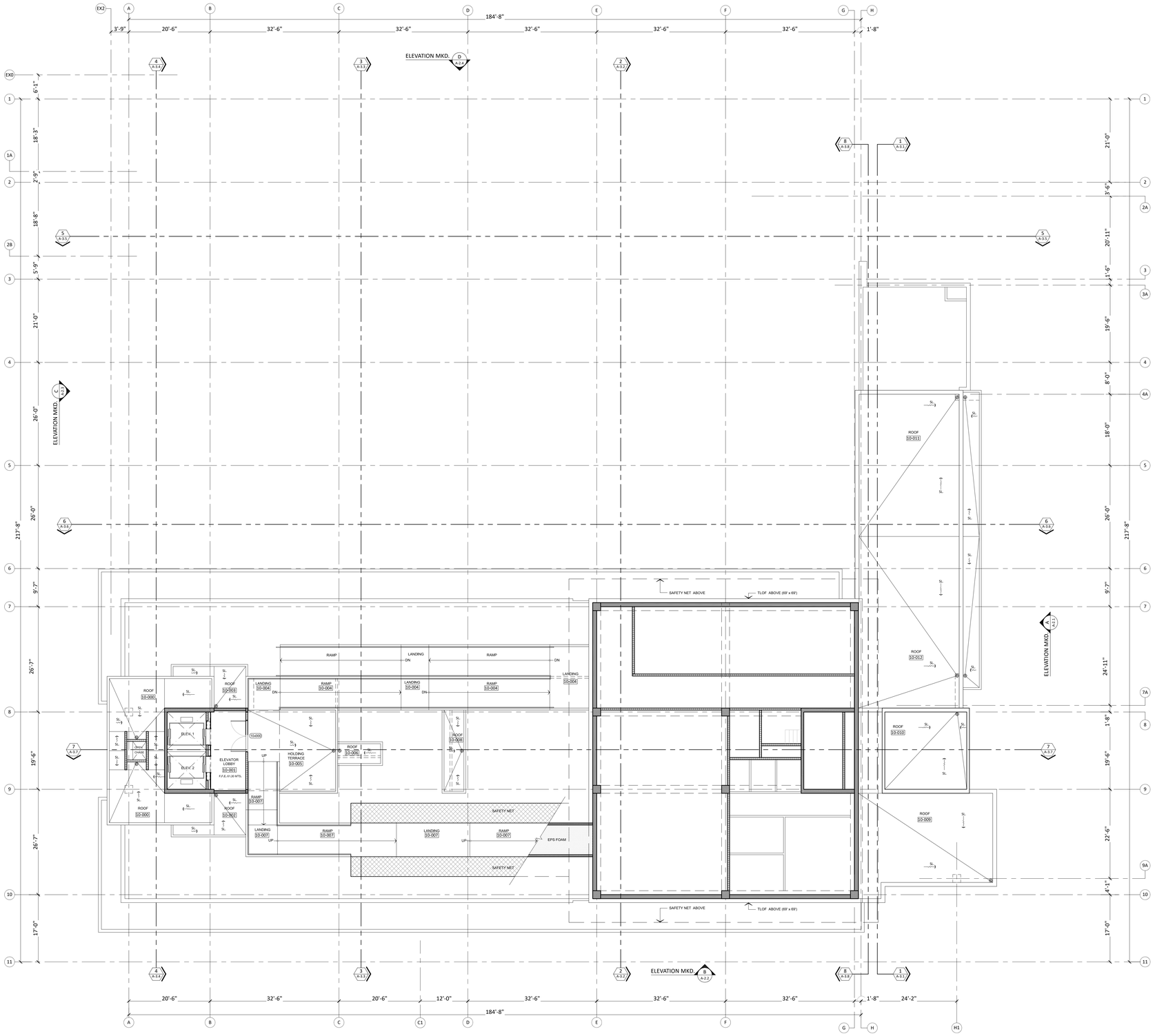
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
PROPOSED FLOOR PLAN - NINTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

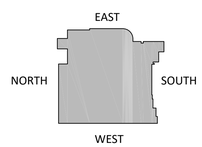
DRAWING NUMBER

A-1.10



PROPOSED FLOOR PLAN - TENTH LEVEL

SCALE: 3/32"= 1'-0"



PROJECT REFERENCE ORIENTATION KEY PLAN
NOT TO SCALE

NOTES:
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DATE: AUGUST 13, 2016

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APROVED BY:

SCALE: AS SHOWN

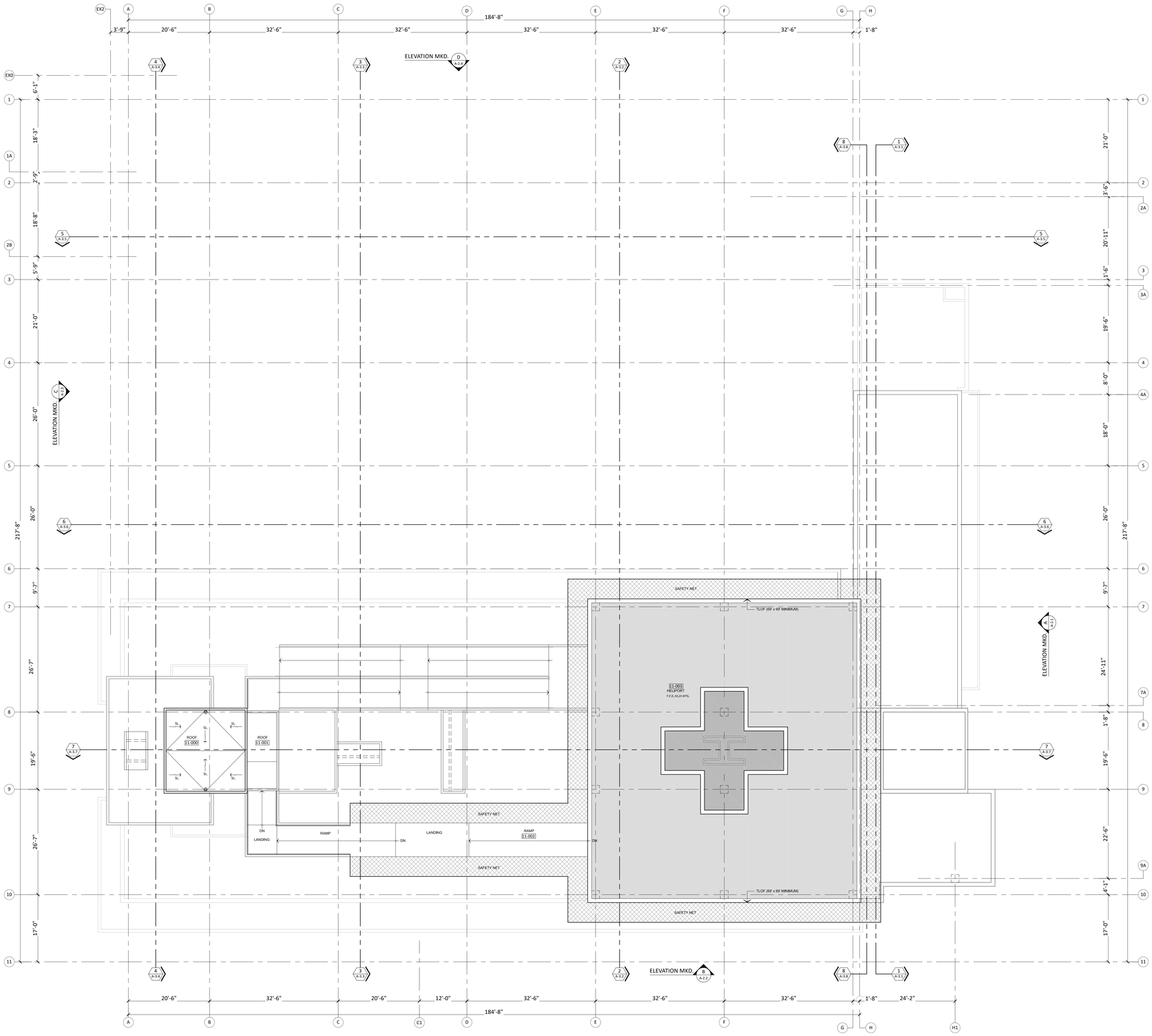
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
PROPOSED FLOOR PLAN - TENTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1580 AVE. PONCE DE LEON, STE 103 SAN JUAN PR 00926

DRAWING NUMBER

A-1.11



PROPOSED FLOOR PLAN - ROOF (HELIPORT) LEVEL

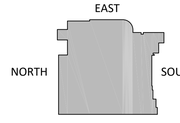
SCALE: 3/32"= 1'-0"

GENERAL HELIPAD NOTES

1. HELIPAD DESIGN INTENT: THE HELIPAD SHALL PROVIDE A SAFE, FAA-COMPLIANT, HOSPITAL-GRADE LANDING FACILITY FOR EMERGENCY MEDICAL TRANSPORT, TRAUMA RESPONSE, DISASTER RESPONSE, AND APPROVED GOVERNMENT OR PRESIDENTIAL HELICOPTER OPERATIONS.
2. TLOF SIZE: THE TOUCHDOWN AND LIFTOFF AREA SHOWN IN THESE BRIDGING DOCUMENTS SHALL BE 69'-0" X 69'-0" MINIMUM AND SHALL BE DESIGNED TO SUPPORT HELICOPTER OPERATIONS UP TO THE SIKORSKY S-92 (INCLUDING THE MILITARY VH-92A PATRIOT VERSION) PRESIDENTIAL HELICOPTER.
3. REQUIRED PRESIDENTIAL HELICOPTER CAPACITY: THE HELIPAD SHALL BE DESIGNED, COORDINATED, AND STRUCTURALLY SUPPORTED TO ACCOMMODATE HELICOPTER OPERATIONS UP TO THE SIKORSKY S-92 (INCLUDING THE MILITARY VH-92A PATRIOT VERSION) PRESIDENTIAL HELICOPTER, INCLUDING ITS DIMENSIONAL, STRUCTURAL, OPERATIONAL, SAFETY, AND AVIATION REQUIREMENTS.
4. DESIGN HELICOPTER REFERENCE: THE SIKORSKY S-92 (INCLUDING THE MILITARY VH-92A PATRIOT VERSION) PRESIDENTIAL HELICOPTER SHALL BE USED AS THE UPPER-CAPACITY DESIGN REFERENCE AIRCRAFT UNLESS A MORE RESTRICTIVE AIRCRAFT, OPERATING REQUIREMENT, FAA REQUIREMENT, OR AUTHORITY HAVING JURISDICTION REQUIREMENT IS ESTABLISHED.
5. FAA COMPLIANCE: THE HELIPAD SHALL COMPLY WITH ALL CURRENT FAA REQUIREMENTS APPLICABLE TO HOSPITAL HELIPORTS, INCLUDING HELIPORT PLANNING, AIRSPACE PROTECTION, APPROACH AND DEPARTURE PATHS, OBSTRUCTION EVALUATION, TLOF, FATO, SAFETY AREA, MARKINGS, LIGHTING, AND FAA NOTIFICATION OR APPROVAL PROCESSES.
6. HOSPITAL HELIPORT CLASSIFICATION:THE HELIPAD SHALL BE DESIGNED, DOCUMENTED, AND COORDINATED AS A HOSPITAL HELIPORT UNLESS OTHERWISE DIRECTED BY THE OWNER AND ACCEPTED BY THE FAA AND AUTHORITIES HAVING JURISDICTION.
7. DESIGN HELICOPTER VERIFICATION: THE DESIGN-BUILD ENTITY SHALL VERIFY THE FINAL DESIGN HELICOPTER REQUIREMENTS, INCLUDING CONTROLLING DIMENSION "D," OVERALL LENGTH, ROTOR DIAMETER, MAXIMUM GROSS WEIGHT, LANDING GEAR CONFIGURATION, WHEEL OR SKID CONTACT AREAS, DYNAMIC LANDING LOADS, DOWNWASH, APPROACH/DEPARTURE REQUIREMENTS, AND OPERATIONAL LIMITATIONS.
8. TLOF DIMENSIONAL BASIS: THE 69'-0" X 69'-0" MINIMUM TLOF, SHALL ACCOMMODATE THE SIKORSKY S-92 (INCLUDING THE MILITARY VH-92A PATRIOT VERSION) PRESIDENTIAL HELICOPTER BASED ON FAA HOSPITAL HELIPORT CRITERIA, SUBJECT TO FINAL VERIFICATION OF THE CONTROLLING DIMENSION "D," LOAD-BEARING FATO CONFIGURATION, AND AIRCRAFT-OPERATOR REQUIREMENTS.
9. ELEVATED HELIPAD / NON-LOAD-BEARING FATO: WHERE THE HELIPAD IS ELEVATED OR SUPPORTED BY THE HOSPITAL STRUCTURE AND THE FATO BEYOND THE TLOF IS NOT LOAD-BEARING OR IS OPEN TO SPACE BELOW, THE TLOF SHALL BE INCREASED TO 69'-0" X 69'-0" MINIMUM, WHICH CORRESPONDS TO NOT LESS THAN THE CONTROLLING DIMENSION "D" OF THE DESIGN HELICOPTER, AS REQUIRED BY FAA CRITERIA. FOR S-92 HELICOPTER OPERATIONS, INCLUDING VH-92A PATRIOT PRESIDENTIAL HELICOPTER CAPABILITY, THE TLOF SHALL BE SIZED, STRUCTURALLY DESIGNED, AND COORDINATED AS REQUIRED TO ACHIEVE FULL FAA-COMPLIANT OPERATIONAL CAPABILITY.
10. STRUCTURAL CAPACITY: THE HELIPAD STRUCTURE, TLOF, LOAD-BEARING FATO WHERE APPLICABLE, SUPPORTING FRAMING, ACCESS AREAS, AND MAINTENANCE ROUTES SHALL SUPPORT THE SIKORSKY VH-92A PATRIOT PRESIDENTIAL HELICOPTER, INCLUDING MAXIMUM GROSS WEIGHT, LANDING GEAR LOADS, DYNAMIC LANDING EFFECTS, CONCENTRATED LOADS, VIBRATION, AND ROTOR DOWNWASH EFFECTS.
11. NO REDUCTION OF CAPACITY: THE FINAL HELIPAD DESIGN SHALL NOT REDUCE THE STATED SIKORSKY S-92 (INCLUDING THE MILITARY VH-92A PATRIOT VERSION) DESIGN CAPACITY WITHOUT WRITTEN OWNER APPROVAL AND FAA/AHJ COORDINATION.
12. FATO AND SAFETY AREA: PROVIDE THE FINAL APPROACH AND TAKEOFF AREA, SAFETY AREA, AND ALL REQUIRED CLEARANCES IN ACCORDANCE WITH FAA REQUIREMENTS BASED ON THE SIKORSKY S-92 (INCLUDING THE MILITARY VH-92A PATRIOT VERSION) OR THE FINAL APPROVED DESIGN HELICOPTER, WHICHEVER IS MORE RESTRICTIVE.
13. APPROACH AND DEPARTURE PATHS: PROVIDE AND PROTECT CLEAR APPROACH AND DEPARTURE PATHS FREE OF OBSTRUCTIONS, HAZARDS, INCOMPATIBLE LIGHTING, TURBULENCE CONDITIONS, CRANES, ANTENNAS, ROOFTOP EQUIPMENT, PARAPETS, SIGNAGE, UTILITIES, AND TEMPORARY CONSTRUCTION ELEMENTS.
14. AIRSPACE AND OBSTRUCTION CONTROL: SURVEY, IDENTIFY, DOCUMENT, AND MITIGATE ALL EXISTING AND PROPOSED OBSTRUCTIONS AFFECTING THE HELIPAD AIRSPACE, APPROACH/DEPARTURE SURFACES, TRANSITIONAL SURFACES, SAFETY AREA, AND HELIPORT PROTECTION AREAS.
15. EXISTING HELIPAD COORDINATION: THE EXISTING ASEM CENTRAL SERVICES BUILDING HELIPAD SHALL BE EVALUATED AND COORDINATED WITH THE PROPOSED NEW HELIPAD, INCLUDING ITS CURRENT OPERATION, FAA STATUS, APPROACH/DEPARTURE PATHS, LIGHTING, MARKINGS, ACCESS ROUTE, FIRE PROTECTION, UTILITIES, OPERATIONAL LIMITATIONS, AND CONTINUED USE DURING CONSTRUCTION.
16. CONTINUITY OF HELICOPTER OPERATIONS: EXISTING HELICOPTER EMERGENCY OPERATIONS SHALL REMAIN AVAILABLE DURING CONSTRUCTION UNLESS AN ALTERNATE TEMPORARY LANDING ARRANGEMENT OR TRANSITION PLAN IS APPROVED BY THE OWNER, HOSPITAL OPERATIONS, FAA, AIRCRAFT OPERATORS, AND AUTHORITIES HAVING JURISDICTION.
17. CONTINUOUS HELIPAD AVAILABILITY: THE EXISTING HELIPAD SHALL REMAIN FULLY OPERATIONAL AND AVAILABLE FOR USE AT ALL TIMES AND SHALL NOT BE DECOMMISSIONED, BLOCKED, ALTERED, OR OPERATIONALLY REDUCED. BOTH THE EXISTING HELIPAD AND THE NEW HELIPAD SHALL BE MAINTAINED AS AVAILABLE FOR USE, UNLESS OTHERWISE DIRECTED IN WRITING BY THE OWNER AND APPROVED BY THE FAA AND APPLICABLE AUTHORITIES HAVING JURISDICTION.
18. EMERGENCY ACCESS TO TRAUMA SERVICES: PROVIDE DIRECT, SECURE, PROTECTED, AND OPERATIONALLY EFFICIENT ACCESS BETWEEN THE HELIPAD AND TRAUMA/EMERGENCY RECEIVING AREAS, INCLUDING STRETCHER MOVEMENT, MEDICAL TEAM ACCESS, ELEVATOR ACCESS, AND EMERGENCY RESPONSE ACCESS.
19. CONTROLLED ACCESS: SEPARATE HELIPAD OPERATIONS FROM PUBLIC CIRCULATION. PROVIDE CONTROLLED ACCESS, SECURITY MEASURES, GATES, ALARMS, SIGNAGE, AND BARRIERS WITHOUT CREATING OBSTRUCTIONS OR HAZARDS TO HELICOPTER OPERATIONS.
20. PRESIDENTIAL HELICOPTER OPERATIONS: COORDINATE SPECIAL ACCESS, SECURITY, STAGING, COMMUNICATIONS, EMERGENCY RESPONSE, AND OPERATIONAL REQUIREMENTS ASSOCIATED WITH SIKORSKY S-92 (INCLUDING THE MILITARY VH-92A PATRIOT VERSION) USE WITH THE OWNER AND RESPONSIBLE AGENCIES.
21. HELIPAD MARKINGS: PROVIDE FAA-COMPLIANT HOSPITAL HELIPORT MARKINGS, INCLUDING THE HOSPITAL HELIPORT IDENTIFICATION SYMBOL, TLOF PERIMETER MARKINGS, TOUCHDOWN/POSITIONING MARKINGS, SIZE AND WEIGHT LIMITATION MARKINGS, AND PREFERRED APPROACH/DEPARTURE INDICATORS WHERE REQUIRED.
22. SIZE AND WEIGHT MARKINGS: MARK THE HELIPAD WITH THE FINAL APPROVED MAXIMUM HELICOPTER WEIGHT AND CONTROLLING DIMENSION "D" IN ACCORDANCE WITH FAA REQUIREMENTS. THE MARKINGS SHALL REFLECT THE ACTUAL APPROVED OPERATING CAPACITY OF THE HELIPAD, INCLUDING SIKORSKY S-92 (INCLUDING THE MILITARY VH-92A PATRIOT VERSION) CAPACITY.
23. LIGHTING: PROVIDE FAA-COMPLIANT HELIPAD LIGHTING FOR NIGHT AND EMERGENCY OPERATIONS, INCLUDING TLOF PERIMETER LIGHTS, OBSTRUCTION LIGHTING, LANDING DIRECTION LIGHTING WHERE REQUIRED, AND AN ILLUMINATED WIND CONE.
24. EMERGENCY POWER: CONNECT HELIPAD LIGHTING, WIND CONE LIGHTING, OBSTRUCTION LIGHTING, COMMUNICATIONS, ACCESS CONTROLS, AND REQUIRED LIFE-SAFETY SYSTEMS TO THE APPROPRIATE EMERGENCY/ESSENTIAL POWER SYSTEM.
25. WIND CONE: PROVIDE AN ILLUMINATED WIND CONE VISIBLE TO PILOTS DURING APPROACH, LANDING, TAKEOFF, AND GROUND OPERATIONS. LOCATE THE WIND CONE OUTSIDE THE SAFETY AREA AND OUTSIDE OBSTRUCTION SURFACES.
26. FIRE PROTECTION: PROVIDE COMPLETE HELIPAD FIRE PROTECTION, STANDPIPE, HOSE CONNECTION, EXTINGUISHERS, FIRE DEPARTMENT ACCESS, EMERGENCY RESPONSE PROVISIONS, DRAINAGE, SPILL CONTROL, AND RELATED LIFE-SAFETY SYSTEMS IN ACCORDANCE WITH APPLICABLE FIRE CODES, FAA CRITERIA, AND AUTHORITIES HAVING JURISDICTION.
27. DRAINAGE AND SPILL CONTROL: PROVIDE POSITIVE DRAINAGE, SPILL CONTAINMENT, OIL/FUEL SEPARATION WHERE REQUIRED, CORROSION-RESISTANT DRAINAGE MATERIALS, AND EMERGENCY CONTAINMENT MEASURES WITHOUT CREATING SLIPPERY SURFACES, PONDING, DEBRIS, OR HAZARDOUS DISCHARGE CONDITIONS.
28. SURFACE PERFORMANCE: PROVIDE A DURABLE, NON-SLIP, NON-SHEDDING, WEATHER-RESISTANT, FUEL-RESISTANT, AND CORROSION-RESISTANT HELIPAD SURFACE SUITABLE FOR SIKORSKY S-92 (INCLUDING THE MILITARY VH-92A PATRIOT VERSION) OPERATIONS, EMERGENCY RESPONSE, HOSPITAL MAINTENANCE, AND PUERTO RICO'S HURRICANE AND TROPICAL ENVIRONMENTAL CONDITIONS.
29. ROTOR WASH PROTECTION: SECURE OR ELIMINATE ALL LOOSE OBJECTS, ROOFTOP EQUIPMENT, SIGNAGE, PANELS, GRILLES, COVERS, FURNISHINGS, AND OTHER ELEMENTS THAT MAY BECOME AIRBORNE DUE TO ROTOR WASH.
30. ROOFTOP EQUIPMENT COORDINATION: COORDINATE ALL MECHANICAL, ELECTRICAL, PLUMBING, COMMUNICATIONS, LIGHTNING PROTECTION, ANTENNAS, EXHAUSTS, INTAKES, VENTS, SCREENS, LOUVERS, SOLAR EQUIPMENT, AND EQUIPMENT SUPPORTS WITH HELIPAD AIRSPACE, CLEARANCES, DOWNWASH, TURBULENCE, NOISE, AND VIBRATION REQUIREMENTS.
31. NOISE AND VIBRATION: COORDINATE HELIPAD OPERATIONS WITH HOSPITAL ACOUSTIC, VIBRATION, STRUCTURAL, AND PATIENT-CARE REQUIREMENTS TO REDUCE ADVERSE IMPACT ON CRITICAL CARE, SURGICAL, IMAGING, INPATIENT, EMERGENCY, AND OTHER SENSITIVE HOSPITAL FUNCTIONS.
32. COMMUNICATIONS: PROVIDE REQUIRED COMMUNICATION INFRASTRUCTURE FOR HELICOPTER OPERATIONS, HOSPITAL EMERGENCY COORDINATION, SECURITY, FIRE DEPARTMENT RESPONSE, DISASTER RESPONSE, AND SIKORSKY S-92 (INCLUDING THE MILITARY VH-92A PATRIOT VERSION) PRESIDENTIAL HELICOPTER OPERATIONS WHERE REQUIRED.
33. CONSTRUCTION CRANE COORDINATION: ALL CONSTRUCTION CRANES, HOISTS, SCAFFOLDING, TEMPORARY EQUIPMENT, ANTENNAS, STAGING, AND TEMPORARY OBSTRUCTIONS AFFECTING THE EXISTING OR PROPOSED HELIPAD AIRSPACE SHALL BE COORDINATED WITH THE FAA AND AUTHORITIES HAVING JURISDICTION BEFORE INSTALLATION OR USE.
34. COMMISSIONING AND ACCEPTANCE: THE HELIPAD SHALL BE INSPECTED, TESTED, COMMISSIONED, DOCUMENTED, AND ACCEPTED BEFORE OPERATIONAL USE, INCLUDING MARKINGS, LIGHTING, FIRE PROTECTION, DRAINAGE, ACCESS CONTROL, EMERGENCY POWER, COMMUNICATIONS, SIGNAGE, STRUCTURAL CERTIFICATION, FAA COORDINATION, AND AHJ APPROVALS.
35. DESIGN-BUILD RESPONSIBILITY: THE DESIGN-BUILD ENTITY SHALL PROVIDE A COMPLETE, COORDINATED, FAA-COMPLIANT, CODE-COMPLIANT, HOSPITAL-OPERATIONAL HELIPAD DESIGN THAT PRESERVES THE DESIGN INTENT SHOWN IN THE BRIDGING DOCUMENTS AND SATISFIES ALL FINAL AVIATION, STRUCTURAL, EMERGENCY, FIRE/LIFE SAFETY, HEALTHCARE, OPERATIONAL, PRESIDENTIAL HELICOPTER, AND REGULATORY REQUIREMENTS.

SPACE PROGRAM:

TRAUMA HELIPORT AND SUPPORT AREAS
- DEDICATED HELIPORT ELEVATOR CORE
- ACCESS RAMP TO HELIPORT LANDING PAD
- SERVICE PATIENT HOLDING TERRACE
- HELIPORT LANDING PAD



PROJECT REFERENCE ORIENTATION KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

NO. | DATE | DESCRIPTIONS

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING BRIDGING DOCUMENTS FOR THE DESIGN-BUILD PROCUREMENT OF THE PUERTO RICO TRAUMA HOSPITAL PROJECT. THEY ARE NOT INTENDED TO BE USED FOR PERMITTING, BIDDING, FABRICATION, PARAGRAPHSHOP DRAWING REVIEW, OR CONSTRUCTION. THE DESIGN-BUILD ENTITY SHALL PREPARE ITS OWN DESIGN, CONSTRUCTION DOCUMENTS, AND SHOP DRAWINGS AS REQUIRED FOR CONSTRUCTION, AND SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, CODE COMPLIANCE, AND CONSTRUCTABILITY OF ITS DESIGN-BUILD ENTITY'S DESIGN AND CONSTRUCTION DOCUMENTS. THE DESIGN-BUILD ENTITY SHALL ALSO BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE PROJECT. THE DESIGN-BUILD ENTITY SHALL VERIFY ALL DIMENSIONS, CONDITIONS, AND EXISTING CONSTRUCTION IN THE FIELD AND SHALL NOTIFY DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. ANY USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS FOR THE PUERTO RICO TRAUMA HOSPITAL PROJECT. THEY ARE PROVIDED SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES AUTHORIZED BY THE OWNER. ALL COMMON LAW, STATUTORY, AND OTHER RESERVED RIGHTS, INCLUDING COPYRIGHT, ARE RESERVED. UNAUTHORIZED USE, REPRODUCTION, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT THE PRIOR WRITTEN CONSENT OF DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS. ANY UNAUTHORIZED USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS.

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
PROPOSED FLOOR PLAN - ROOF (HELIPORT) LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER
A-1.12



FOOD & NUTRITION SERVICES EQUIPMENT BLOW-UP FLOOR PLAN

1 / A-1.13

SCALE: 1/4"= 1'-0"

LEGEND:

- REINFORCED CONCRETE WALL OR COLUMN
- NEW 6" OR 8" CONCRETE BLOCK WALL (C.M.U.) UP TO STRUCTURAL SLAB UNLESS OTHERWISE NOTED.
- GYPSUM BOARD WALL 6" ABOVE CEILING
- RED DOTTED SYMBOLS DENOTE FURNITURE & EQUIPMENT NOT IN CONTRACT

PROCUREMENT LEGEND:

- SIN - SUPPLIED & INSTALLED BY OWNER
- SOC - SUPPLIED BY OWNER & INSTALLED BY CONTRACTOR.
- SCC - SUPPLIED & INSTALLED BY CONTRACTOR.

WORK BY OWNER:

1- ALL CABLING, HARDWARE AND SOFTWARE RELATED TO THE VOICE COMMUNICATION SYSTEM, INFORMATION TECHNOLOGY SYSTEM, CLOSED CIRCUIT TV SYSTEM AND ELECTRONIC ACCESS CONTROL SYSTEM WILL BE SUPPLIED AND INSTALLED BY EACH OF THE SYSTEMS OWNER'S SUBCONTRACTORS.

BUILDING ADMINISTRATION COMPLIANCE:

1- ALL WORK TO BE EXECUTED UNDER THIS CONTRACT SHALL BE DONE ONLY DURING THE WORKING HOURS APPROVED BY THE BUILDING ADMINISTRATOR.

2- ALL WORK EXECUTED UNDER THIS CONTRACT SHALL BE IN ACCORDANCE AND IN COMPLIANCE WITH THE BUILDING ADMINISTRATION REGULATIONS RELATED TO CONSTRUCTION.

EQUIPMENT LEGEND & UTILITIES REQUIREMENT LIST (ALL EQUIPMENT TO BE 60HZ/USA)

	EQUIPMENT	ELECTRICAL SERVICE							WATER SERVICE		GAS SERVICE	PROCUREMENT (SEE LEGEND)			REMARKS
		120V	208V	240V	480V	AMPS	WATTS OR KW	PHASES	SUPPLY	DRAIN	SUPPLY	SIN	SOC	SCC	
A	GARBAGE DISPOSAL: COMMERCIAL (1 HP HORSEPOWER, 85 OZ GRINDING CHAMBERCAPACITY, SS)				●	6.5		3	●	●				●	3 PHASE /WITH TYPE A (18" DIA.) BOWL ASSEMBLY, ADJUSTABLE LEGS & AS-101 CONTROL CENTER
B	REACH-IN GLASS SWING DOOR REFRIGERATOR WITH HYDROCRABON REFRIGERANT - FRAMED GLASS (2 DOORS, 6 SHELVES)	●				5.4		1							
C	REACH-IN SOLID SWING GLASS DOOR REFIGERATOR WITH HYDROCARBON REFRIGERANT -10°F FREEZER (1 DOORS, 3 SHELVES)	●				3.7		1							
D	COMPACT UNDERCOUNTERS REGRIGERATOR (UHT 32 SELF CONTAINED - STAINLESS STEEL) MOVABLE	●				7.5		1							FLOOR ELECTRICAL OUTLET WATER-TIGHT EXTERIOR GRADE
E	TILTING ELECTRIC COUNTERTOP KETTLE (12 GALLONS)				●		16 KW	3	●	●					PROVIDE COUNTER FOR KETTLE
F	GAS ROASTING DECK OVENS (ROASTING OVEN WITH 12" HIGH CAVITY AND STEEL HEARTH 80,000 BTU)	●					25 W	1			●				ELECTRIC SERVICE FOR COMPARTMENT OVEN CONTROLS
G	COMMERCIAL 46 1/4" DEPTH DOUBLE DECK GAS CONVECTION OVEN WITH COMPUTER CONTROLS			●		3.6		1			●				ELECTRIC SERVICE FOR COMPARTMENT OVEN CONTROLS
H	36" GAS COUNTERTOP GRIDDLE WITH MAUAL CONTROLS AND 36", 2 DRAWER REFRIGERATED CHEF BASE - 90,000 BTU	●				10					●				ELECTRIC SERVICE FOR EACH COMPARTMENT OVEN CONTROLS
I	FRYER ELECTRIC FRY DUMP & HOLDING STATION (FREE STANDING)	●				9					●				ELECTRIC SERVICE FOR COMPARTMENT OVEN CONTROLS
J	48"L x 24"W x 31.5"H TRIPLE BURNERS HOTPLATE (HOTPLATE, FLOOR MODEL, GAS)	●				10					●				ELECTRIC SERVICE FOR COMPARTMENT OVEN CONTROLS
K	COMPACT UNDERCOUNTERS REGRIGERATOR (32 SELF CONTAINED - STAINLESS STEEL) MOVABLE	●				7.5		1							FLOOR ELECTRICAL OUTLET WATER-TIGHT EXTERIOR GRADE
L	48"L x 32"W x 31.5"H SIXTH BURNER STOVE (STOVE, FLOOR MODEL, GAS)	●				10					●				ELECTRIC SERVICE FOR COMPARTMENT OVEN CONTROLS
M	REACH-IN GLASS SWING DOOR REFRIGERATOR WITH HYDROCRABON REFRIGERANT - FRAMED GLASS (1 DOOR, 6 SHELVES)	●				1.8		1							
N	REACH-IN GLASS SWING DOOR REFRIGERATOR WITH HYDROCRABON REFRIGERANT - FRAMED GLASS (2 DOORS, 6 SHELVES)	●				5.4		1							
O	HUMIDIFIED HEATED HOLDING TRANSPORT CABINETS (INSULATED)	●				13.8	1.7 KW	1							
P	COMMERCIAL DUAL PANINI SANDWICH GRILL (STAINLESS STEEL EXTERIOR & CAST IRON PLATES)	●					3500 W								SUPPLIED WITH 2 PLUGS & OPERATES USING 2 SEPARATE 120V CIRCUITS, REQUIRES SEPARATE OUTLETS
Q	HOT MILK DISPENSER (ELECTRIC, WITH DRAIN BASE)	●					1755 W								FLOOR ELECTRICAL OUTLET
R	AUTOMATIC SINGLE 6 GALLON COFFEE URN (PRESSURE 15-50 PSI, ELECTRIC)			●		33	7000 W		●	●					NSF CERTIFIED, FLOOR ELECTRICAL OUTLET WATER SOURCE - DIRECT CONNECTION
S	36" COUNTERTOP HEATED DISPLAY CASE WITH SLIDING DOORS (FULL SERVICE 3 SHELVES)	●					1580 W								FLOOR ELECTRICAL OUTLET
T	TRIPLE FREESTANDING DRAWER WARMER (STAINLESS STEEL, 3 DRAWERS)	●					1350 W								FLOOR ELECTRICAL OUTLET
U	ELECTRIC BAIN MARIE BUFFET COUNTERTOP FOOD WARMER WELLS (STAINLESS STEEL, 7 WELLS)	●					1750 W		●	●					FLOOR ELECTRICAL OUTLET
V	10 VALVE SANITARY LEVER COUNTERTOP ICE/BEVERAGE DISPENSER (200 POUND ICE STORAGE)	●				2.8			●	●					FLOOR ELECTRICAL OUTLET
W	STAINLESS STEEL FOUR PAN DROP-IN REFRIGERATED COLD PAN UNIT (200 POUND ICE STORAGE)	●				8	960 W	1							FLOOR ELECTRICAL OUTLET
X	STAINLESS STEEL FOUR PAN DROP-IN REFRIGERATED COLD PAN UNIT (200 POUND ICE STORAGE)	●				8	960 W	1	●	●					FLOOR ELECTRICAL OUTLET
Y	COOLER: SEE HOLDING COOLER /FREEZER EQUIPMENT NOTES IN SHEET A- 1.13														
Z	FREEZER: SEE HOLDING COOLER /FREEZER EQUIPMENT NOTES IN SHEET A- 1.13														

STAINLESS STEEL FURNITURE & EQUIPMENT LEGEND & UTILITIES REQUIREMENT LIST

	EQUIPMENT	WATER SERVICE		PROCUREMENT (SEE LEGEND)			REMARKS
		SUPPLY	DRAIN	SIN	SOC	SCC	
1	DELUXE STAINLESS STEEL WORKTABLE 60"L X 24"W (BACKSPLASH & BOTTOM SHELF)						ADJUSTABLE BOTTOM SHELF AND LEVELING FEET. NSF CERTIFIED
2	DELUXE STAINLESS STEEL WORKTABLE 48"L X 30"W (WITH BACKSPLASH & BOTTOM SHELF)						ADJUSTABLE BOTTOM SHELF AND LEVELING FEET. NSF CERTIFIED
3	STAINLESS STEEL UTILITY SINK 30"L X 30"W (SINK & SWIVEL FAUCET)	●	●				NSF CERTIFIED
4	STAINLESS STEEL FILLER TABLE 18"L X 30"W (WITH BACKSPLASH & BOTTOM SHELF)						ADJUSTABLE BOTTOM SHELF AND LEVELING FEET. NSF CERTIFIED
5	COMMERCIAL STAINLESS STEEL 3 COMPARTMENT SINK W/FOOD WASTE DISPOSER MKD. A (STAINLESS STEEL. SEE DRAWING S1 IN SHEET A-1.14)	●	●			●	NSF CERTIFIED
6	EPOXY WIRE SHELVING UNIT - 36"W X 24"D X 86"H, COLOR: ZINC (4 SHELVES)						ADJUSTABLE SHELVES NSF CERTIFIED
7	STAINLESS STEEL UTILITY SINK 30"L X 30"W (SINK & SWIVEL FAUCET)	●	●				NSF CERTIFIED
8	STAINLESS STEEL TABLE TYPE POT RACK / SHELVES (STAINLESS STEEL. SEE DRAWING S2 IN SHEET A-1.14)					●	NSF CERTIFIED
9	STAINLESS STEEL COOK PREP. TABLE WITH SINK (STAINLESS STEEL. SEE DRAWING S2 IN SHEET A-1.14)	●	●			●	ADJUSTABLE BOTTOM SHELF AND LEVELING FEET. NSF CERTIFIED
10	EPOXY WIRE SHELVING UNIT - 48"W X 24"D X 86"H, COLOR: ZINC (4 SHELVES)						ADJUSTABLE SHELVES NSF CERTIFIED
11	STAINLESS STEEL CAFETERIA COUNTER (WITH BACKSPLASH & BOTTOM SHELF)						
12	STAINLESS STEEL SOLID (V) TRAY SLIDE (TO USE WITH CAFETERIA COUNTER)						
13	CUP DISPENSER (TO USE WITH LEVER COUNTERTOP ICE/BEVERAGE DISPENSER)						
14	BUFFET STYLE SNEEZE GUARD (COMPATIBLE WITH FOUR PAN DROP-IN REFRIGERATED COLD PAN UNIT)						
15	BUFFET STYLE SNEEZE GUARD (COMPATIBLE WITH FOUR PAN DROP-IN REFRIGERATED COLD PAN UNIT)						
16	STAINLESS STEEL ENCLOSED BASE SLIDING DOOR TABLE FOR TRAYS & CUTLERY (STORAGE UNDERCOUNTER WITH SOLID DOORS)						ADJUSTABLE BOTTOM SHELF AND LEVELING FEET. NSF CERTIFIED
17	STAINLESS STEEL ENCLOSED BASE SLIDING DOOR CONDIMENT / SERVICE STATION BAR (STORAGE UNDERCOUNTER WITH SOLID DOORS)						ADJUSTABLE BOTTOM SHELF AND LEVELING FEET. NSF CERTIFIED
18	STAINLESS STEEL TABLE WITH WASTE BINS UNDERCOUNTER & SOILED TRAY TABLE (STORAGE UNDERCOUNTER WITH SOLID DOORS)						ADJUSTABLE BOTTOM SHELF AND LEVELING FEET. NSF CERTIFIED

FAUCET LEGEND:

NOTES:
1. CONNECT TO WATER AND DRAIN UTILITIES.
2. SUPPLY WITH COMPLETE MOUNTING KIT ASSEMBLY FOR PROPER USE.

F1	1.15 GPM WALL-MOUNTED PRE-RINSED FAUCET WITH 8" CENTERS &, 16" ADD-ON FAUCET & 44" HOSE. CHROME-PLATED.
F2	GPM WALL-MOUNTED 10" SWIVEL FAUCET WITH 10" LONGS SPOUT . CHROME-PLATED.
F3	2 GPM DECK-MOUNTED SWIVEL FAUCET WITH 8" CENTERS &, 8" GOOSENECK SPOUT. CHROME-PLATED.
F4	WATERLOO 2.6 GPM WALL-MOUNTED POT & KETTEL FILLER WITH 68" HOSE AND VACUUM BREAKER CHROME-PLATED.
F5	OPEN STAINLESS STEEL RETRACTABLE HOSE REEL WITH 35 FEET HOSE WALL-MOUNTED ASSEMBLY.

HOLDING COOLER & HOLDING FREEZER EQUIPMENT NOTES

(APPICABLE FOR COOLER ITEM Y & FOR FREEZER ITEM Z)

1. CONTRACTOR SUPPLIED & INSTALLED HOLDING COOLER (AS SHOWN IN ROOM 0-036) FULLY ASSEMBLED & OPERATIONAL.
   - A. WALK-IN COOLER WITH A FLOOR, 8'-6" HIGH, INDOOR MODEL.
   - B. 4" THICK PANEL (WALLS, CEILINGS & FLOOR), METAL CLAD WITH POLYURETHANE INSULATION.
   - C. INSULATION R-VALUE 25 (WALLS, CEILINGS & FLOOR) WITH +25°F OPERATION TEMPERATURE.
   - D. MANUAL STAINLESS STEEL SWINGING DOOR WITH R-VALUE 25.
   - E. USDA ACCEPTED WITH 15 YEAR PANEL WARRANTY AND 18 MONTHS PARTS AND LABOR WARRANTY.
2. CONTRACTOR SUPPLIED & INSTALLED HOLDING FREEZER (AS SHOWN IN ROOM 0-035) FULLY ASSEMBLED & OPERATIONAL.
   - A. WALK-ON COOLER WITH FLOOR, 8'-6" HIGH, INDOOR MODEL.
   - B. 4" THICK PANEL (WALLS, CEILINGS & FLOOR), METAL CLAD WITH POLYURETHANE INSULATION.
   - C. INSULATION R-VALUE 25 (WALLS, CEILINGS & FLOOR) WITH -10°F OPERATION TEMPERATURE.
   - D. MANUAL STAINLESS STEEL SWINGING DOOR WITH R-VALUE 25.
   - E. USDA ACCEPTED WITH 15 YEAR PANEL WARRANTY AND 18 MONTHS PARTS AND LABOR WARRANTY.
3. CONTRACTOR SHALL SUPPLY AND INSTALL SPECIFIED HOLDING COOLER AND HOLDING FREEZER DELIVERING THEM FULLY OPERATIONAL AFTER VALIDATING AND START-UP PROCEDURES.
4. CONTRACTOR SHALL EXECUTE ALL CIVIL, ELECTRICAL AND MECHANICAL UTILITIES RELATED WORK REQUIRED FOR THE INSTALLATION AND PROPER OPERATION OF THE FREEZER AND COOLER AS REQUIRED BY THE MANUFACTURER.
5. ELECTRICAL & COOLING CAPACITY REQUIREMENTS AS FOLLOWS:
   - Y HOLDING COOLER - 80 S.F. / 640 C.F. , 10,000 BTU, 25°F OPERATION. 5 H.P. COMPRESSOR & EVAPORATOR UNIT @ 480 V/3 FANS @ 120V OPERATION
   - Z HOLDING FREEZER - 80 S.F. / 640 C.F. , 10,000 BTU, -10°F OPERATION. 5 H.P. COMPRESSOR & EVAPORATOR UNIT @ 480 V/3 FANS @ 120V OPERATION

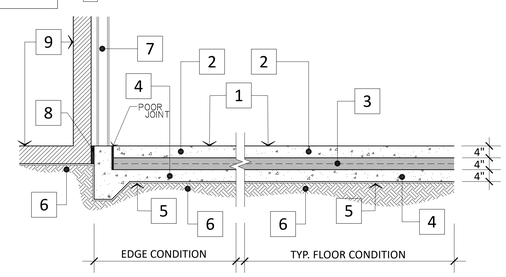
GENERAL EQUIPMENT NOTES:

1. PRIOR TO THE INSTALLATION OF ALL THE EQUIPMENT (SIN, SOC & SCC) SPECIFIED HEREIN, THE CONTRACTOR SHALL REQUEST FROM THE OWNER THE FINAL CONFIRMATION LIST OF THE EQUIPMENT WITH ALL THE UTILITIES REQUIREMENTS (ELECTRICAL, PLUMBING, GAS, ETC.).
2. ELECTRICAL OF ALL KITCHEN EQUIPMENT (VOLTAGE, AMPS, & WATTS) SHALL BE CONFIRMED WITH THE OWNER / OPERATOR PRIOR TO QUOTING THE WORK AND STARTING CONSTRUCTION. DISCREPANCIES FROM THE INFORMATION HEREIN SHALL BE INFORMED TO THE ARCHITECT TO AMEND THE DRAWINGS.
3. ALL FURNITURE AND EQUIPMENT IDENTIFIED TO BE SUPPLIED BY THE OWNER AND INSTALLED BY THE CONTRACTOR (SOC) AND/OR TO BE SUPPLIED & INSTALLED BY CONTRACTOR (SCC) SHALL BE INSTALLED ACCORDINGLY BY THE CONTRACTOR IN COMPLIANCE WITH ALL THE UTILITIES (DRAIN, ELECTRICAL, WATER, EXHAUST, GAS, ETC.) INSTALLATION SPECIFICATION REQUIREMENTS OF THE MANUFACTURER.
4. ALL EQUIPMENT IDENTIFIED TO BE SUPPLIED BY THE OWNER AND INSTALLED BY THE CONTRACTOR (SOC) AND/OR TO BE SUPPLIED & INSTALLED BY CONTRACTOR (SCC) SHALL BE INSTALLED IN ACCORDANCE WITH ALL MANUFACTURER'S SPECIFICATIONS, REQUIREMENTS AND INSTALLATION PARAMETERS RELATED, BUT NOT LIMITED TO:
   - a. TECHNICAL SUPPORT & GUIDANCE
   - b. CALIBRATION
   - c. INSTALLATION REQUIREMENTS
   - d START-UP
   - e. UTILITIES HOOK-UPS
   - f. VALIDATION
   - g. ASSEMBLY
5. CONTRACTOR SHALL EXECUTE THE WORK IN COORDINATION & BY SUB-CONTRACTING ALL REQUIRED OWNER'S FOOD PREPARATION EQUIPMENT SPECIALISTS, SUPPLIERS & VENDORS.
6. CONTRACTOR SHALL SUPPLY & INSTALL ALL REQUIRED PIPING BRANCHING AND GAS SUPPLY FLOW FOR EACH EQUIPMENT SHOWN IN THE EQUIPMENT LEGEND ABOVE AS REQUIRED FOR THE INSTALLATION AND PROPER OPERATION OF THE GAS OPERATING EQUIPMENTS AS REQUIRED BY THE MANUFACTURER. SEE MECHANICAL DRAWINGS FOR MAIN GAS SUPPLY SYSTEM AND CONTAINER.
7. CONTRACTOR SHALL VERIFY THE DIMENSIONS OF ALL EQUIPMENTS PRIOR TO THE CONSTRUCTION OF INSTALLATION OPENINGS & UTILITIES SUPPLIES
8. ALL EQUIPMENT SPECIFIED IN THE LEGEND HEREIN THAT REQUIRE WATER AND DRAIN UTILITIES , SHALL BE INSTALLED AS INSTRUCTED IN THE PLUMBING DRAWINGS AND/OR AS REQUIRED, WITH ALL THE FIXTURES AND FITTINGS, TO THE PROPOSED WATER AND DRAIN UTILITY LINES. INSTALLATION SHALL BE EXECUTED AND CERTIFIED, FOR PROPER OPERATION, BY A LICENCED MASTER PLUMBER.

COOLER/FREZZER TYPICAL COMPOSITE SLAB DETAIL LEGEND NOTES:

(FOR COOLER/FREZZER TYPICAL COMPOSITE SLAB)

1	CEMENT TOPPING WITH A LIGHT ABBRASIVE MACHINE POLISHED TROWEL FINISHED WITH EPOXY PAINT FLOOR GRADE PRO-INDUSRIAL PRE- CATALIZED
2	4" THICK 4,000 PSI FLOATING CONCRETE SLAB WITH HIGH-QUALITY CONCRETE REINFORCEMENT FIBERGLASS MESH.
3	TWO LAYERS OF 2" THICK RIGID CLOSED-CELL POLYURETHANE FOAM INSULATION BOARD
4	4" THICK 4,000 PSI STRUCTURAL SLAB WITH GALVANIZED STEEL REINFORCEMENT MESH EQUAL TO WWF 6X6 W1.4 X W1.4
5	POLYETHYLENE TYPE 6 MILLS CONTINUOUS VAPOR BARRIER
6	EXISTING SUBGRADE TO BE FILLED/LEVELED AND COMPACTED TO 90% RELATIVE DENSITY
7	FREEZER AND/OR COOLER PERIMETER WALL PANEL. TYPICAL ON ALL PERIMETER EDGES OF COOLER/FREEZER
8	JOINT FILLER VERTICAL JOINT ELASTIC POLYURETHATE.
9	EXISTING STRUCTURE WALL AND/OR SLAB



COOLER/FREZZER TYPICAL COMPOSITE SLAB DETAIL

(SEE LEGEND NOTES BELOW)

NOT TO SCALE

A / A-1.13

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
- NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION OBJECTIVES. DESIGN INTENT, PERFORMANCE CRITERIA, AND TECHNICAL ASPECTS ARE SUBJECT TO CHANGE AND REFINEMENT BY THE DESIGN-BUILD ENTITY. THESE DOCUMENTS ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, OR INSTALLATION PURPOSES. THE DESIGN-BUILD ENTITY SHALL DEVELOP CONSTRUCTION DOCUMENTS FOR GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY, INCLUDING ITS CONSULTANTS AND CONTRACTORS, SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL ALSO BE RESPONSIBLE FOR OBTAINING ALL PERMITS, APPROVALS, AND CERTIFICATIONS NECESSARY FOR CONSTRUCTION. THE DESIGN-BUILD ENTITY IS SOLELY RESPONSIBLE FOR ANY CONSTRUCTION PERFORMED BASED ON THESE DOCUMENTS, AND SHALL NOT RELY ON THESE DOCUMENTS AS A BASIS FOR BIDDING, PERMITTING, OR CONSTRUCTION. ANY USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED AND SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS FOR THE PUERTO RICO TRAUMA HOSPITAL PROJECT AND ARE INTENDED FOR USE SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES AUTHORIZED BY THE ARCHITECT. UNAUTHORIZED REPRODUCTION, DISTRIBUTION, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT THE ARCHITECT'S PRIOR WRITTEN CONSENT. ALL RIGHTS RESERVED. BY ACCESSING OR USING THESE DOCUMENTS, YOU AGREE TO BE BOUND BY THESE TERMS. ANY UNAUTHORIZED USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT.

NO.	DATE	DESCRIPTIONS

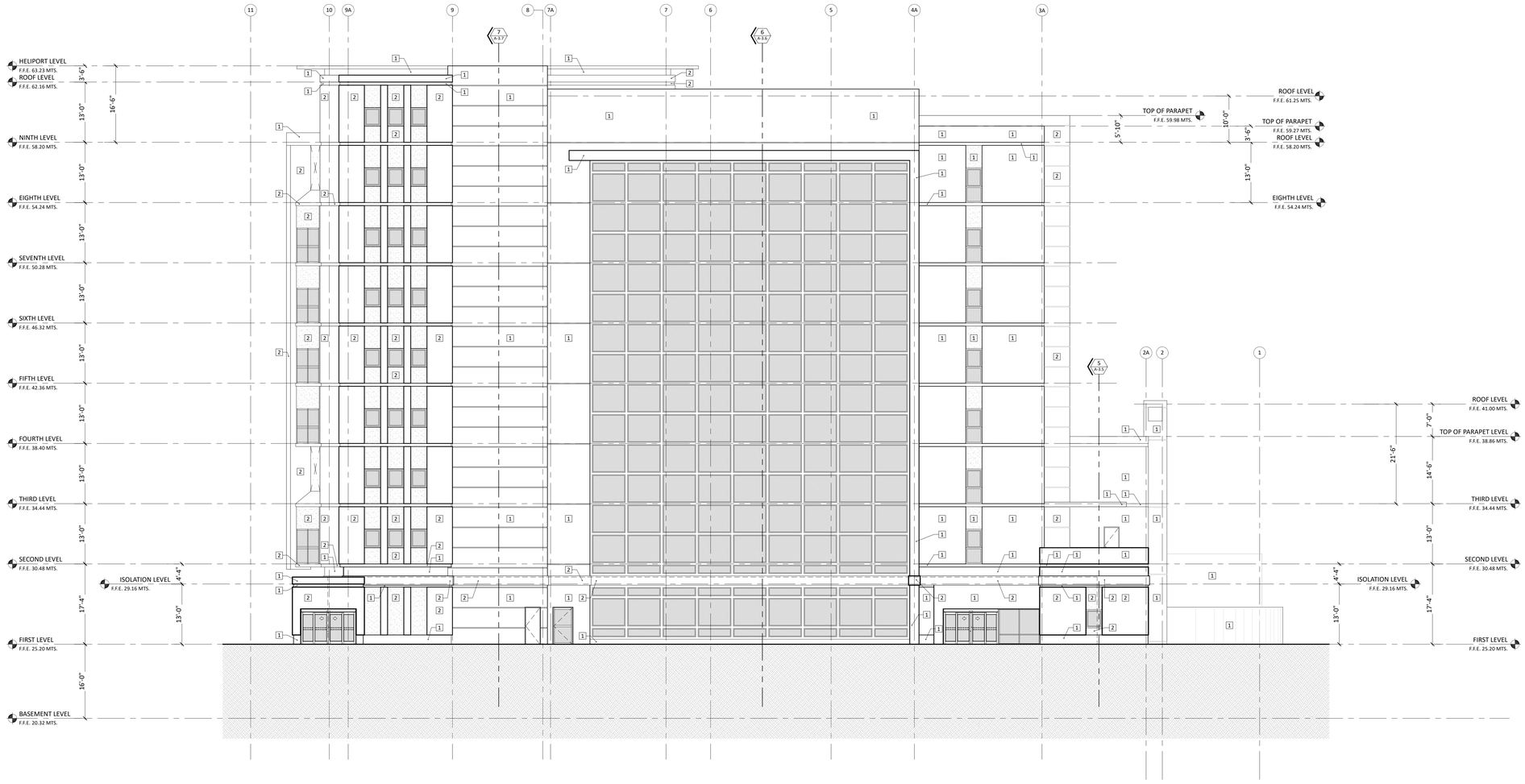
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
FOOD & NUTRITION SERV. EQUIP. BLOW-UP FLOOR PLAN

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1596 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER

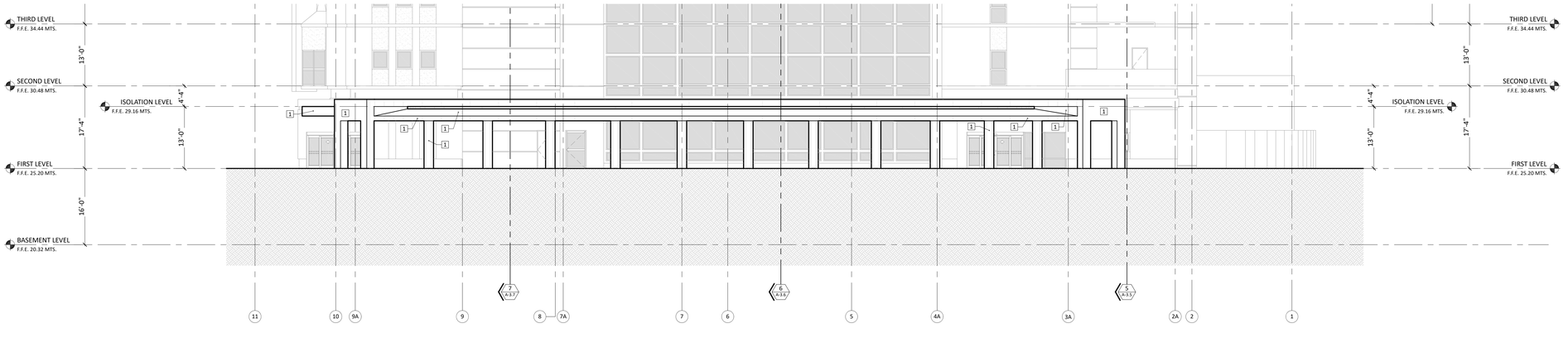
A-1.13



ELEVATION MKD.

SCALE: 3/32"= 1'-0"

A / A-2.1



ENTRANCE CANOPY ELEVATION MKD.

SCALE: 3/32"= 1'-0"

A1 / A-2.1

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED

- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

2 EXTERIOR INSULATION AND FINISH SYSTEM (E.I.F.S.)

- PROVIDE EXTERIOR INSULATION AND FINISH SYSTEM WITH SMOOTH EXTERIOR FINISH. FINISH SHALL PROVIDE A CONTINUOUS, UNIFORM EXTERIOR WALL SURFACE WITH CONSISTENT TEXTURE, COLOR, AND APPEARANCE. E.I.F.S. AREAS SHALL BE COORDINATED WITH ADJACENT FAÇADE MATERIALS, WALL OPENINGS, EDGES, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

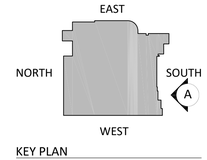
3 COMBINATION OF E.I.F.S. OVER CONCRETE OR STRUCTURAL ELEMENTS

- PROVIDE E.I.F.S. FINISH CONTINUITY OVER DESIGNATED CONCRETE OR STRUCTURAL ELEMENTS WHERE INDICATED ON THE ELEVATIONS. FINISHED SURFACE SHALL ALIGN VISUALLY WITH ADJACENT E.I.F.S. AREAS TO CREATE A CONTINUOUS EXTERIOR APPEARANCE, WITH CONSISTENT TEXTURE, COLOR, AND FINISH QUALITY. CONCRETE OR STRUCTURAL ELEMENTS RECEIVING THIS FINISH SHALL NOT REMAIN VISUALLY EXPOSED UNLESS SPECIFICALLY INDICATED OTHERWISE.

NOTES:

1. REFER ALSO TO SHEET A-7.0, SCHEDULE OF FINISHES & NOTES, FOR GENERAL FINISH NOTES, FINISH SCHEDULES, MATERIAL DESCRIPTIONS, AND ADDITIONAL REQUIREMENTS APPLICABLE TO THE EXTERIOR ELEVATIONS. ALL EXTERIOR FINISHES INDICATED ON THE ELEVATIONS SHALL BE COORDINATED WITH THE INFORMATION PROVIDED ON SHEET A-7.0.

2. FINISH NOTES AND INDICATIONS ON THE ELEVATIONS ARE INTENDED TO CONVEY THE REQUIRED EXTERIOR APPEARANCE, EXTENT, AND PERFORMANCE INTENT. DESIGN-BUILD ENTITY SHALL PROVIDE COMPLETE EXTERIOR FINISH ASSEMBLIES NECESSARY TO ACHIEVE THE INDICATED FINISHED CONDITION, IN ACCORDANCE WITH PROJECT PERFORMANCE REQUIREMENTS AND APPROVED FINISH SELECTIONS.



KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION. DE LA TORRE-ESTEVEZ ARCHITECTS (DLTE) HAS PERFORMED ITS PROFESSIONAL SERVICES IN ACCORDANCE WITH THE STANDARD OF CARE APPLICABLE TO ARCHITECTS PERFORMING SIMILAR SERVICES IN THE SAME LOCALITY AT THE SAME TIME. THESE DOCUMENTS ARE INCOMPLETE, PRELIMINARY, AND NOT FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION PURPOSES. THEY ARE INTENDED ONLY TO ILLUSTRATE THE DESIGN-BUILD ENTITY'S GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY, AND ITS CONSULTANTS, SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE CONSTRUCTION, FABRICATION, ASSEMBLY, AND INSTALLATION OF THE PROJECT. DLTE IS NOT RESPONSIBLE FOR THE DESIGN-BUILD ENTITY'S CONSTRUCTION DOCUMENTS, OR FOR ANY ERRORS, OMISSIONS, OR DISCREPANCIES IN THE DESIGN-BUILD ENTITY'S DOCUMENTS. DLTE SHALL NOT BE RESPONSIBLE FOR THE DESIGN-BUILD ENTITY'S MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OF CONSTRUCTION, OR FOR THE DESIGN-BUILD ENTITY'S SAFETY PRECAUTIONS AND PROGRAMS. THE DESIGN-BUILD ENTITY IS SOLELY RESPONSIBLE FOR THE PERFORMANCE OF ITS WORK AND THE WORK OF ITS SUBCONTRACTORS AND SUPPLIERS. DLTE MAKES NO REPRESENTATIONS OR WARRANTIES REGARDING THE DESIGN-BUILD ENTITY'S DOCUMENTS AND ANY USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED AND AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DLTE.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS AND ARE THE PROPERTY OF DLTE. ALL REPRODUCTIONS OF THESE DOCUMENTS ARE AUTHORIZED ONLY IF THEY ARE USED SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES THAT HAVE RECEIVED PRIOR WRITTEN AUTHORIZATION FROM DLTE. THESE DOCUMENTS MAY NOT BE DISCLOSED, NETWORKED, DISTRIBUTED, LOANED, COPIED, OR REUSED, IN WHOLE OR IN PART, FOR ANY PURPOSE WHATSOEVER WITHOUT PRIOR WRITTEN AUTHORIZATION FROM DLTE. ANY UNAUTHORIZED DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS AT THE RECIPIENT'S SOLE RISK AND WITHOUT LIABILITY TO DLTE. BY ACCEPTING AND USING THESE DOCUMENTS, THE RECIPIENT AGREES TO INDEMNIFY AND HOLD HARMLESS DLTE FROM ANY AND ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES ARISING OUT OF THE UNAUTHORIZED USE OF THESE DOCUMENTS.

NO.	DATE	DESCRIPTIONS

DATE: AUGUST 13, 2026

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

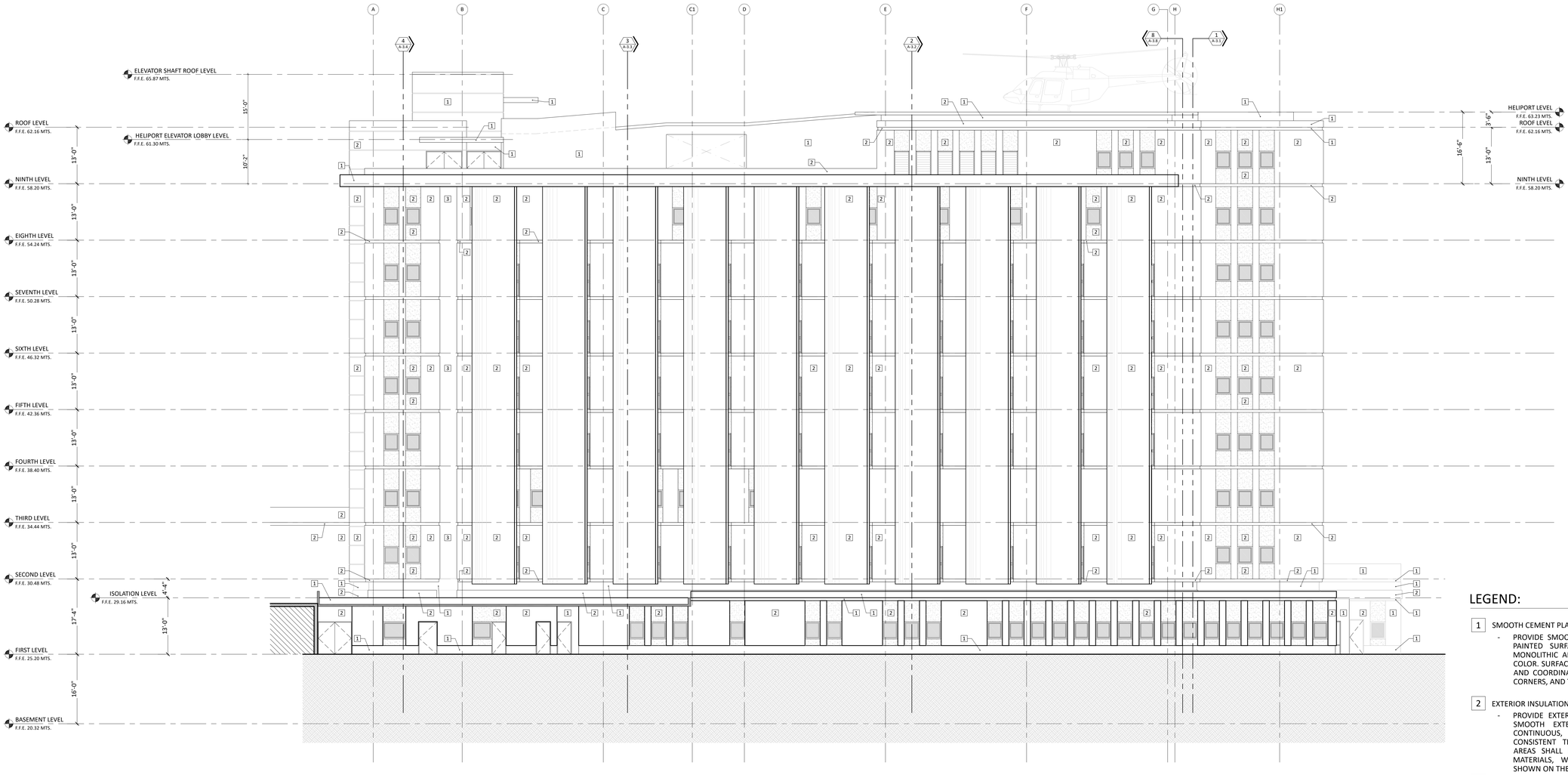
SHEET TITLE:

ELEVATION MKD. A & A1

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 103 SAN JUAN PR 00909

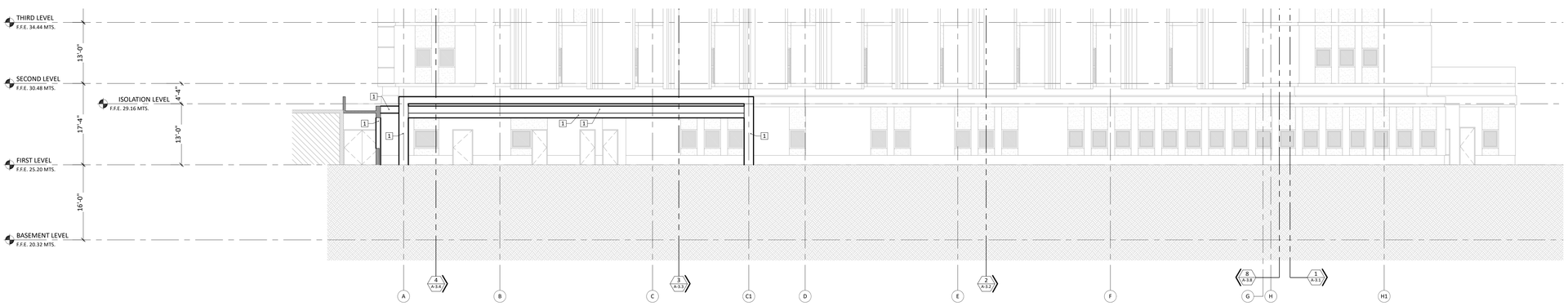
DRAWING NUMBER

A-2.1



ELEVATION MKD.
SCALE: 3/32"= 1'-0"

B
A-2.2



AMBULANCE PARKING YARD CANOPY ELEVATION MKD.
SCALE: 3/32"= 1'-0"

B1
A-2.2

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED
- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

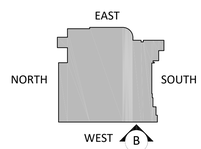
2 EXTERIOR INSULATION AND FINISH SYSTEM (E.I.F.S.)
- PROVIDE EXTERIOR INSULATION AND FINISH SYSTEM WITH SMOOTH EXTERIOR FINISH. FINISH SHALL PROVIDE A CONTINUOUS, UNIFORM EXTERIOR WALL SURFACE WITH CONSISTENT TEXTURE, COLOR, AND APPEARANCE. E.I.F.S. AREAS SHALL BE COORDINATED WITH ADJACENT FAÇADE MATERIALS, WALL OPENINGS, EDGES, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

3 COMBINATION OF E.I.F.S. OVER CONCRETE OR STRUCTURAL ELEMENTS
- PROVIDE E.I.F.S. FINISH CONTINUITY OVER DESIGNATED CONCRETE OR STRUCTURAL ELEMENTS WHERE INDICATED ON THE ELEVATIONS. FINISHED SURFACE SHALL ALIGN VISUALLY WITH ADJACENT E.I.F.S. AREAS TO CREATE A CONTINUOUS EXTERIOR APPEARANCE, WITH CONSISTENT TEXTURE, COLOR, AND FINISH QUALITY. CONCRETE OR STRUCTURAL ELEMENTS RECEIVING THIS FINISH SHALL NOT REMAIN VISUALLY EXPOSED UNLESS SPECIFICALLY INDICATED OTHERWISE.

NOTES:

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2. FINISH NOTES AND INDICATIONS ON THE ELEVATIONS ARE INTENDED TO CONVEY THE REQUIRED EXTERIOR APPEARANCE, EXTENT, AND PERFORMANCE INTENT. DESIGN-BUILD ENTITY SHALL PROVIDE COMPLETE EXTERIOR FINISH ASSEMBLIES NECESSARY TO ACHIEVE THE INDICATED FINISHED CONDITION, IN ACCORDANCE WITH PROJECT PERFORMANCE REQUIREMENTS AND APPROVED FINISH SELECTIONS.



KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2016
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSES OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION OBJECTIVES. DESIGN-INTENT, PERFORMANCE CRITERIA, AND SPECIFICATIONS ARE INCLUDED IN THESE DOCUMENTS TO ESTABLISH THE BASIS OF DESIGN AND MAY NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION PURPOSES. THESE DOCUMENTS ARE INTENDED TO PROVIDE GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR THE DEVELOPMENT OF CONSTRUCTION DOCUMENTS, AND SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF THE PROJECT.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS AND ARE PROVIDED BY THE ARCHITECT AS INFORMATION FOR THE USE DESCRIBED HEREIN. THEY ARE SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES EXPRESSLY AUTHORIZED BY THE ARCHITECT. THEY ARE NOT TO BE USED FOR ANY OTHER PURPOSE OR BY ANY OTHER PERSON OR ENTITY. ANY UNAUTHORIZED USE, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS AT THE RECIPIENT'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT. BY ACCESSING OR USING THESE DOCUMENTS, THE RECIPIENT AGREES TO THE FOREGOING RESTRICTIONS AND TO INDEMNIFY AND HOLD HARMLESS THE ARCHITECT FROM ANY CLAIMS, DAMAGES, OR LOSSES ARISING FROM THE UNAUTHORIZED USE OF THESE DOCUMENTS. ANY USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

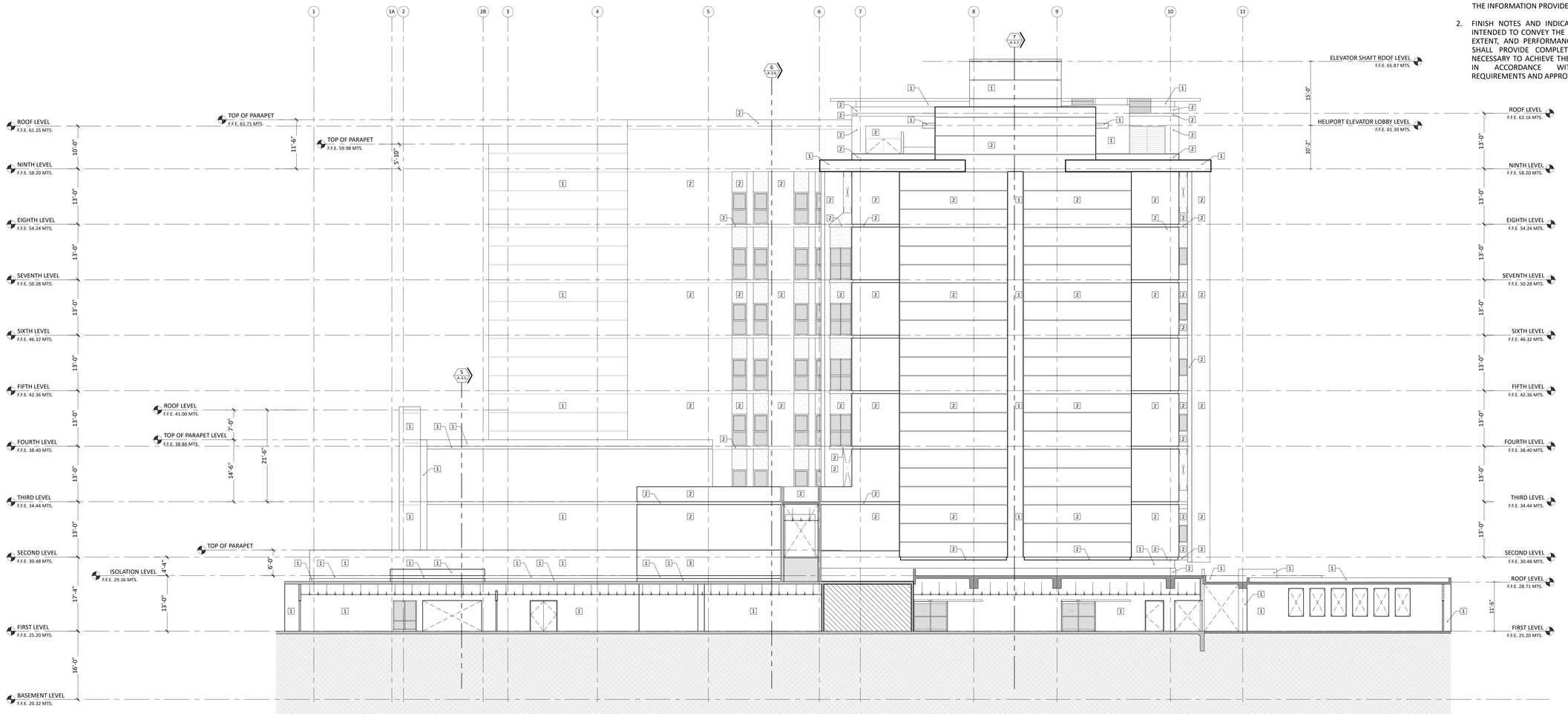
NO.	DATE	DESCRIPTIONS

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
ELEVATION MKD. B & B1

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. CARIBE 1509 AVE PONCE DE LEON, STE 703 SAN JUAN PR 00926

DRAWING NUMBER
A-2.2



ELEVATION MKD.
SCALE: 3/32"= 1'-0"

C
A-2.3

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED

- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

2 EXTERIOR INSULATION AND FINISH SYSTEM (E.I.F.S.)

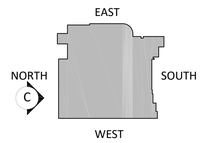
- PROVIDE EXTERIOR INSULATION AND FINISH SYSTEM WITH SMOOTH EXTERIOR FINISH. FINISH SHALL PROVIDE A CONTINUOUS, UNIFORM EXTERIOR WALL SURFACE WITH CONSISTENT TEXTURE, COLOR, AND APPEARANCE. E.I.F.S. AREAS SHALL BE COORDINATED WITH ADJACENT FAÇADE MATERIALS, WALL OPENINGS, EDGES, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

3 COMBINATION OF E.I.F.S. OVER CONCRETE OR STRUCTURAL ELEMENTS

- PROVIDE E.I.F.S. FINISH CONTINUITY OVER DESIGNATED CONCRETE OR STRUCTURAL ELEMENTS WHERE INDICATED ON THE ELEVATIONS. FINISHED SURFACE SHALL ALIGN VISUALLY WITH ADJACENT E.I.F.S. AREAS TO CREATE A CONTINUOUS EXTERIOR APPEARANCE, WITH CONSISTENT TEXTURE, COLOR, AND FINISH QUALITY. CONCRETE OR STRUCTURAL ELEMENTS RECEIVING THIS FINISH SHALL NOT REMAIN VISUALLY EXPOSED UNLESS SPECIFICALLY INDICATED OTHERWISE.

NOTES:

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KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

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NO.	DATE	DESCRIPTIONS

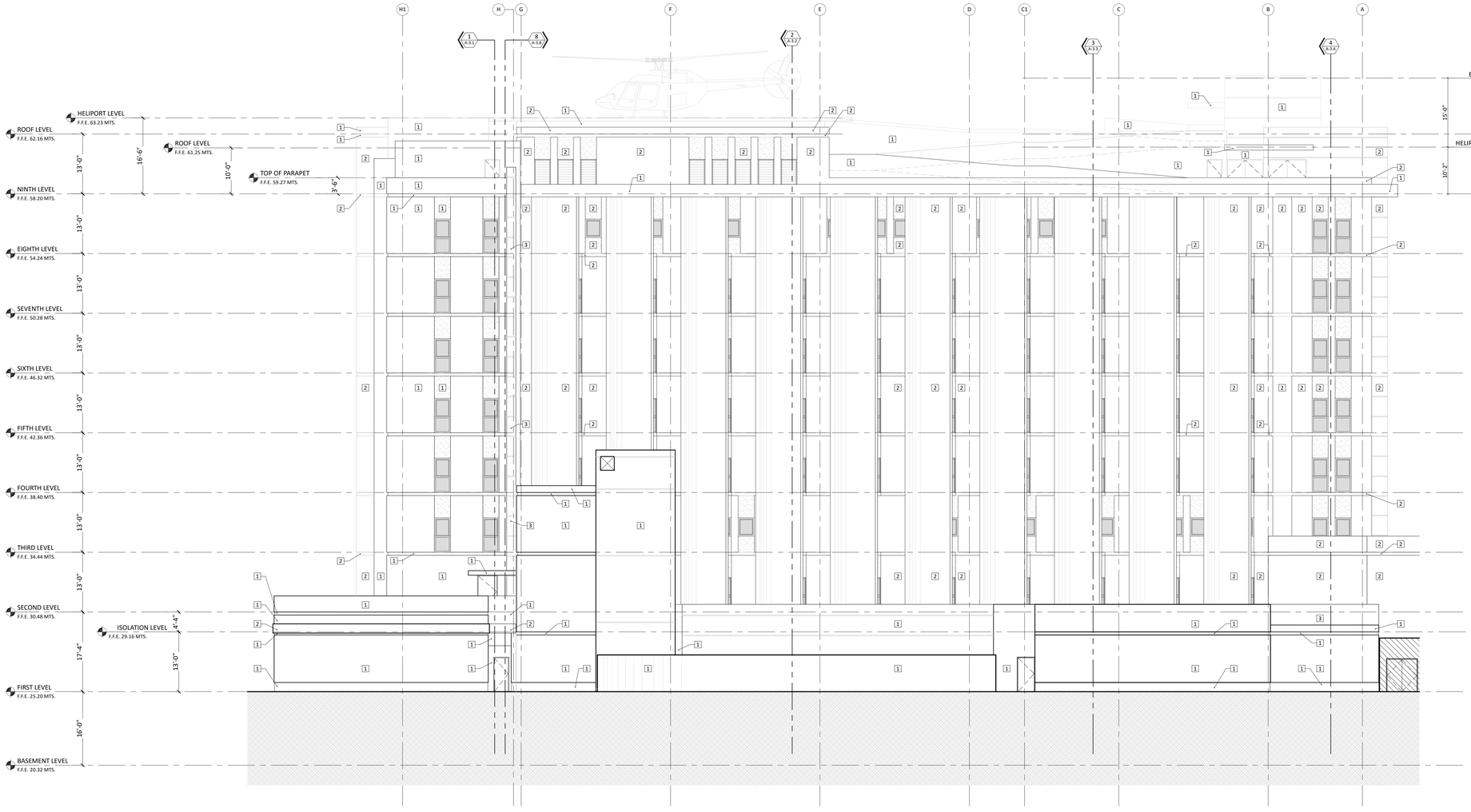
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PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
ELEVATION MKD. C

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER
A-2.3



ELEVATION MKD.
SCALE: 3/32"= 1'-0"

D
A-2.4

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED
- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

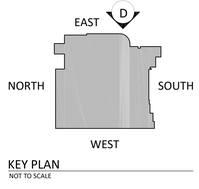
2 EXTERIOR INSULATION AND FINISH SYSTEM (E.I.F.S.)
- PROVIDE EXTERIOR INSULATION AND FINISH SYSTEM WITH SMOOTH EXTERIOR FINISH. FINISH SHALL PROVIDE A CONTINUOUS, UNIFORM EXTERIOR WALL SURFACE WITH CONSISTENT TEXTURE, COLOR, AND APPEARANCE. E.I.F.S. AREAS SHALL BE COORDINATED WITH ADJACENT FAÇADE MATERIALS, WALL OPENINGS, EDGES, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

3 COMBINATION OF E.I.F.S. OVER CONCRETE OR STRUCTURAL ELEMENTS
- PROVIDE E.I.F.S. FINISH CONTINUITY OVER DESIGNATED CONCRETE OR STRUCTURAL ELEMENTS WHERE INDICATED ON THE ELEVATIONS. FINISHED SURFACE SHALL ALIGN VISUALLY WITH ADJACENT E.I.F.S. AREAS TO CREATE A CONTINUOUS EXTERIOR APPEARANCE, WITH CONSISTENT TEXTURE, COLOR, AND FINISH QUALITY. CONCRETE OR STRUCTURAL ELEMENTS RECEIVING THIS FINISH SHALL NOT REMAIN VISUALLY EXPOSED UNLESS SPECIFICALLY INDICATED OTHERWISE.

NOTES:

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KEY PLAN
NOT TO SCALE

NOTES:
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NOT FOR CONSTRUCTION.

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NO.	DATE	DESCRIPTIONS

DATE: AUGUST 13, 2016
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

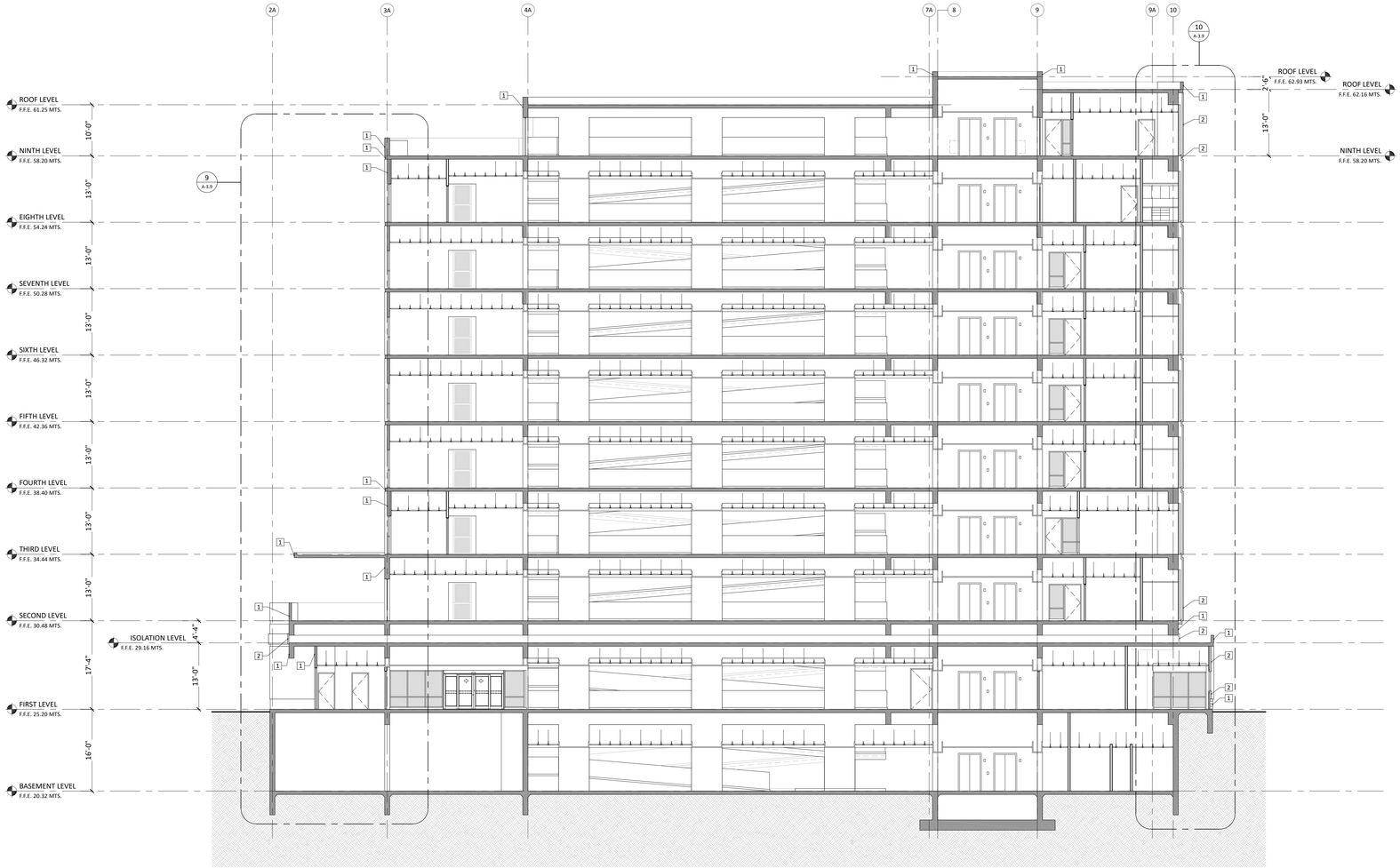
THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION OBJECTIVES. DESIGN-BUILT, PERFORMANCE CRITERIA, AND SPECIFICATIONS ARE INCOMPLETE AND ARE NOT TO BE USED FOR BIDDING, PERMITTING, FABRICATION, OR CONSTRUCTION PURPOSES. THESE DOCUMENTS ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, OR PROJECT CONSTRUCTION. THESE DOCUMENTS ARE PREPARED FOR THE PURPOSE OF PROVIDING GUIDANCE FOR THE DESIGN-BUILD ENTITY. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT. THE ARCHITECTS AND THEIR CONSULTANTS SHALL NOT BE RESPONSIBLE FOR ANY ERRORS, OMISSIONS, OR INCONSISTENCIES IN THE DESIGN-BUILD ENTITY'S CONSTRUCTION DOCUMENTS. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR ITS CONSTRUCTION DOCUMENTS, AND SHALL NOTIFY THE ARCHITECTS AND THEIR CONSULTANTS IN WRITING OF ANY DISCREPANCIES FOUND IN THE DESIGN-BUILD BRIDGING DOCUMENTS. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
ELEVATION MKD. D

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER
A-2.4



SECTION MKD.
SCALE: 3/32"= 1'-0"

1
A-3.1

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED

- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

2 EXTERIOR INSULATION AND FINISH SYSTEM (E.I.F.S.)

- PROVIDE EXTERIOR INSULATION AND FINISH SYSTEM WITH SMOOTH EXTERIOR FINISH. FINISH SHALL PROVIDE A CONTINUOUS, UNIFORM EXTERIOR WALL SURFACE WITH CONSISTENT TEXTURE, COLOR, AND APPEARANCE. E.I.F.S. AREAS SHALL BE COORDINATED WITH ADJACENT FAÇADE MATERIALS, WALL OPENINGS, EDGES, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

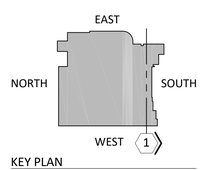
3 COMBINATION OF E.I.F.S. OVER CONCRETE OR STRUCTURAL ELEMENTS

- PROVIDE E.I.F.S. FINISH CONTINUITY OVER DESIGNATED CONCRETE OR STRUCTURAL ELEMENTS WHERE INDICATED ON THE ELEVATIONS. FINISHED SURFACE SHALL ALIGN VISUALLY WITH ADJACENT E.I.F.S. AREAS TO CREATE A CONTINUOUS EXTERIOR APPEARANCE, WITH CONSISTENT TEXTURE, COLOR, AND FINISH QUALITY. CONCRETE OR STRUCTURAL ELEMENTS RECEIVING THIS FINISH SHALL NOT REMAIN VISUALLY EXPOSED UNLESS SPECIFICALLY INDICATED OTHERWISE.

NOTES:

1. REFER ALSO TO SHEET A-7.0, SCHEDULE OF FINISHES & NOTES, FOR GENERAL FINISH NOTES, FINISH SCHEDULES, MATERIAL DESCRIPTIONS, AND ADDITIONAL REQUIREMENTS APPLICABLE TO THE EXTERIOR ELEVATIONS. ALL EXTERIOR FINISHES INDICATED ON THE ELEVATIONS SHALL BE COORDINATED WITH THE INFORMATION PROVIDED ON SHEET A-7.0.

2. FINISH NOTES AND INDICATIONS ON THE ELEVATIONS ARE INTENDED TO CONVEY THE REQUIRED EXTERIOR APPEARANCE, EXTENT, AND PERFORMANCE INTENT. DESIGN-BUILD ENTITY SHALL PROVIDE COMPLETE EXTERIOR FINISH ASSEMBLIES NECESSARY TO ACHIEVE THE INDICATED FINISHED CONDITION, IN ACCORDANCE WITH PROJECT PERFORMANCE REQUIREMENTS AND APPROVED FINISH SELECTIONS.



KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PRELIMINARY APPROVALS FROM GOVERNMENTAL AUTHORITIES HAVING JURISDICTION. THESE DOCUMENTS ARE NOT COMPLETE AND ARE NOT INTENDED FOR PERMITTING, BIDDING, FABRICATION, PROCUREMENT, OR CONSTRUCTION PURPOSES. THESE DOCUMENTS ARE PROVIDED FOR REVIEW AND GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY, IN COORDINATION WITH ITS CONSULTANTS, SHALL PREPARE ALL CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY AND ITS CONSULTANTS SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, AND CODE COMPLIANCE OF THE CONSTRUCTION DOCUMENTS, INCLUDING ENGINEERING, PERMITTING, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL ALSO BE RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES, AND FOR ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. ANY USE OF THESE DOCUMENTS FOR BIDDING, PERMITTING, OR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED AND AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS (DLTE) FOR USE SOLELY IN CONNECTION WITH THE PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY NOT BE USED ONLY BY PERSONS OR ENTITIES AUTHORIZED BY DLTE. ALL COPYRIGHTS, COMMON LAW RIGHTS, AND OTHER PROPRIETARY RIGHTS IN THESE DOCUMENTS, IN WHOLE OR IN PART, ARE RESERVED BY DLTE. UNAUTHORIZED USE, DISTRIBUTION, REPRODUCTION, MODIFICATION, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT THE PRIOR WRITTEN CONSENT OF DLTE. ANY UNAUTHORIZED USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DLTE AND ITS CONSULTANTS.

NO.	DATE	DESCRIPTIONS

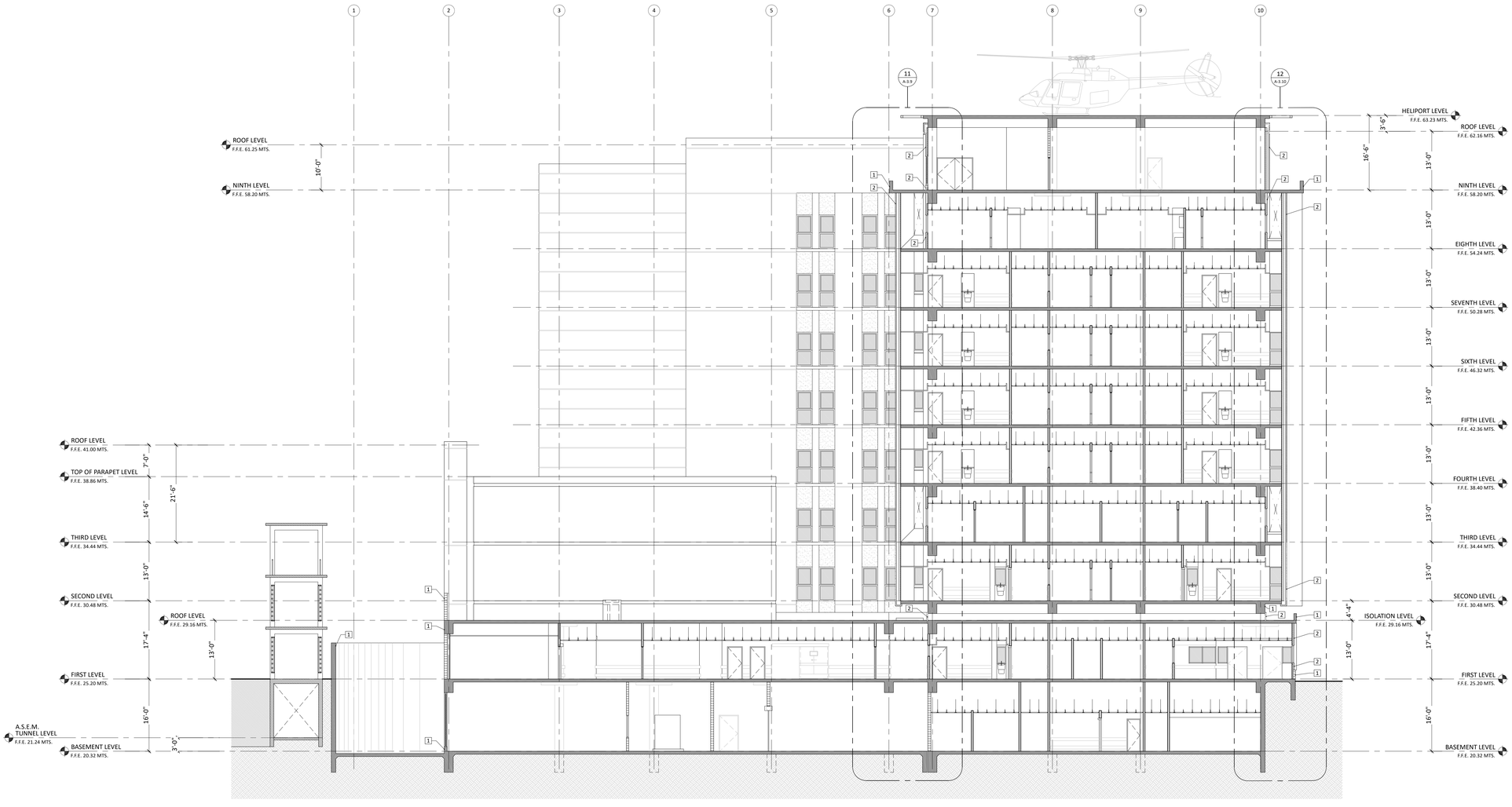
DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SECTION MKD. 1

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1509 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER
A-3.1



SECTION MKD.

SCALE: 3/32"= 1'-0"

2
A-3.2

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED

- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

2 EXTERIOR INSULATION AND FINISH SYSTEM (E.I.F.S.)

- PROVIDE EXTERIOR INSULATION AND FINISH SYSTEM WITH SMOOTH EXTERIOR FINISH. FINISH SHALL PROVIDE A CONTINUOUS, UNIFORM EXTERIOR WALL SURFACE WITH CONSISTENT TEXTURE, COLOR, AND APPEARANCE. E.I.F.S. AREAS SHALL BE COORDINATED WITH ADJACENT FAÇADE MATERIALS, WALL OPENINGS, EDGES, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

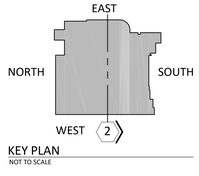
3 COMBINATION OF E.I.F.S. OVER CONCRETE OR STRUCTURAL ELEMENTS

- PROVIDE E.I.F.S. FINISH CONTINUITY OVER DESIGNATED CONCRETE OR STRUCTURAL ELEMENTS WHERE INDICATED ON THE ELEVATIONS. FINISHED SURFACE SHALL ALIGN VISUALLY WITH ADJACENT E.I.F.S. AREAS TO CREATE A CONTINUOUS EXTERIOR APPEARANCE, WITH CONSISTENT TEXTURE, COLOR, AND FINISH QUALITY. CONCRETE OR STRUCTURAL ELEMENTS RECEIVING THIS FINISH SHALL NOT REMAIN VISUALLY EXPOSED UNLESS SPECIFICALLY INDICATED OTHERWISE.

NOTES:

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2. FINISH NOTES AND INDICATIONS ON THE ELEVATIONS ARE INTENDED TO CONVEY THE REQUIRED EXTERIOR APPEARANCE, EXTENT, AND PERFORMANCE INTENT. DESIGN-BUILD ENTITY SHALL PROVIDE COMPLETE EXTERIOR FINISH ASSEMBLIES NECESSARY TO ACHIEVE THE INDICATED FINISHED CONDITION, IN ACCORDANCE WITH PROJECT PERFORMANCE REQUIREMENTS AND APPROVED FINISH SELECTIONS.



KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

NO.	DATE	DESCRIPTIONS

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS AND ARE PROTECTED BY COPYRIGHT LAWS. THEY ARE NOT TO BE USED BY ANY PERSON OR ENTITY FOR ANY PURPOSE WHATSOEVER WITHOUT THE EXPRESS WRITTEN CONSENT OF DE LA TORRE-ESTEVEZ ARCHITECTS. THESE DOCUMENTS ARE PREPARED SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES WHICH HAVE BEEN EXPRESSLY AUTHORIZED TO USE THEM BY DE LA TORRE-ESTEVEZ ARCHITECTS. ANY UNAUTHORIZED DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS STRICTLY PROHIBITED AND MAY RESULT IN LEGAL ACTION AGAINST THE PARTY RESPONSIBLE FOR SUCH USE. ANY DISCLOSURE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE-ESTEVEZ ARCHITECTS.

DATE: AUGUST 13, 2016

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

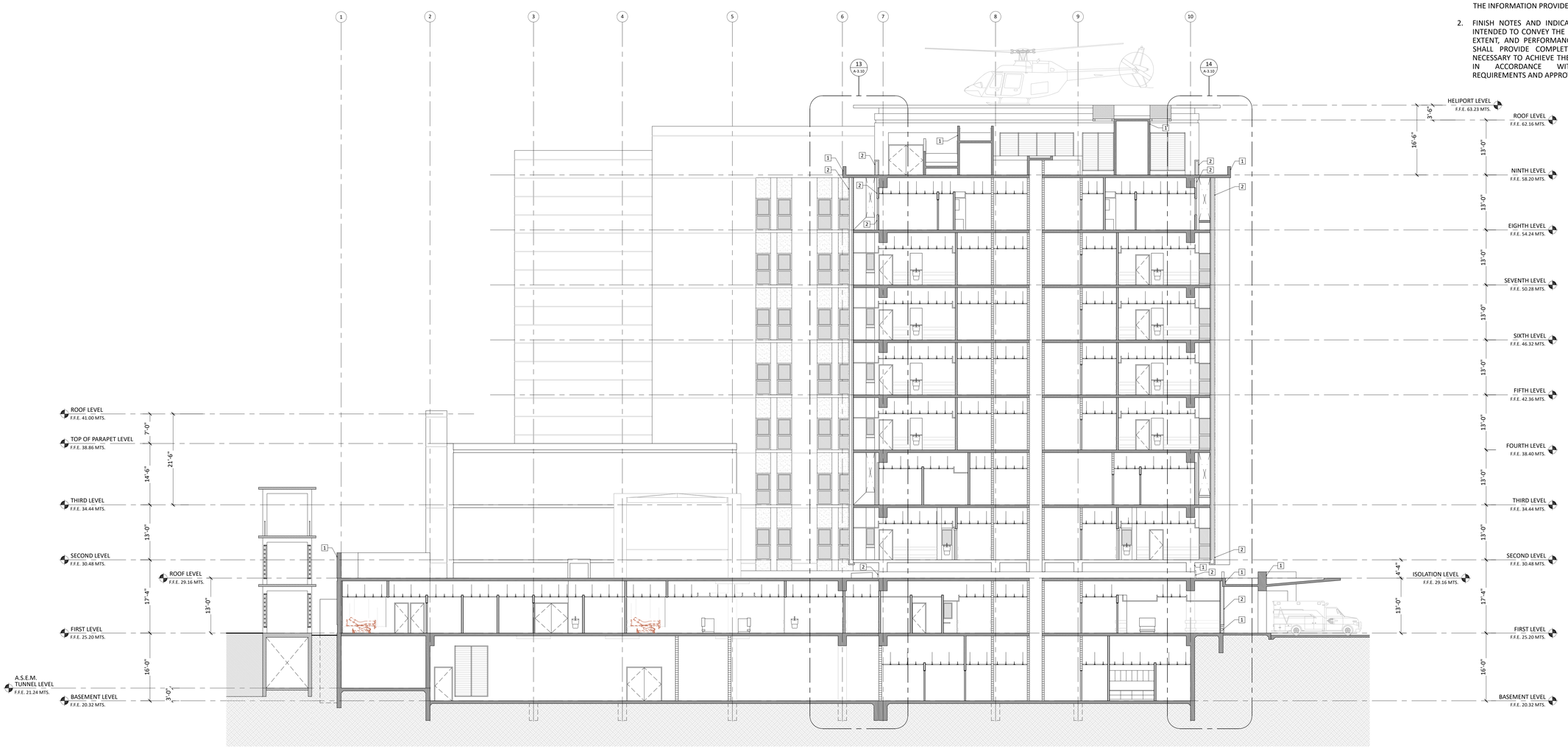
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SECTION MKD. 2

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 103 SAN JUAN PR 00909

DRAWING NUMBER

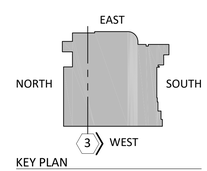
A-3.2



SECTION MKD.

SCALE: 3/32"= 1'-0"

3
A-3.3



KEY PLAN
NOT TO SCALE

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED

- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

2 EXTERIOR INSULATION AND FINISH SYSTEM (E.I.F.S.)

- PROVIDE EXTERIOR INSULATION AND FINISH SYSTEM WITH SMOOTH EXTERIOR FINISH. FINISH SHALL PROVIDE A CONTINUOUS, UNIFORM EXTERIOR WALL SURFACE WITH CONSISTENT TEXTURE, COLOR, AND APPEARANCE. E.I.F.S. AREAS SHALL BE COORDINATED WITH ADJACENT FAÇADE MATERIALS, WALL OPENINGS, EDGES, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

3 COMBINATION OF E.I.F.S. OVER CONCRETE OR STRUCTURAL ELEMENTS

- PROVIDE E.I.F.S. FINISH CONTINUITY OVER DESIGNATED CONCRETE OR STRUCTURAL ELEMENTS WHERE INDICATED ON THE ELEVATIONS. FINISHED SURFACE SHALL ALIGN VISUALLY WITH ADJACENT E.I.F.S. AREAS TO CREATE A CONTINUOUS EXTERIOR APPEARANCE, WITH CONSISTENT TEXTURE, COLOR, AND FINISH QUALITY. CONCRETE OR STRUCTURAL ELEMENTS RECEIVING THIS FINISH SHALL NOT REMAIN VISUALLY EXPOSED UNLESS SPECIFICALLY INDICATED OTHERWISE.

NOTES:

1. REFER ALSO TO SHEET A-7.0, SCHEDULE OF FINISHES & NOTES, FOR GENERAL FINISH NOTES, FINISH SCHEDULES, MATERIAL DESCRIPTIONS, AND ADDITIONAL REQUIREMENTS APPLICABLE TO THE EXTERIOR ELEVATIONS. ALL EXTERIOR FINISHES INDICATED ON THE ELEVATIONS SHALL BE COORDINATED WITH THE INFORMATION PROVIDED ON SHEET A-7.0.

2. FINISH NOTES AND INDICATIONS ON THE ELEVATIONS ARE INTENDED TO CONVEY THE REQUIRED EXTERIOR APPEARANCE, EXTENT, AND PERFORMANCE INTENT. DESIGN-BUILD ENTITY SHALL PROVIDE COMPLETE EXTERIOR FINISH ASSEMBLIES NECESSARY TO ACHIEVE THE INDICATED FINISHED CONDITION, IN ACCORDANCE WITH PROJECT PERFORMANCE REQUIREMENTS AND APPROVED FINISH SELECTIONS.

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PRELIMINARY APPROVALS FROM GOVERNMENTAL AUTHORITIES HAVING JURISDICTION OVER THE PROJECT. THEY ARE NOT COMPLETE AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, FABRICATION, PROCUREMENT, CONSTRUCTION, OR ANY OTHER PURPOSE. THEY ARE PROVIDED FOR GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY, ITS CONSULTANTS, AND ITS CONTRACTORS SHALL BE RESPONSIBLE FOR THE COMPLETION, CORRECTION, AND COORDINATION OF THESE DOCUMENTS AND FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, AND CONSTRUCTABILITY OF THE CONSTRUCTION DOCUMENTS REQUIRED FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF THE PROJECT. THE ARCHITECT OF RECORD AND ITS CONSULTANTS ASSUME NO RESPONSIBILITY FOR THE DESIGN-BUILD ENTITY'S CONSTRUCTION DOCUMENTS, CONSTRUCTION METHODS, OR FIELD CONDITIONS, AND SHALL NOT BE LIABLE FOR ANY ERRORS, OMISSIONS, OR DEFICIENCIES IN THE DESIGN-BUILD ENTITY'S DOCUMENTS OR CONSTRUCTION. ANY REUSE OF THESE DOCUMENTS WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY THE ARCHITECT OF RECORD FOR THE SPECIFIC PURPOSE INTENDED SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT OF RECORD.

NO.	DATE	DESCRIPTIONS

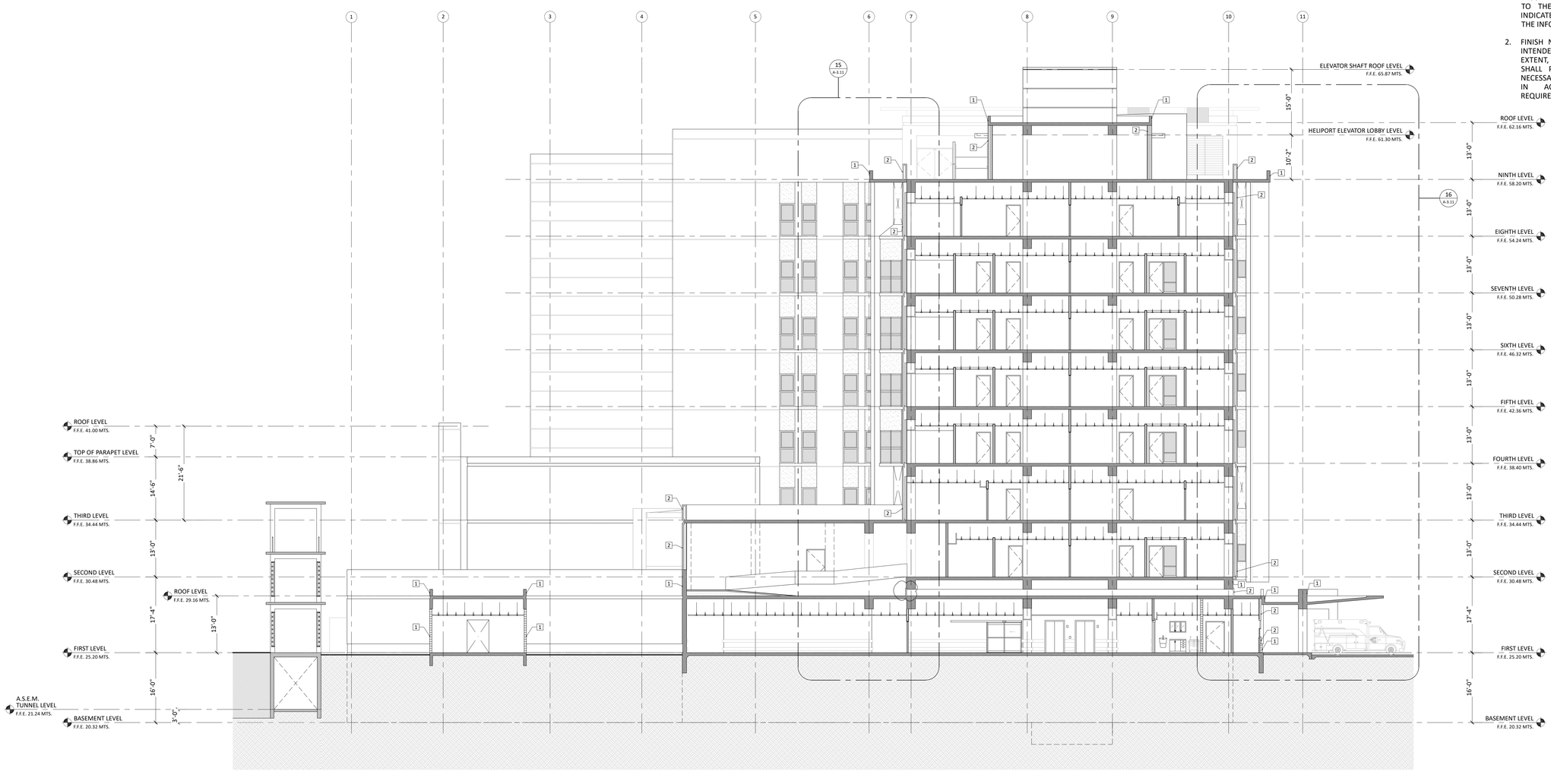
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PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SECTION MKD. 3

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00920

DRAWING NUMBER
A-3.3



LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED

- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

2 EXTERIOR INSULATION AND FINISH SYSTEM (E.I.F.S.)

- PROVIDE EXTERIOR INSULATION AND FINISH SYSTEM WITH SMOOTH EXTERIOR FINISH. FINISH SHALL PROVIDE A CONTINUOUS, UNIFORM EXTERIOR WALL SURFACE WITH CONSISTENT TEXTURE, COLOR, AND APPEARANCE. E.I.F.S. AREAS SHALL BE COORDINATED WITH ADJACENT FAÇADE MATERIALS, WALL OPENINGS, EDGES, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

3 COMBINATION OF E.I.F.S. OVER CONCRETE OR STRUCTURAL ELEMENTS

- PROVIDE E.I.F.S. FINISH CONTINUITY OVER DESIGNATED CONCRETE OR STRUCTURAL ELEMENTS WHERE INDICATED ON THE ELEVATIONS. FINISHED SURFACE SHALL ALIGN VISUALLY WITH ADJACENT E.I.F.S. AREAS TO CREATE A CONTINUOUS EXTERIOR APPEARANCE, WITH CONSISTENT TEXTURE, COLOR, AND FINISH QUALITY. CONCRETE OR STRUCTURAL ELEMENTS RECEIVING THIS FINISH SHALL NOT REMAIN VISUALLY EXPOSED UNLESS SPECIFICALLY INDICATED OTHERWISE.

NOTES:

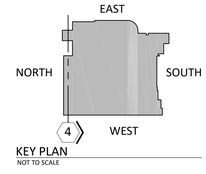
1. REFER ALSO TO SHEET A-7.0, SCHEDULE OF FINISHES & NOTES, FOR GENERAL FINISH NOTES, FINISH SCHEDULES, MATERIAL DESCRIPTIONS, AND ADDITIONAL REQUIREMENTS APPLICABLE TO THE EXTERIOR ELEVATIONS. ALL EXTERIOR FINISHES INDICATED ON THE ELEVATIONS SHALL BE COORDINATED WITH THE INFORMATION PROVIDED ON SHEET A-7.0.

2. FINISH NOTES AND INDICATIONS ON THE ELEVATIONS ARE INTENDED TO CONVEY THE REQUIRED EXTERIOR APPEARANCE, EXTENT, AND PERFORMANCE INTENT. DESIGN-BUILD ENTITY SHALL PROVIDE COMPLETE EXTERIOR FINISH ASSEMBLIES NECESSARY TO ACHIEVE THE INDICATED FINISHED CONDITION, IN ACCORDANCE WITH PROJECT PERFORMANCE REQUIREMENTS AND APPROVED FINISH SELECTIONS.

SECTION MKD.

SCALE: 3/32"= 1'-0"

4
A-3.4

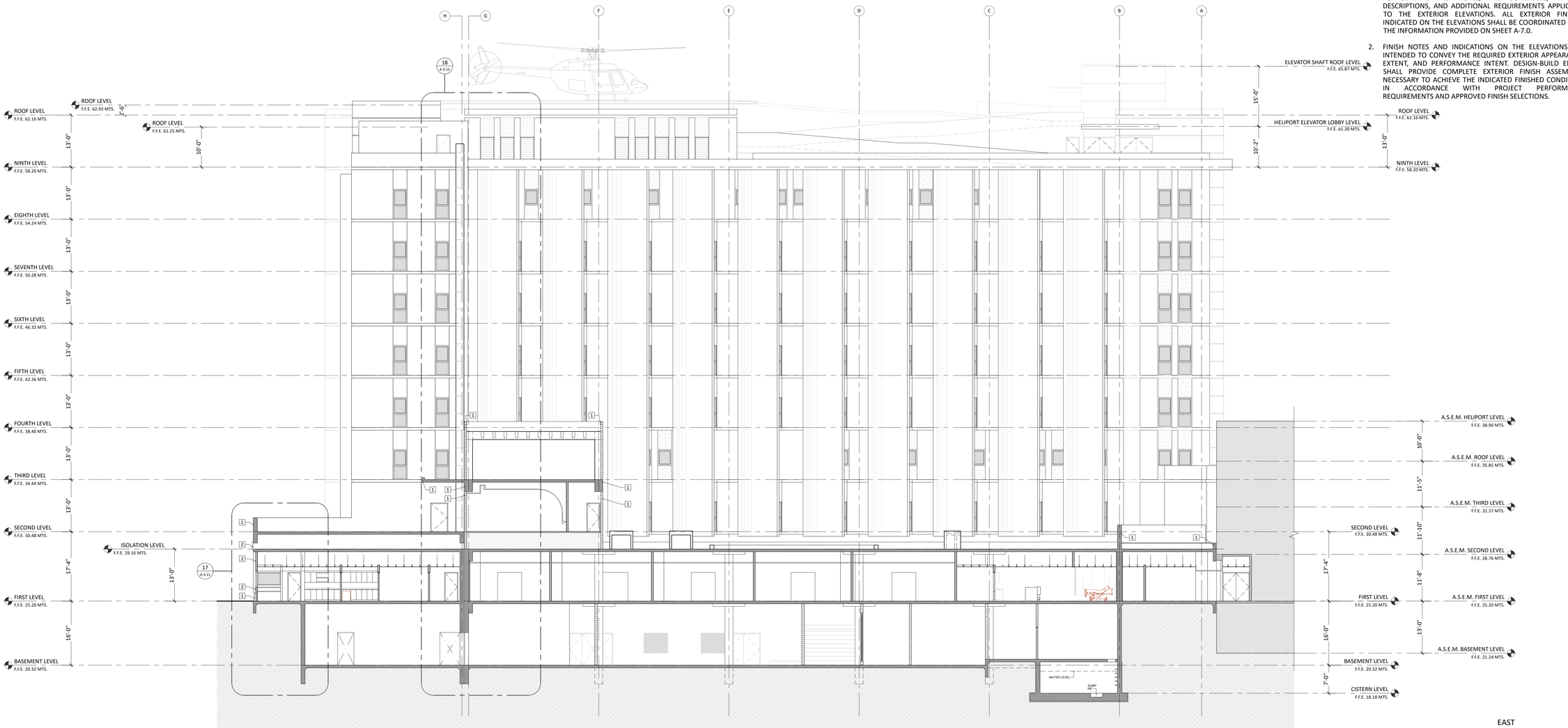


KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

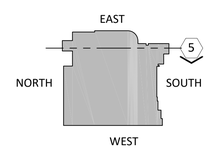
THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PRELIMINARY APPROVALS FROM GOVERNMENTAL AUTHORITIES HAVING JURISDICTIONS OVER THE PROJECT. THEY ARE NOT COMPLETE FOR CONSTRUCTION OBJECTIVES, DESIGN INTENT, PERFORMANCE CRITERIA, AND SPECIFICATIONS



SECTION MKD.

SCALE: 3/32"= 1'-0"

5
A-3.5



KEY PLAN
NOT TO SCALE

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED
- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

2 EXTERIOR INSULATION AND FINISH SYSTEM (E.I.F.S.)
- PROVIDE EXTERIOR INSULATION AND FINISH SYSTEM WITH SMOOTH EXTERIOR FINISH. FINISH SHALL PROVIDE A CONTINUOUS, UNIFORM EXTERIOR WALL SURFACE WITH CONSISTENT TEXTURE, COLOR, AND APPEARANCE. E.I.F.S. AREAS SHALL BE COORDINATED WITH ADJACENT FAÇADE MATERIALS, WALL OPENINGS, EDGES, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

3 COMBINATION OF E.I.F.S. OVER CONCRETE OR STRUCTURAL ELEMENTS
- PROVIDE E.I.F.S. FINISH CONTINUITY OVER DESIGNATED CONCRETE OR STRUCTURAL ELEMENTS WHERE INDICATED ON THE ELEVATIONS. FINISHED SURFACE SHALL ALIGN VISUALLY WITH ADJACENT E.I.F.S. AREAS TO CREATE A CONTINUOUS EXTERIOR APPEARANCE, WITH CONSISTENT TEXTURE, COLOR, AND FINISH QUALITY. CONCRETE OR STRUCTURAL ELEMENTS RECEIVING THIS FINISH SHALL NOT REMAIN VISUALLY EXPOSED UNLESS SPECIFICALLY INDICATED OTHERWISE.

NOTES:

1. REFER ALSO TO SHEET A-7.0, SCHEDULE OF FINISHES & NOTES, FOR GENERAL FINISH NOTES, FINISH SCHEDULES, MATERIAL DESCRIPTIONS, AND ADDITIONAL REQUIREMENTS APPLICABLE TO THE EXTERIOR ELEVATIONS. ALL EXTERIOR FINISHES INDICATED ON THE ELEVATIONS SHALL BE COORDINATED WITH THE INFORMATION PROVIDED ON SHEET A-7.0.

2. FINISH NOTES AND INDICATIONS ON THE ELEVATIONS ARE INTENDED TO CONVEY THE REQUIRED EXTERIOR APPEARANCE, EXTENT, AND PERFORMANCE INTENT. DESIGN-BUILD ENTITY SHALL PROVIDE COMPLETE EXTERIOR FINISH ASSEMBLIES NECESSARY TO ACHIEVE THE INDICATED FINISHED CONDITION, IN ACCORDANCE WITH PROJECT PERFORMANCE REQUIREMENTS AND APPROVED FINISH SELECTIONS.

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2014
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND NOT FOR CONSTRUCTION. THE OBJECTIVES, DESIGN INTENT, PERFORMANCE CRITERIA, AND TECHNICAL ASSUMPTIONS EXPRESSED IN THESE DOCUMENTS ARE NOT TO BE CONSTRUED AS BEING SUFFICIENTLY COMPLETE OR ACCURATE FOR BIDDING, FABRICATION, OR CONSTRUCTION PURPOSES. THESE DOCUMENTS ARE INTENDED TO PROVIDE INFORMATION AND GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY, AND NOT THE OWNER, SHALL BE RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, AND ACCURACY OF ALL DESIGN AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE ENDORSING, PROCUREMENT, AND CONSTRUCTION OF THE PROJECT. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, AND ACCURACY OF ALL DESIGN AND CONSTRUCTION DOCUMENTS, AND FOR ALL MEANS AND METHODS OF CONSTRUCTION. THE OWNER AND ITS CONSULTANTS SHALL NOT BE RESPONSIBLE FOR ANY INTERPRETATIONS, CONCLUSIONS, OR DECISIONS MADE BY THE DESIGN-BUILD ENTITY BASED ON THESE DOCUMENTS, NOR FOR ANY ERRORS, OMISSIONS, OR INCONSISTENCIES CONTAINED HEREIN. ANY USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

NO.	DATE	DESCRIPTIONS

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS AND ARE THE PROPERTY OF THE ARCHITECTS. THEY ARE NOT TO BE USED IN WHOLE OR IN PART, SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES SPECIFICALLY AUTHORIZED BY THE ARCHITECTS. ANY UNAUTHORIZED USE, REPRODUCTION, DISCLOSURE, MODIFICATION, RELIANCE, OR RESALE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT THE PRIOR WRITTEN CONSENT OF THE ARCHITECTS. BY USING THESE DOCUMENTS, THE USER AGREES TO INDEMNIFY AND HOLD HARMLESS THE ARCHITECTS FROM ANY CLAIMS, LOSSES, OR LIABILITIES ARISING FROM THE USE OF THESE DOCUMENTS. ANY SUCH USE SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECTS.

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SECTION MKD. 5

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE. 100 SAN JUAN PR 00926

DRAWING NUMBER

A-3.5



SECTION MKD.

SCALE: 3/32"= 1'-0"

6
A-3.6

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED

- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

2 EXTERIOR INSULATION AND FINISH SYSTEM (E.I.F.S.)

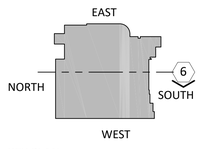
- PROVIDE EXTERIOR INSULATION AND FINISH SYSTEM WITH SMOOTH EXTERIOR FINISH. FINISH SHALL PROVIDE A CONTINUOUS, UNIFORM EXTERIOR WALL SURFACE WITH CONSISTENT TEXTURE, COLOR, AND APPEARANCE. E.I.F.S. AREAS SHALL BE COORDINATED WITH ADJACENT FAÇADE MATERIALS, WALL OPENINGS, EDGES, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

3 COMBINATION OF E.I.F.S. OVER CONCRETE OR STRUCTURAL ELEMENTS

- PROVIDE E.I.F.S. FINISH CONTINUITY OVER DESIGNATED CONCRETE OR STRUCTURAL ELEMENTS WHERE INDICATED ON THE ELEVATIONS. FINISHED SURFACE SHALL ALIGN VISUALLY WITH ADJACENT E.I.F.S. AREAS TO CREATE A CONTINUOUS EXTERIOR APPEARANCE, WITH CONSISTENT TEXTURE, COLOR, AND FINISH QUALITY. CONCRETE OR STRUCTURAL ELEMENTS RECEIVING THIS FINISH SHALL NOT REMAIN VISUALLY EXPOSED UNLESS SPECIFICALLY INDICATED OTHERWISE.

NOTES:

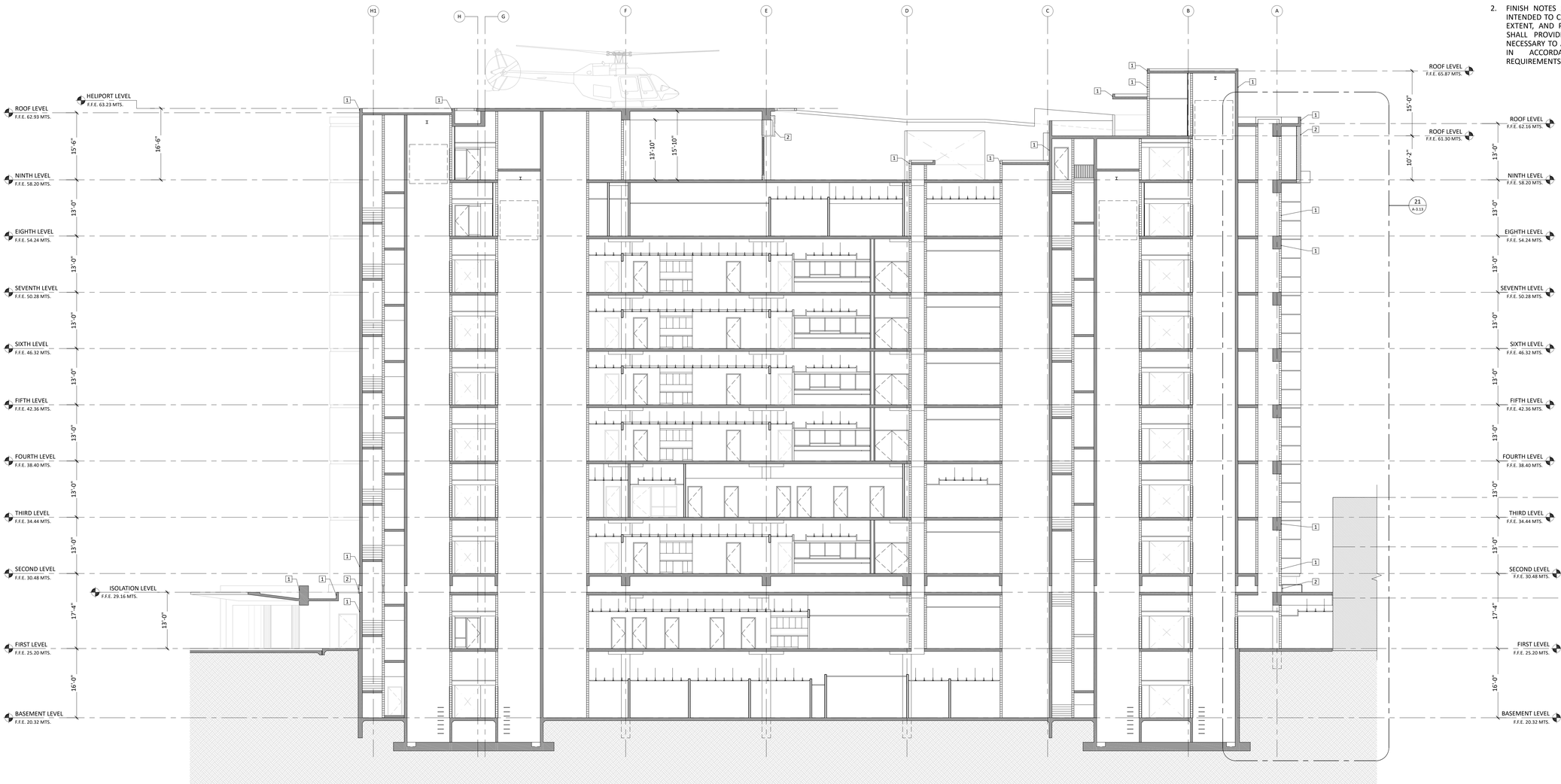
1. REFER ALSO TO SHEET A-7.0, SCHEDULE OF FINISHES & NOTES, FOR GENERAL FINISH NOTES, FINISH SCHEDULES, MATERIAL DESCRIPTIONS, AND ADDITIONAL REQUIREMENTS APPLICABLE TO THE EXTERIOR ELEVATIONS. ALL EXTERIOR FINISHES INDICATED ON THE ELEVATIONS SHALL BE COORDINATED WITH THE INFORMATION PROVIDED ON SHEET A-7.0.
2. FINISH NOTES AND INDICATIONS ON THE ELEVATIONS ARE INTENDED TO CONVEY THE REQUIRED EXTERIOR APPEARANCE, EXTENT, AND PERFORMANCE INTENT. DESIGN-BUILD ENTITY SHALL PROVIDE COMPLETE EXTERIOR FINISH ASSEMBLIES NECESSARY TO ACHIEVE THE INDICATED FINISHED CONDITION, IN ACCORDANCE WITH PROJECT PERFORMANCE REQUIREMENTS AND APPROVED FINISH SELECTIONS.



KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

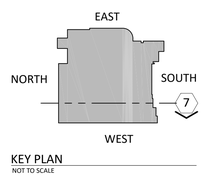
THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PROPOSALS FOR DESIGN-BUILD SERVICES FOR THE PROJECT DESCRIBED HEREIN. THEY ARE NOT INTENDED TO BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION PURPOSES. THEY ARE INTENDED TO PROVIDE INFORMATION AND GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROFESSIONAL, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL BE SOLELY



SECTION MKD.

SCALE: 3/32"= 1'-0"

7
A-3.7



KEY PLAN
NOT TO SCALE

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED

- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

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- PROVIDE EXTERIOR INSULATION AND FINISH SYSTEM WITH SMOOTH EXTERIOR FINISH. FINISH SHALL PROVIDE A CONTINUOUS, UNIFORM EXTERIOR WALL SURFACE WITH CONSISTENT TEXTURE, COLOR, AND APPEARANCE. E.I.F.S. AREAS SHALL BE COORDINATED WITH ADJACENT FAÇADE MATERIALS, WALL OPENINGS, EDGES, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

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NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2014
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PRELIMINARY APPROVALS FROM GOVERNMENTAL AUTHORITIES HAVING JURISDICTION OVER THE PROJECT. THEY ARE NOT COMPLETE CONSTRUCTION DOCUMENTS AND ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, PROCUREMENT, CONSTRUCTION OR ANY OTHER PURPOSE. THEY ARE INTENDED TO PROVIDE GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT, AND FOR THE ACCURACY AND SUITABILITY OF ALL INFORMATION CONTAINED HEREIN. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT, AND FOR THE ACCURACY AND SUITABILITY OF ALL INFORMATION CONTAINED HEREIN, AND SHALL NOT RELY ON THESE DOCUMENTS FOR ANY PURPOSE. THE DESIGN-BUILD ENTITY SHALL ALSO BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES, AND FOR COORDINATING ALL PORTIONS OF THE WORK. THE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED AND AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS.

NO.	DATE	DESCRIPTIONS

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. THEY ARE NOT TO BE USED IN WHOLE OR IN PART, FOR ANY PURPOSE OTHER THAN THE SPECIFIC PROJECT AND TIME FOR WHICH THEY WERE PREPARED, AND SHALL NOT BE USED IN CONNECTION WITH THIS PROJECT AND WE USED ONLY BY PERSONS OR ENTITIES WHO HAVE ENTERED INTO AGREEMENTS WITH DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. ANY REUSE, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT THE PRIOR WRITTEN AUTHORIZATION, CONSENT, AND ADAPTATION BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. ANY UNAUTHORIZED REUSE OF, DISCLOSURE OF, MODIFICATION TO, OR ASSIGNMENT OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS.

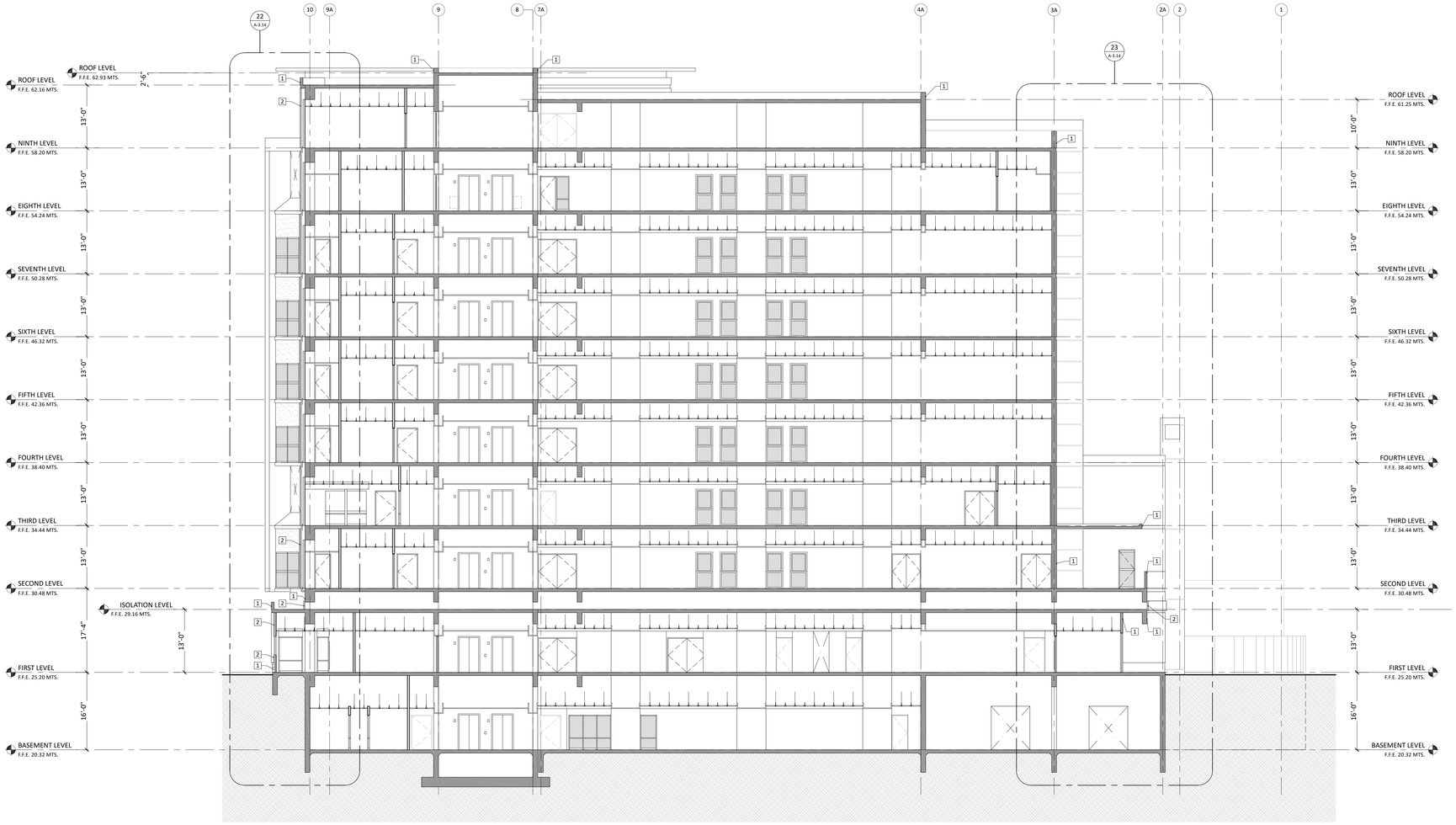
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SECTION MKD. 7

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1569 AVE PONCE DE LEON, STE. 105 SAN JUAN PR 00926

DRAWING NUMBER

A-3.7



SECTION MKD.

SCALE: 3/32"= 1'-0"

8
A-3.8

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED
- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

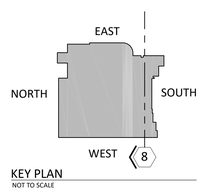
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KEY PLAN
NOT TO SCALE

NOTES:
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NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2014
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PERMITS, FINANCING, AND/OR CONSTRUCTION BIDS FOR THE PROJECTS DESIGNATED HEREIN. THEY ARE NOT TO BE USED FOR ANY OTHER PURPOSE AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, PROJECT EXECUTION, OR CONSTRUCTION UNLESS THEY BEAR THE SEAL AND SIGNATURE OF THE ARCHITECT OF RECORD. THE DESIGN, DRAWINGS, SPECIFICATIONS, AND GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY, ITS CONSULTANTS, AND SUBCONTRACTORS REQUIRED FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, AND ACCURACY OF ALL INFORMATION CONTAINED HEREIN, AND SHALL NOTIFY DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS OF ANY DISCREPANCIES, ERRORS, OR OMISSIONS IN THESE DOCUMENTS. THE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS (DLTE) AND ARE THE PROPERTY OF DLTE. THESE DOCUMENTS ARE NOT TO BE USED SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES THAT HAVE ENTERED INTO AN AGREEMENT WITH DLTE. ANY UNAUTHORIZED USE, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT THE PRIOR WRITTEN CONSENT OF DLTE. ANY AUTHORIZED USE OR DISCLOSURE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DLTE.

NO.	DATE	DESCRIPTIONS

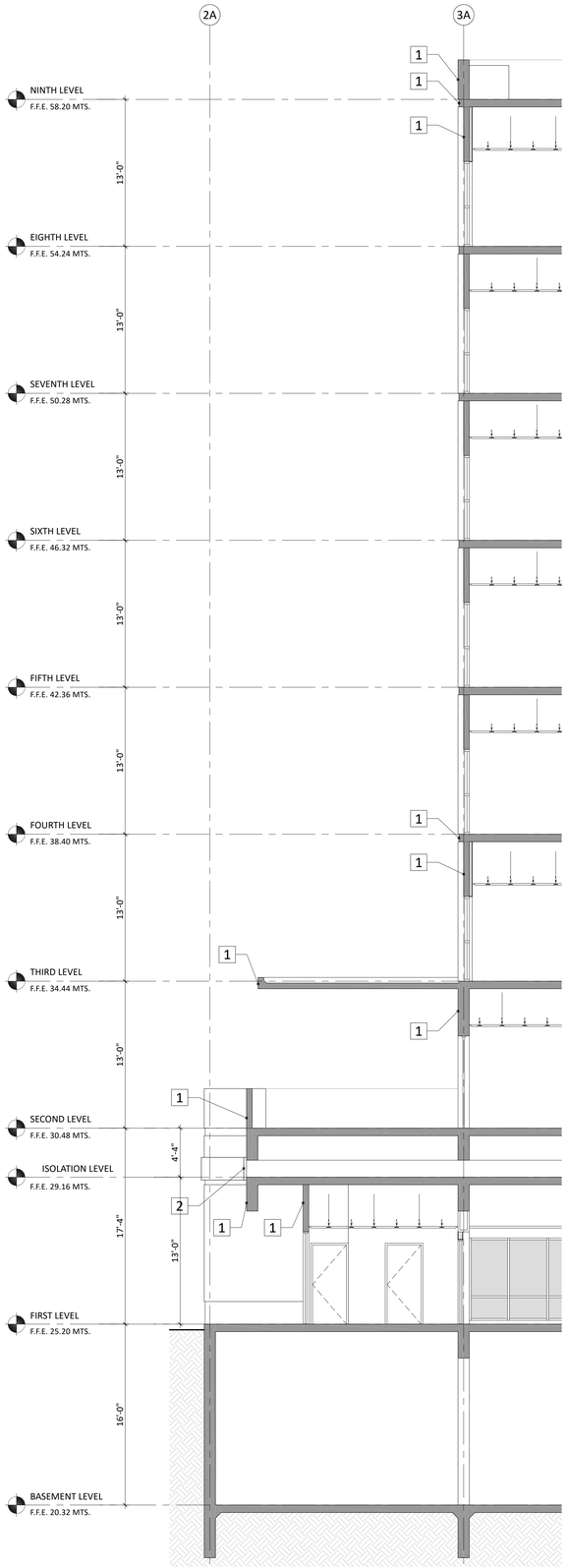
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SECTION MKD. 8

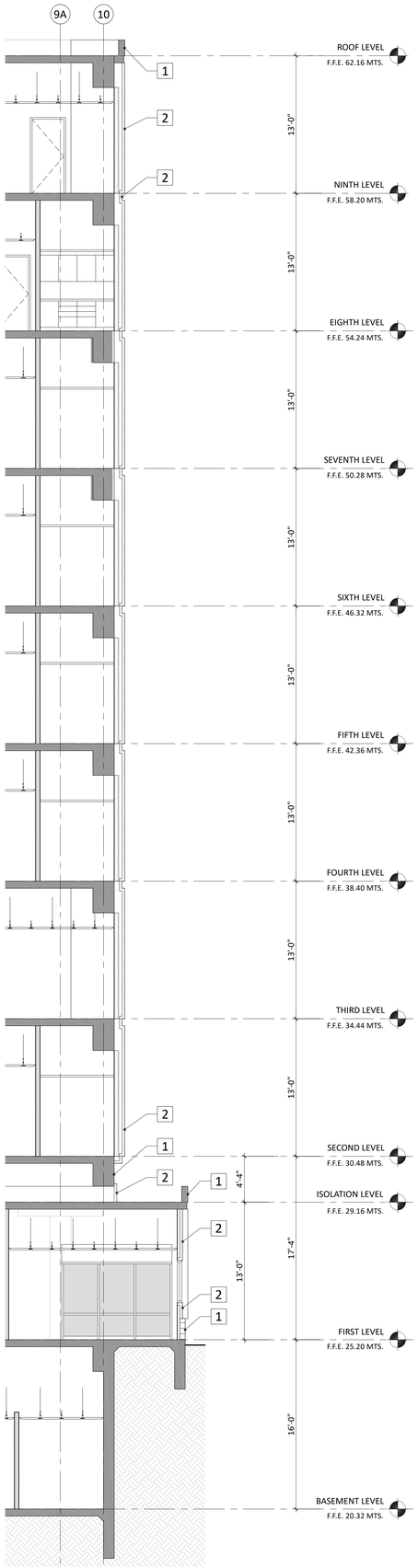
DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1509 AVE. PONCE DE LEON, STE. 705 SAN JUAN PR 00926

DRAWING NUMBER

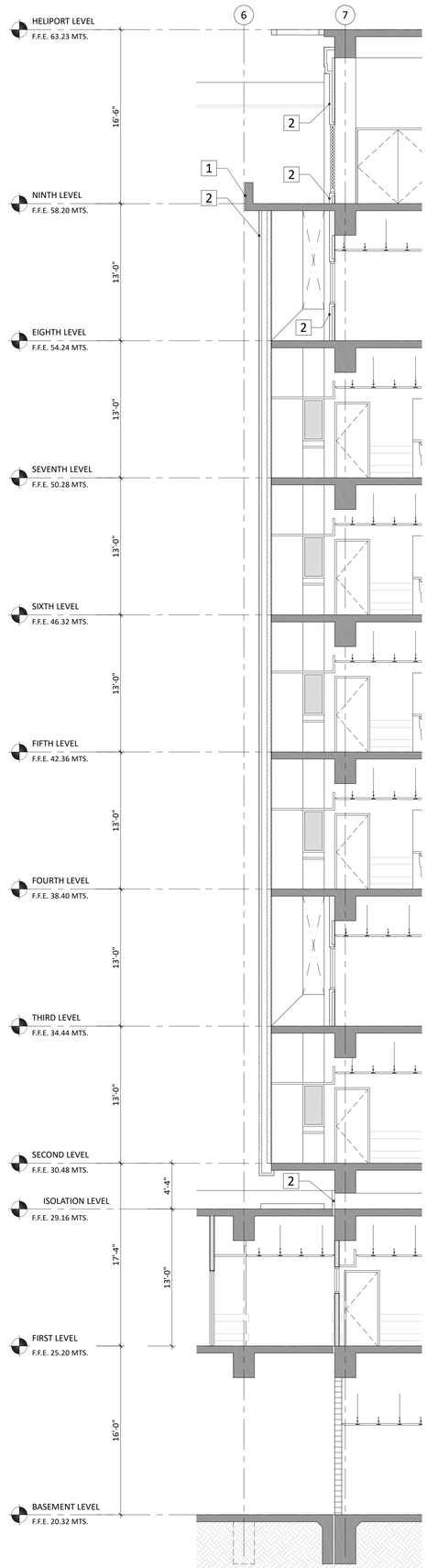
A-3.8



WALL SECTION MKD. 9
SCALE: 3/16"= 1'-0"
A-3.9



WALL SECTION MKD. 10
SCALE: 3/16"= 1'-0"
A-3.9



WALL SECTION MKD. 11
SCALE: 3/16"= 1'-0"
A-3.9

LEGEND:

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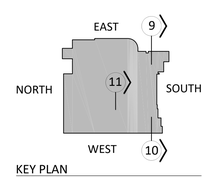
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KEY PLAN
NOT TO SCALE

NOTES:
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THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF ILLUSTRATING THE DESIGN-BUILD BRIDGING DOCUMENTS PREPARED BY DE LA TORRE ESTEVEZ ARCHITECTS PLANNERS (DLEA) FOR THE PUERTO RICO TRAUMA HOSPITAL AND PUERTO RICO MEDICAL CENTER PROJECT. THESE DOCUMENTS ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, PROCUREMENT, OR CONSTRUCTION PURPOSES. THESE DOCUMENTS ARE PROVIDED AS GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR PREPARING ALL DESIGN AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION OF THE PROJECT. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, AND CODE COMPLIANCE OF ALL DESIGN AND CONSTRUCTION DOCUMENTS, AND FOR ALL MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION. DLEA SHALL NOT BE RESPONSIBLE FOR ANY INFORMATION CONTAINED HEREIN, AND SHALL NOT BE LIABLE FOR ANY DAMAGES, LOSSES, OR CLAIMS ARISING FROM THE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

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NO.	DATE	DESCRIPTIONS

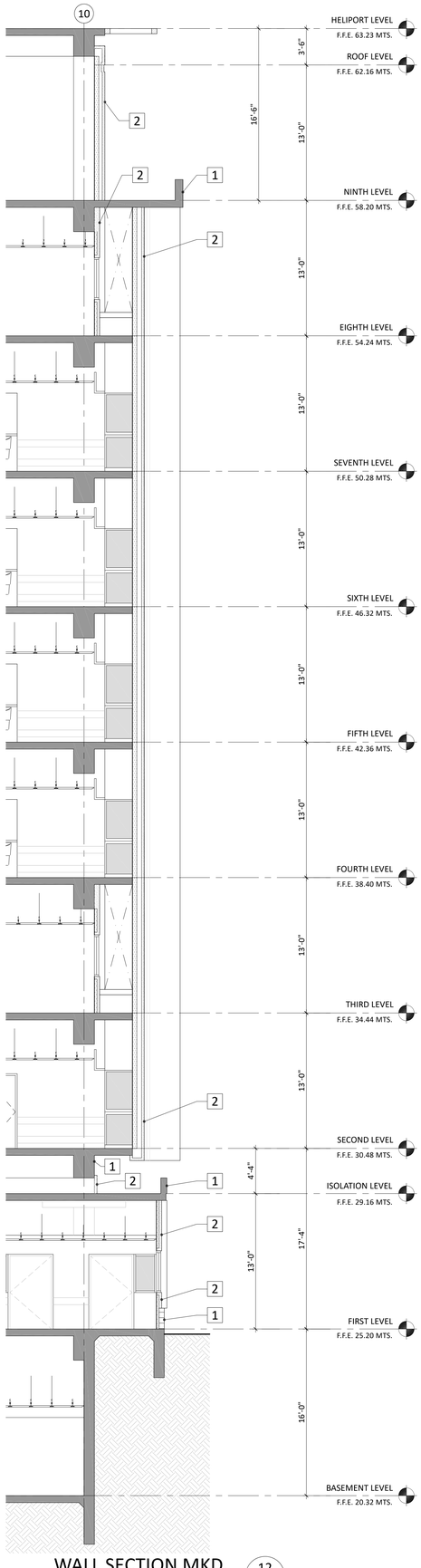
DATE: AUGUST 13, 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

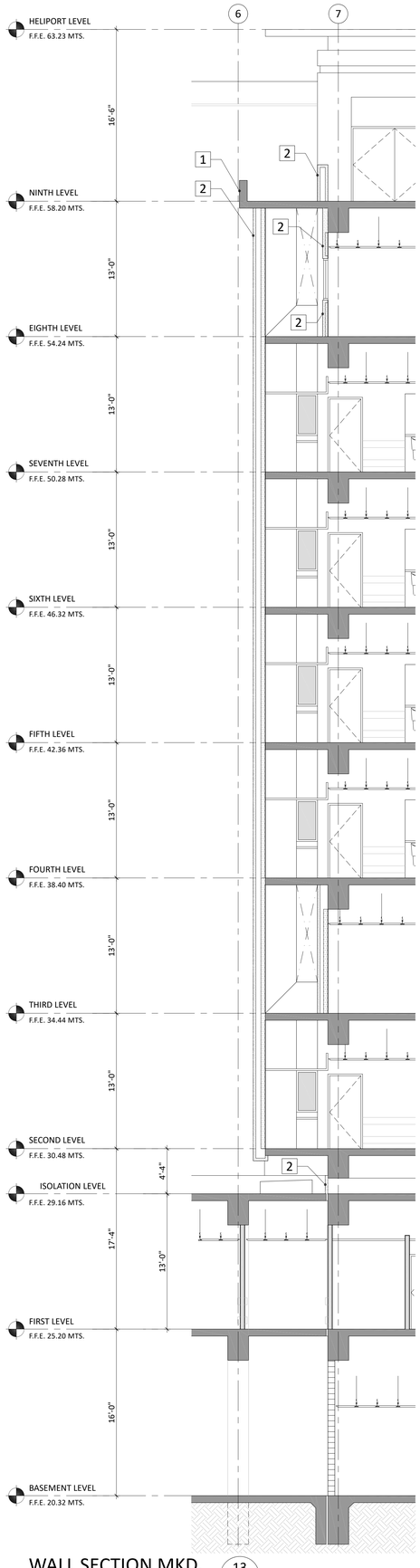
SHEET TITLE:
WALL SECTIONS MKD. 9, 10, & 11

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1504 AVE.PONCE DE LEON, STE 103 SAN JUAN PR 00926

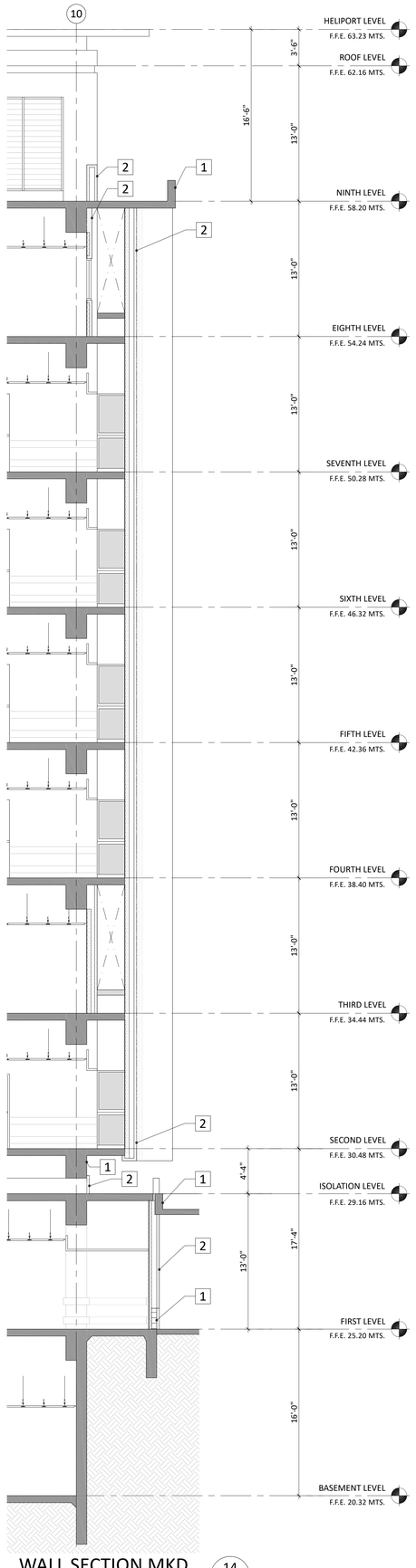
DRAWING NUMBER
A-3.9



WALL SECTION MKD. 12
SCALE: 3/16"= 1'-0"
A-3.10



WALL SECTION MKD. 13
SCALE: 3/16"= 1'-0"
A-3.10



WALL SECTION MKD. 14
SCALE: 3/16"= 1'-0"
A-3.10

LEGEND:

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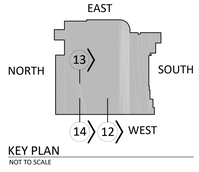
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KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PROPOSALS FOR DESIGN-BUILD SERVICES. THEY ARE NOT CONSTRUCTION OBJECTIVES, DESIGN INTENT, PERFORMANCE CRITERIA, AND TECHNICAL ASSESSMENTS. THEY ARE NOT CONSTRUCTION DOCUMENTS AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, OR INSTALLATION PURPOSES. THE DESIGN-BUILD ENTITY SHALL USE THESE DOCUMENTS AS GUIDANCE FOR THE DESIGN-BUILD ENTITY'S SELECTED DESIGN-BUILD ENTITY. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION, AND FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, AND ACCURACY OF ALL TECHNICAL INFORMATION CONTAINED HEREIN, AND SHALL NOTIFY DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS OF ANY DISCREPANCIES, ERRORS, OR OMISSIONS IN THESE DOCUMENTS. DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS SHALL NOT BE RESPONSIBLE FOR THE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS, AND ARE THE PROPERTY OF DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. THESE DOCUMENTS ARE NOT TO BE USED BY ANY PERSON OR ENTITIES FOR ANY PURPOSE WITHOUT THE EXPRESS WRITTEN CONSENT OF DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. THESE DOCUMENTS ARE GIVEN SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES WHO HAVE BEEN AUTHORIZED AND EMPOWERED TO DO SO BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. UNAUTHORIZED REUSE OR DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED. ALL PROPRIETARY RIGHTS ARE RESERVED. PRIOR WRITTEN CONSENT MUST BE OBTAINED FOR ANY SUCH USE OR DISCLOSURE. BY USING THESE DOCUMENTS, THE USER AGREES TO INDEMNIFY AND HOLD HARMLESS DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS FROM ANY AND ALL CLAIMS, DAMAGES, LOSSES, AND EXPENSES ARISING OUT OF THE USE OF THESE DOCUMENTS. ANY UNAUTHORIZED USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS.

NO.	DATE	DESCRIPTIONS

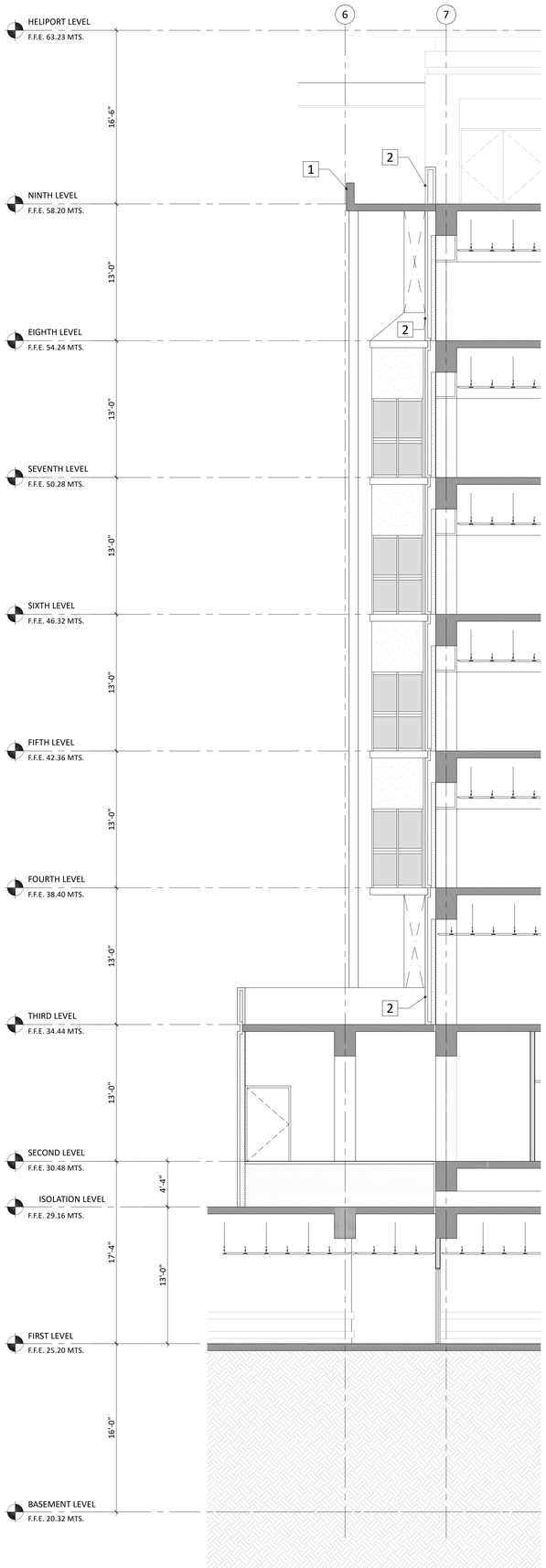
DATE: AUGUST 13, 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

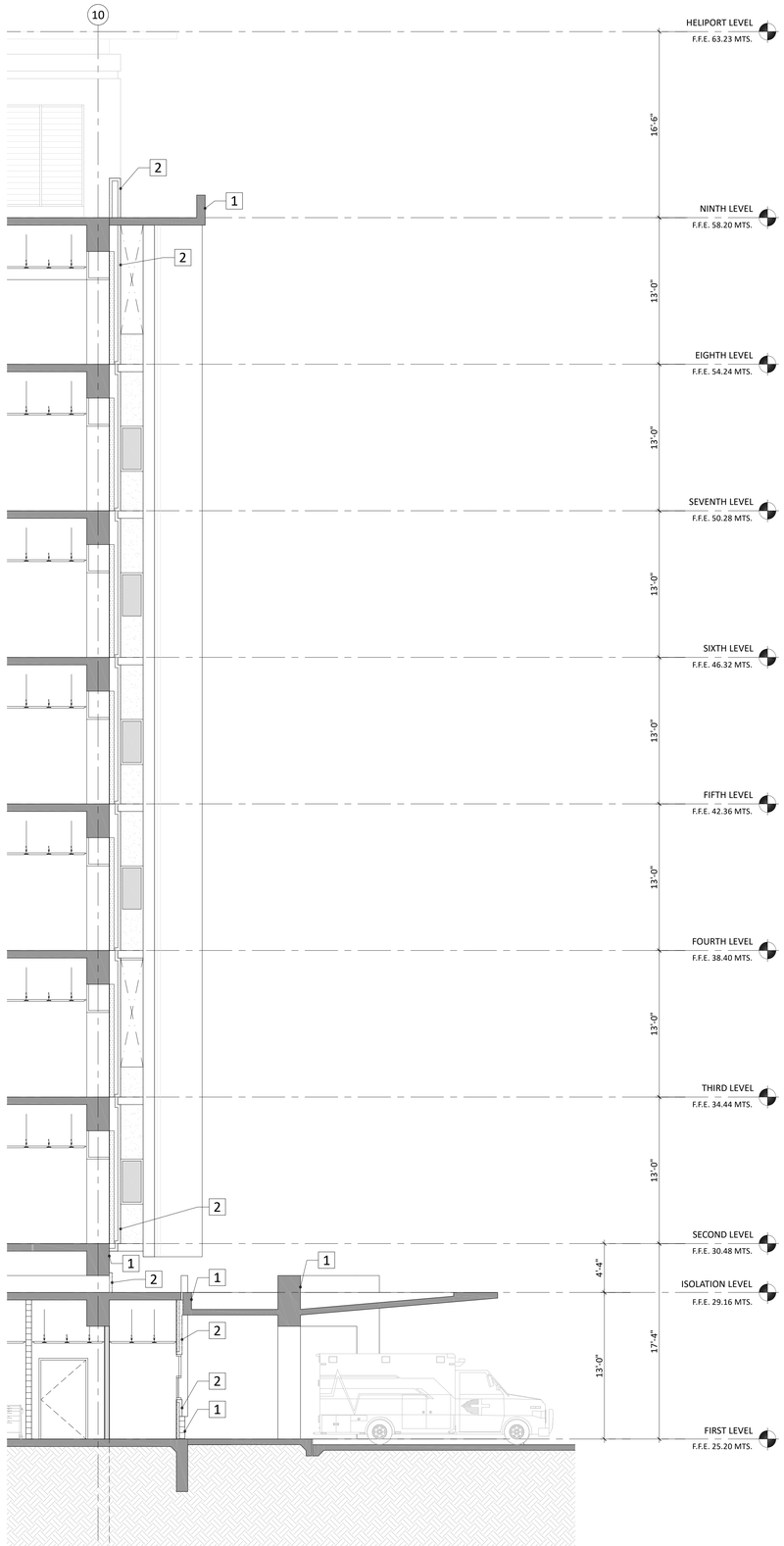
SHEET TITLE:
WALL SECTIONS MKD. 12, 13, & 14

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1509 AVE PONCE DE LEON, STE. 105 SAN JUAN PR 00909

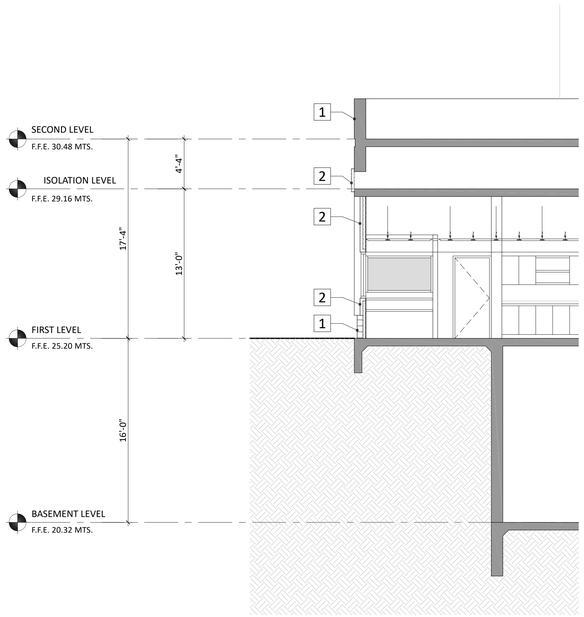
DRAWING NUMBER
A-3.10



WALL SECTION MKD.
SCALE: 3/16"= 1'-0"
15
A-3.11



WALL SECTION MKD.
SCALE: 3/16"= 1'-0"
16
A-3.11



WALL SECTION MKD.
SCALE: 3/16"= 1'-0"
17
A-3.11

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED
- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

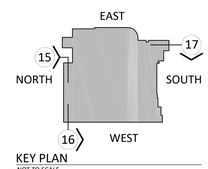
2 EXTERIOR INSULATION AND FINISH SYSTEM (E.I.F.S.)
- PROVIDE EXTERIOR INSULATION AND FINISH SYSTEM WITH SMOOTH EXTERIOR FINISH. FINISH SHALL PROVIDE A CONTINUOUS, UNIFORM EXTERIOR WALL SURFACE WITH CONSISTENT TEXTURE, COLOR, AND APPEARANCE. E.I.F.S. AREAS SHALL BE COORDINATED WITH ADJACENT FAÇADE MATERIALS, WALL OPENINGS, EDGES, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

3 COMBINATION OF E.I.F.S. OVER CONCRETE OR STRUCTURAL ELEMENTS
- PROVIDE E.I.F.S. FINISH CONTINUITY OVER DESIGNATED CONCRETE OR STRUCTURAL ELEMENTS WHERE INDICATED ON THE ELEVATIONS. FINISHED SURFACE SHALL ALIGN VISUALLY WITH ADJACENT E.I.F.S. AREAS TO CREATE A CONTINUOUS EXTERIOR APPEARANCE, WITH CONSISTENT TEXTURE, COLOR, AND FINISH QUALITY. CONCRETE OR STRUCTURAL ELEMENTS RECEIVING THIS FINISH SHALL NOT REMAIN VISUALLY EXPOSED UNLESS SPECIFICALLY INDICATED OTHERWISE.

NOTES:

1. REFER ALSO TO SHEET A-7.0, SCHEDULE OF FINISHES & NOTES, FOR GENERAL FINISH NOTES, FINISH SCHEDULES, MATERIAL DESCRIPTIONS, AND ADDITIONAL REQUIREMENTS APPLICABLE TO THE EXTERIOR ELEVATIONS. ALL EXTERIOR FINISHES INDICATED ON THE ELEVATIONS SHALL BE COORDINATED WITH THE INFORMATION PROVIDED ON SHEET A-7.0.

2. FINISH NOTES AND INDICATIONS ON THE ELEVATIONS ARE INTENDED TO CONVEY THE REQUIRED EXTERIOR APPEARANCE, EXTENT, AND PERFORMANCE INTENT. DESIGN-BUILD ENTITY SHALL PROVIDE COMPLETE EXTERIOR FINISH ASSEMBLIES NECESSARY TO ACHIEVE THE INDICATED FINISHED CONDITION, IN ACCORDANCE WITH PROJECT PERFORMANCE REQUIREMENTS AND APPROVED FINISH SELECTIONS.

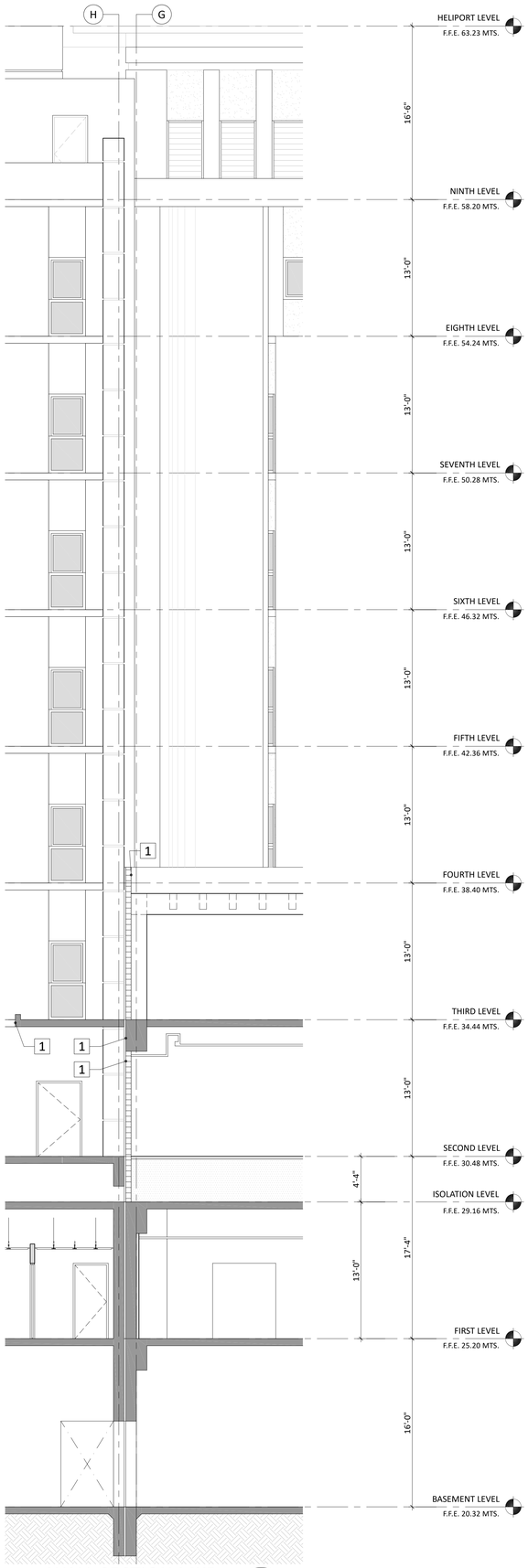


KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2026
DRAWN BY:
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SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSES OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT COMPLETE (E.G. SPECIFICATIONS, DESIGN-INTENT, PERFORMANCE CRITERIA, AND SECTIONS, DETAILS, AND ELEVATIONS ARE NOT FULLY DEVELOPED). THESE DOCUMENTS ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, FABRICATION, OR CONSTRUCTION PURPOSES. THESE DOCUMENTS ARE PROVIDED FOR GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE



WALL SECTION MKD. 18
SCALE: 3/16"= 1'-0"
A-3.12



WALL SECTION MKD. 19
SCALE: 3/16"= 1'-0"
A-3.12

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED
- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

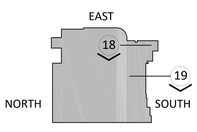
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3 COMBINATION OF E.I.F.S. OVER CONCRETE OR STRUCTURAL ELEMENTS
- PROVIDE E.I.F.S. FINISH CONTINUITY OVER DESIGNATED CONCRETE OR STRUCTURAL ELEMENTS WHERE INDICATED ON THE ELEVATIONS. FINISHED SURFACE SHALL ALIGN VISUALLY WITH ADJACENT E.I.F.S. AREAS TO CREATE A CONTINUOUS EXTERIOR APPEARANCE, WITH CONSISTENT TEXTURE, COLOR, AND FINISH QUALITY. CONCRETE OR STRUCTURAL ELEMENTS RECEIVING THIS FINISH SHALL NOT REMAIN VISUALLY EXPOSED UNLESS SPECIFICALLY INDICATED OTHERWISE.

NOTES:

1. REFER ALSO TO SHEET A-7.0, SCHEDULE OF FINISHES & NOTES, FOR GENERAL FINISH NOTES, FINISH SCHEDULES, MATERIAL DESCRIPTIONS, AND ADDITIONAL REQUIREMENTS APPLICABLE TO THE EXTERIOR ELEVATIONS. ALL EXTERIOR FINISHES INDICATED ON THE ELEVATIONS SHALL BE COORDINATED WITH THE INFORMATION PROVIDED ON SHEET A-7.0.

2. FINISH NOTES AND INDICATIONS ON THE ELEVATIONS ARE INTENDED TO CONVEY THE REQUIRED EXTERIOR APPEARANCE, EXTENT, AND PERFORMANCE INTENT. DESIGN-BUILD ENTITY SHALL PROVIDE COMPLETE EXTERIOR FINISH ASSEMBLIES NECESSARY TO ACHIEVE THE INDICATED FINISHED CONDITION, IN ACCORDANCE WITH PROJECT PERFORMANCE REQUIREMENTS AND APPROVED FINISH SELECTIONS.



KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PERMITS, PERFORMANCE CRITERIA, AND TECHNICAL ASPECTS OF ARCHITECTS, DESIGN-BUILT, PERFORMANCE CRITERIA, AND TECHNICAL ASPECTS OF THE PROJECT. THESE DOCUMENTS ARE NOT COMPLETE AND MAY NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, PROJECT-SPECIFIC PURPOSES OR CONSTRUCTION. THE DESIGN-BUILD ENTITY SHALL USE THESE DOCUMENTS AS GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY, WE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL PROVIDE ALL NECESSARY DESIGN, ENGINEERING, AND TECHNICAL INFORMATION CONTAINED HEREIN, AND SHALL NOT RELY ON THE ACCURACY OR COMPLETENESS OF THESE DOCUMENTS. THE DESIGN-BUILD ENTITY IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS, CONDITIONS, AND SPECIFICATIONS AND FOR ENSURING THAT THE FINAL DESIGN AND CONSTRUCTION COMPLY WITH ALL APPLICABLE CODES, REGULATIONS, AND PROJECT REQUIREMENTS. THE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS AND ARE PROTECTED BY COPYRIGHT LAWS. THEY ARE INTENDED FOR USE ONLY IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES AUTHORIZED BY DE LA TORRE-ESTEVEZ ARCHITECTS. ANY UNAUTHORIZED USE, REPRODUCTION, DISCLOSURE, MODIFICATION, RELIANCE, OR RESALE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS STRICTLY PROHIBITED AND MAY RESULT IN LEGAL ACTION. ANY PERSON OR ENTITY THAT OBTAINS OR USES THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE-ESTEVEZ ARCHITECTS.

NO.	DATE	DESCRIPTIONS

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

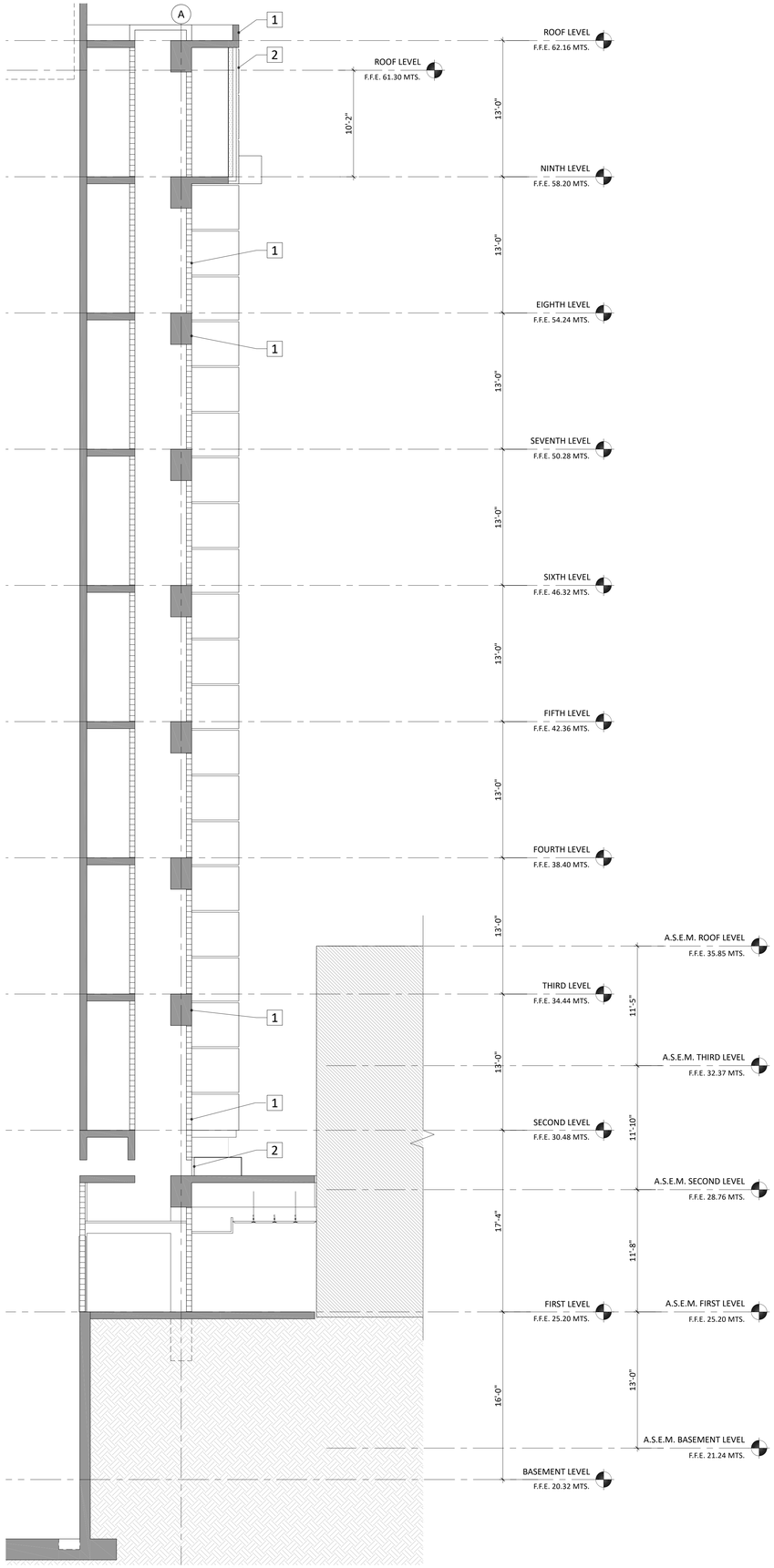
SHEET TITLE:
WALL SECTIONS MKD. 18 & 19

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1580 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER
A-3.12



WALL SECTION MKD. 20
SCALE: 3/16"= 1'-0"
A-3.13



WALL SECTION MKD. 21
SCALE: 3/16"= 1'-0"
A-3.13

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED
- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

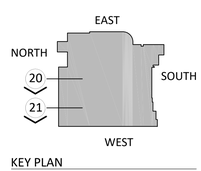
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3 COMBINATION OF E.I.F.S. OVER CONCRETE OR STRUCTURAL ELEMENTS
- PROVIDE E.I.F.S. FINISH CONTINUITY OVER DESIGNATED CONCRETE OR STRUCTURAL ELEMENTS WHERE INDICATED ON THE ELEVATIONS. FINISHED SURFACE SHALL ALIGN VISUALLY WITH ADJACENT E.I.F.S. AREAS TO CREATE A CONTINUOUS EXTERIOR APPEARANCE, WITH CONSISTENT TEXTURE, COLOR, AND FINISH QUALITY. CONCRETE OR STRUCTURAL ELEMENTS RECEIVING THIS FINISH SHALL NOT REMAIN VISUALLY EXPOSED UNLESS SPECIFICALLY INDICATED OTHERWISE.

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2. FINISH NOTES AND INDICATIONS ON THE ELEVATIONS ARE INTENDED TO CONVEY THE REQUIRED EXTERIOR APPEARANCE, EXTENT, AND PERFORMANCE INTENT. DESIGN-BUILD ENTITY SHALL PROVIDE COMPLETE EXTERIOR FINISH ASSEMBLIES NECESSARY TO ACHIEVE THE INDICATED FINISHED CONDITION, IN ACCORDANCE WITH PROJECT PERFORMANCE REQUIREMENTS AND APPROVED FINISH SELECTIONS.



KEY PLAN
NOT TO SCALE

NOTES:
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NOT FOR CONSTRUCTION.

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THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. ALL COPYRIGHTS, PATENTS, AND OTHER PROPERTY RIGHTS IN THESE DOCUMENTS ARE RESERVED. THEY ARE NOT TO BE USED, COPIED, REPRODUCED, OR MODIFIED IN WHOLE OR IN PART, FOR ANY PURPOSE OTHER THAN THE SPECIFIC PROJECT FOR WHICH THEY WERE PREPARED, EXCEPT BY WRITTEN AGREEMENT WITH DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. ANY UNAUTHORIZED USE, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED AND IS AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. THE USER SHALL INDEMNIFY AND HOLD HARMLESS DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS AGAINST ANY CLAIMS, LOSSES, OR DAMAGES ARISING OUT OF THE USE OF THESE DOCUMENTS. ANY USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

NO.	DATE	DESCRIPTIONS

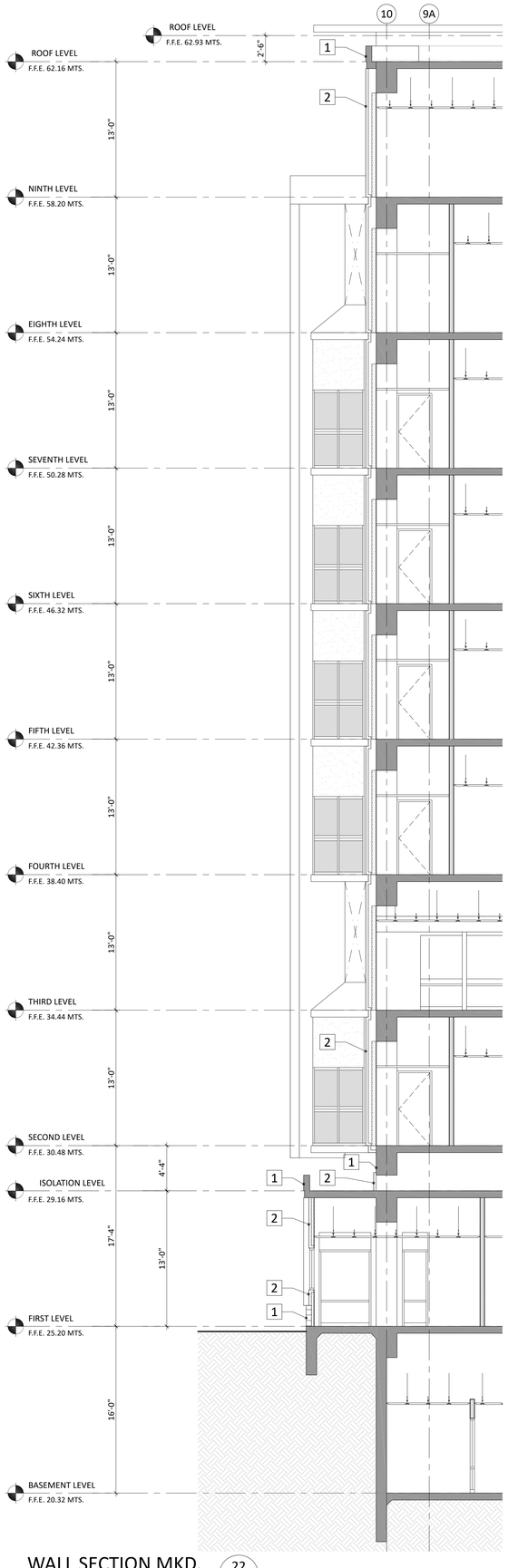
DATE: AUGUST 13, 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

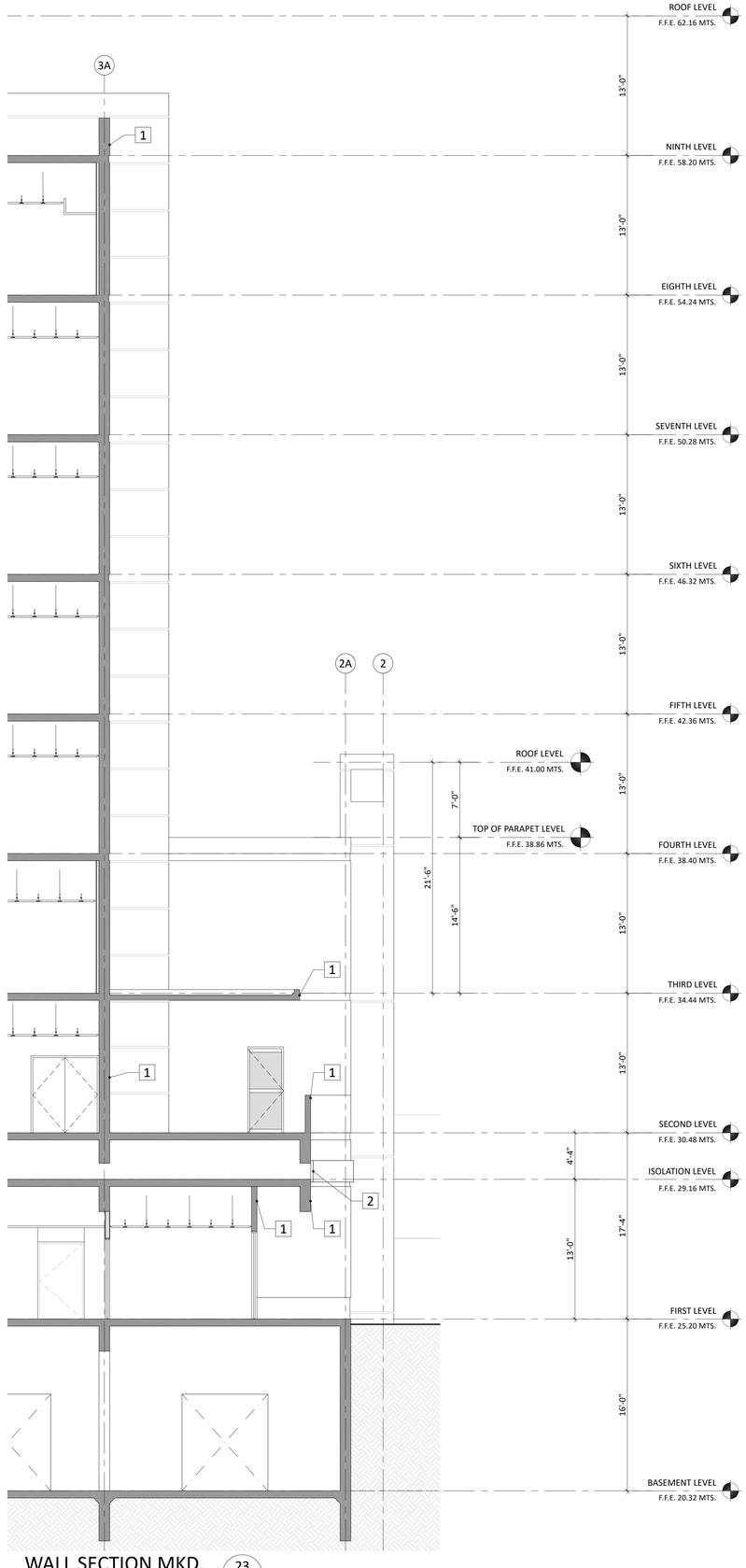
SHEET TITLE:
WALL SECTIONS MKD. 20 & 21

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
CARIBE, CARIBE 1504 AVE.PONCE DE LEON, SITE 105 SAN JUAN PR 00909

DRAWING NUMBER
A-3.13



WALL SECTION MKD. 22
SCALE: 3/16"= 1'-0"
A-3.14



WALL SECTION MKD. 23
SCALE: 3/16"= 1'-0"
A-3.14

LEGEND:

1 SMOOTH CEMENT PLASTER FINISH, PAINTED
- PROVIDE SMOOTH CEMENT PLASTER EXTERIOR FINISH WITH PAINTED SURFACE. FINISH SHALL PRESENT A UNIFORM, MONOLITHIC APPEARANCE WITH CONSISTENT TEXTURE AND COLOR. SURFACE SHALL BE SUITABLE FOR EXTERIOR EXPOSURE AND COORDINATED WITH ADJACENT MATERIALS, OPENINGS, CORNERS, AND TRANSITIONS SHOWN ON THE ELEVATIONS.

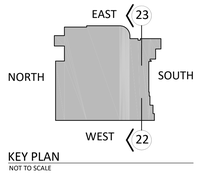
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NOTES:

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KEY PLAN
NOT TO SCALE

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

NO.	DATE	DESCRIPTIONS

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THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PRELIMINARY REVIEW AND APPROVAL FROM GOVERNMENTAL AUTHORITIES. THEY INCLUDE DESIGN INTENT, PERFORMANCE CRITERIA, AND TECHNICAL DESCRIPTIONS, BUT ARE NOT COMPLETE CONSTRUCTION DOCUMENTS AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION. THE DESIGN-BUILD ENTITY IS RESPONSIBLE FOR PREPARING ALL GUIDANCE FOR THE DESIGN-BUILD ENTITY. THE SELECTED DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL ALSO BE RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, SEQUENCING, AND SAFETY PRECAUTIONS. THE DESIGN-BUILD ENTITY IS SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, AND TECHNICAL INFORMATION CONTAINED HEREIN, AND SHALL NOTIFY DE LA TORRE-ESTEVEZ ARCHITECTS OF ANY DISCREPANCIES OR OMISSIONS. ANY USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

DATE: AUGUST 13, 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
WALL SECTIONS MKD. 22 & 23

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER
A-3.14

LEGEND:

24" X 48" LED LAMP
OPERATING ROOM STANDARD.

24" X 48" HEPA FILTER IN
A/C ASSEMBLY

LAMINAR FLOW
A/C DIFFUSER

MEDICAL GASES SUPPLY CONNECTION BOX
(PLENUM MOUNTED) TO BE FIELD LOCATED
2 OXYGEN
2 VACUUM
1 NITROGEN
1 NITROUS OXIDE
1 NITROGEN A

EXAM LAMP

24" x 24" RECESSED LED VOLUMETRIC "BASKET" LIGHT FIXTURE

24" x 24" RECESSED LED LIGHT FIXTURE

6" x 48" LED LIGHT FIXTURE

6" x 48" PENDANT LED LIGHT FIXTURE

6" x 36" LED LIGHT FIXTURE

6" X 6" LED LIGHT FIXTURE

RECESSED DOWNLIGHT LED LIGHTING FIXTURE

TUBULAR LED LIGHT FIXTURE FOR FASCIA LAMP COVE
- SEE DETAIL MKD. 15 IN SHEET A-4.2

REFLECTED CEILING NOTES:

1. ALL WALLS SHALL EXTEND UP TO 6" OVER CEILING HEIGHT, UNLESS OTHERWISE INDICATED IN THE DRAWINGS.
2. ALL GYPSUM BOARD CEILING SHALL BE SPECIALLY FORMULATED CORE PAPER CEILING BOARD DESIGNED FOR WATER BASED CEILING, SAG RESISTANT (5/8"TH.)

WORK BY OWNER:

1- ALL CABLING, HARDWARE AND SOFTWARE RELATED TO THE VOICE COMMUNICATION SYSTEM, INFORMATION TECHNOLOGY SYSTEM, CLOSED CIRCUIT TV SYSTEM AND ELECTRONIC ACCESS CONTROL SYSTEM WILL BE SUPPLIED AND INSTALLED BY EACH OF THE SYSTEMS OWNER'S SUBCONTRACTORS.

BUILDING ADMINISTRATION COMPLIANCE:

1- ALL WORK TO BE EXECUTED UNDER THIS CONTRACT SHALL BE DONE ONLY DURING THE WORKING HOURS APPROVED BY THE BUILDING ADMINISTRATOR.
2- ALL WORK EXECUTED UNDER THIS CONTRACT SHALL BE IN ACCORDANCE AND IN COMPLIANCE WITH THE BUILDING ADMINISTRATION REGULATIONS RELATED TO CONSTRUCTION.

(A) 5/8" SUSPENDED GYPSUM BOARD CEILING PAINTED @ 7'-6" A.F.F.

(B) 24" X 24" TEGULAR LAY-IN CEILING TILES @ 8'-6" A.F.F.

(C) 5/8" MOISTURE RESISTANT OPERATING ROOM GYPSUM BOARD CEILING @ 9'-6" A.F.F. WITH WATER BASED EPOXY CLEAN ROOM PAINT FINISH.

(D) 5/8" SUSPENDED GYPSUM BOARD CEILING PAINTED @ 9'-6" A.F.F.

(D1) 5/8" SUSPENDED GYPSUM BOARD CEILING PAINTED @ 10'-6" A.F.F.

(D2) 5/8" SUSPENDED GYPSUM BOARD CEILING PAINTED @ 11'-6" A.F.F.

(D3) 5/8" CURVED SUSPENDED GYPSUM BOARD CEILING PAINTED WITH A 6'-0" RADIUS SLOPING DOWN FROM (D1) CEILING HEIGHT.

(E) 5/8" SUSPENDED GYPSUM BOARD CEILING PAINTED @ 8'-6" A.F.F.

(F) EXPOSED STRUCTURE PLASTERED & PAINTED @ 8'-6" A.F.F.

(G) 5/8" SUSPENDED GYPSUM BOARD CEILING PAINTED @ 8'-6" A.F.F.

(H) EXPOSED STRUCTURE PLASTERED & PAINTED @ 15'-4" A.F.F.

(I) EXPOSED STRUCTURE PLASTERED & PAINTED @ 12'-4" A.F.F.

(J) 5/8" GYPSUM BOARD CEILING @ 8'-6" A.F.F. WITH WATER BASED EPOXY CLEAN ROOM PAINT FINISH.

(K) 24"X 24" SQUARE LAY-IN GASKETED CEILING TILES @ 8'-6" A.F.F. CLEAN ROOM TYPE MYLAR FINISH, INSTALLED ON REQUIRED CLEAN ROOM SUSPENSION SYSTEM ASSEMBLY.

(L) 5/8" MOISTURE RESISTANT GYPSUM BOARD CEILING @ 8'-6" A.F.F. WITH WATER BASED EPOXY CLEAN ROOM PAINT FINISH.

(M) 5/8" SUSPENDED GYPSUM BOARD CEILING MOISTURE RESISTANT @ 8'-6" A.F.F. PAINTED FINISH.

(N) INTERIOR CEILING OF NEW FREEZER ENCLOSURE POD (SEE SHEET A-1.6). IF REQUIRED ACHORED TO ROOF STRUCTURE.

(O) EXPOSED STRUCTURE SMOOTH CEMENT PAINTED FINISH. OVER FREEZER/COOLER ENCLOUSER CEILING.

(P) SUSPENDED CEILING ASSEMBLY SYSTEM LINEAR VENEERED CLOSED SUSPENDED CEILING (COLOR RIFT WHITE OAK) @ 8'-2"A.F.F. CONTINUOSLY SLOPING PARALLEL BETWEEN RAMP FLOORS AND SUSPENDED CEILINGS ABOVE.

(Q) FIXED GLASS SKYLIGHT AT ROOF STRUCTURAL SLAB. SEE RELATED DETAILS IN DRAWING A-1.0B.

(R) EXPOSED SLOPING STRUCTURE PLASTERED & PAINTED. SLOPING FROM 11'-0" A.F.F @ LOWER INNER LEVEL UP TO 12'-6" A.F.F @UPPER OUTER LEVEL.

(S) EXPOSED STRUCTURE PLASTERED & PAINTED @ 10'-0" A.F.F.

(T) EXPOSED STRUCTURE PLASTERED & PAINTED @ 11'-0" A.F.F.

(U) 5/8" MOISTURE RESISTANT OPERATING ROOM GYPSUM BOARD CEILING @ 8'-6" A.F.F. WITH WATER BASED EPOXY CLEAN ROOM PAINT FINISH.

(V) 5/8" SUSPENDED GYPSUM BOARD CEILING PAINTED @ 8'-0" A.F.F.

(W) 5/8" SUSPENDED GYPSUM BOARD CEILING PAINTED @ 10'-0" A.F.F.

(X) 24"X 24" SQUARE LAY-IN GASKETED CEILING TILES @ 9'-6" A.F.F. CLEAN ROOM TYPE MYLAR FINISH, INSTALLED ON REQUIRED CLEAN ROOM SUSPENSION SYSTEM ASSEMBLY.

(Y) 24" X 24" TEGULAR LAY-IN CEILING TILES @ 9'-0" A.F.F.

(Z) EXPOSED STRUCTURE PLASTERED & PAINTED @ 9'-2" A.F.F.

(AA) 5/8" GYPSUM BOARD SOFFIT @ 8'-0" A.F.F. WITH OPENING AS SHOWN UP TO GLASS BLOCK SKYLIGHT AT STRUCTURAL SLAB.

(BB) EXPOSED STRUCTURE PLASTERED & PAINTED @ 9'-6" A.F.F.

(CC) EXPOSED STRUCTURE PLASTERED & PAINTED @ 15'-10" A.F.F.

(DD) EXPOSED STRUCTURE PLASTERED & PAINTED @ 13'-10" A.F.F.

(EE) EXPOSED STRUCTURE PLASTERED & PAINTED @ 13'-6" A.F.F.

(FF) EXPOSED SLOPING STRUCTURE PLASTERED & PAINTED. SLOPING FROM 12'-6" A.F.F @ LOWER LEVEL UP TO 14'-0" A.F.F @UPPER LEVEL.

(GG) EXPOSED STRUCTURE PLASTERED & PAINTED @ 10'-6" A.F.F.

(HH) 5/8" SUSPENDED GYPSUM BOARD CEILING PAINTED @ 8'-10" A.F.F.

(II) 5/8" SUSPENDED GYPSUM BOARD CEILING PAINTED @ 7'-10" A.F.F.

(JJ) 24" X 24" TEGULAR LAY-IN CEILING TILES @ 8'-0" A.F.F.

(KK) 5/8" GYPSUM BOARD CEILING @ 9'-6" A.F.F. WITH WATER BASED EPOXY CLEAN ROOM PAINT FINISH.

OPERATING ROOMS EQUIPMENT NOTES:

1. CONTRACTOR SHALL SUPPLY & INSTALL ALL SURGICAL LAMPS & UTILITY SERVICE BOOMS STRUCTURAL SUPPORT INSIDE THE PLENUM AS REQUIRED BY THE EQUIPMENT MANUFACTURER'S INSTALLATION GUIDELINES. THE STRUCTURAL SUPPORT SHALL BE IN ACCORDANCE WITH BUILDING CODE REQUIREMENTS (INCLUDING SEISMIC REQUIREMENTS) & CERTIFIED BY A CONTRACTOR RETAINED STRUCTURAL ENGINEER.
2. LED SURGICAL LAMP (ITEM (2)) TO BE SUPPLIED BY OWNER & INSTALLED BY CONTRACTOR.
3. UTILITY SERVICE BOOMS (ITEMS (2), (3), & (4)) WILL BE SUPPLIED BY OWNER & INSTALLED BY CONTRACTOR.
4. ALL STRUCTURAL SUPPORT FOR SURGICAL LED LAMPS & UTILITY SERVICE BOOMS SHALL HAVE THE REQUIRED APPLIED LOAD CAPACITY SPECIFIED BY THE MANUFACTURER.
5. FOR ALL OPERATING LIGHT PROVIDE STRUCTURAL SUPPORT AND MOUNTING PLATE AS REQUIRED BY LAMP MANUFACTURER SPECIFICATIONS.

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION PURPOSES. THESE DOCUMENTS ARE INCOMPLETE AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION. THEY ARE PROVIDED ONLY TO ILLUSTRATE THE GENERAL SCOPE AND GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY, AT ITS SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT OF RECORD, MUST REVIEW, VERIFY, COMPLETE, AND ADAPT THESE DOCUMENTS AS NECESSARY TO MEET ALL APPLICABLE CODES, REGULATIONS, AND PROJECT REQUIREMENTS. THE DESIGN-BUILD ENTITY IS SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE ARCHITECT OF RECORD ASSUMES NO RESPONSIBILITY FOR ANY USE OF THESE DOCUMENTS BEYOND THEIR INTENDED PURPOSE AND DISCLAIMS ALL LIABILITY ARISING FROM THEIR MISUSE, MODIFICATION, OR INCOMPLETE IMPLEMENTATION. BY USING THESE DOCUMENTS, THE DESIGN-BUILD ENTITY ACCEPTS FULL RESPONSIBILITY AND AGREES TO INDEMNIFY AND HOLD HARMLESS THE ARCHITECT OF RECORD FROM ANY CLAIMS, DAMAGES, OR LOSSES RESULTING FROM THE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

NO.	DATE	DESCRIPTIONS

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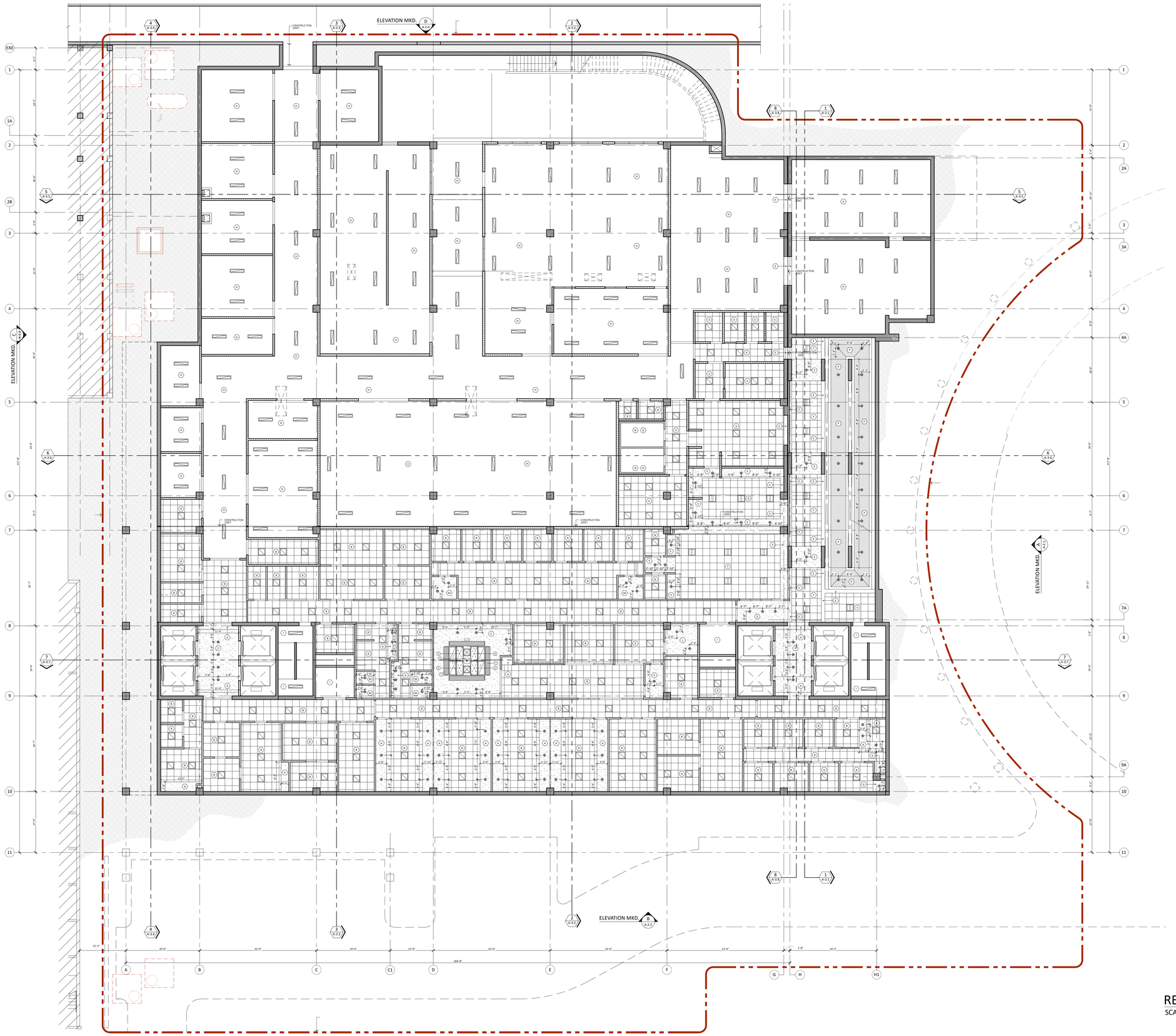
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
REFLECTED CEILING LEGEND & TYPICAL NOTES

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1596 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER

A-4.0



REFLECTED CEILING PLAN - BASEMENT LEVEL

SCALE: 3/32"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: JULY 2026

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

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NO.	DATE	DESCRIPTIONS

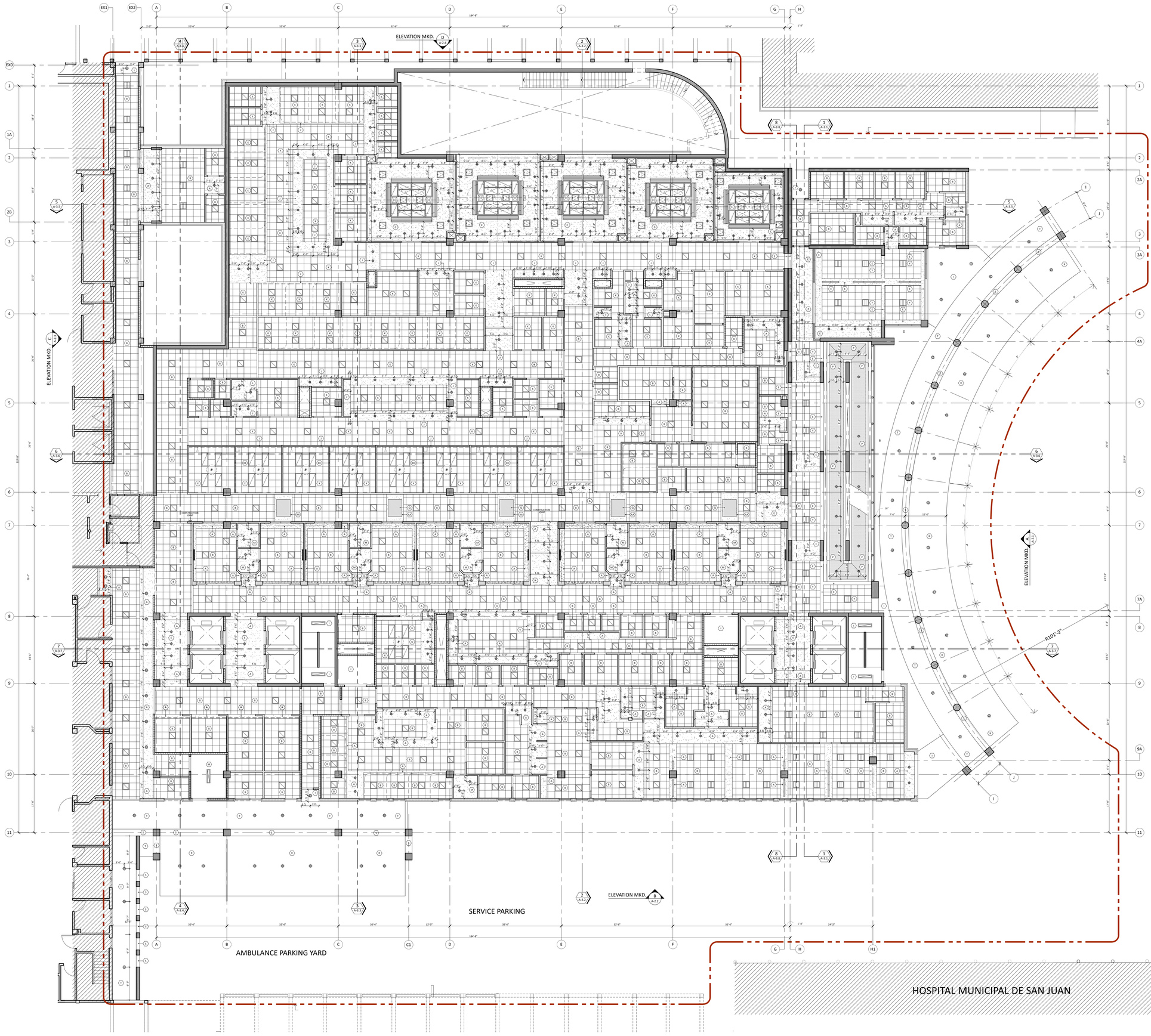
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
REFLECTED CEILING PLAN - BASEMENT LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER

A-4.1



REFLECTED CEILING PLAN - FIRST LEVEL

SCALE: 3/32"= 1'-0"

NOTES:
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NO.	DATE	DESCRIPTIONS

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DATE: JULY 2026

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

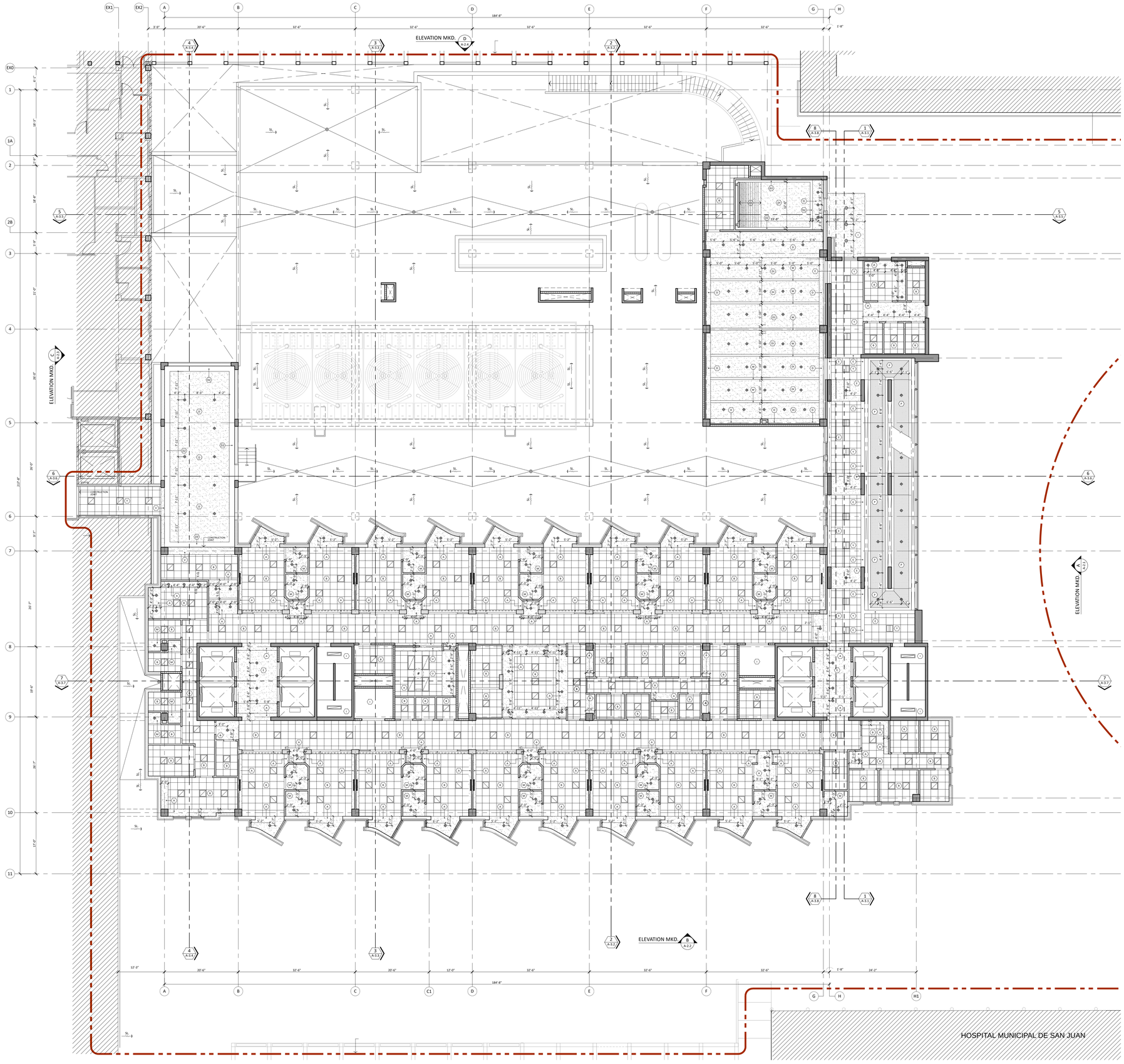
SHEET TITLE:

REFLECTED CEILING PLAN - FIRST LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1580 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER

A-4.2



REFLECTED CEILING PLAN - SECOND LEVEL

SCALE: 3/32"= 1'-0"

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NO.	DATE	DESCRIPTIONS

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DATE: JULY 2026

DRAWN BY:

APROVED BY:

SCALE: AS SHOWN

PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

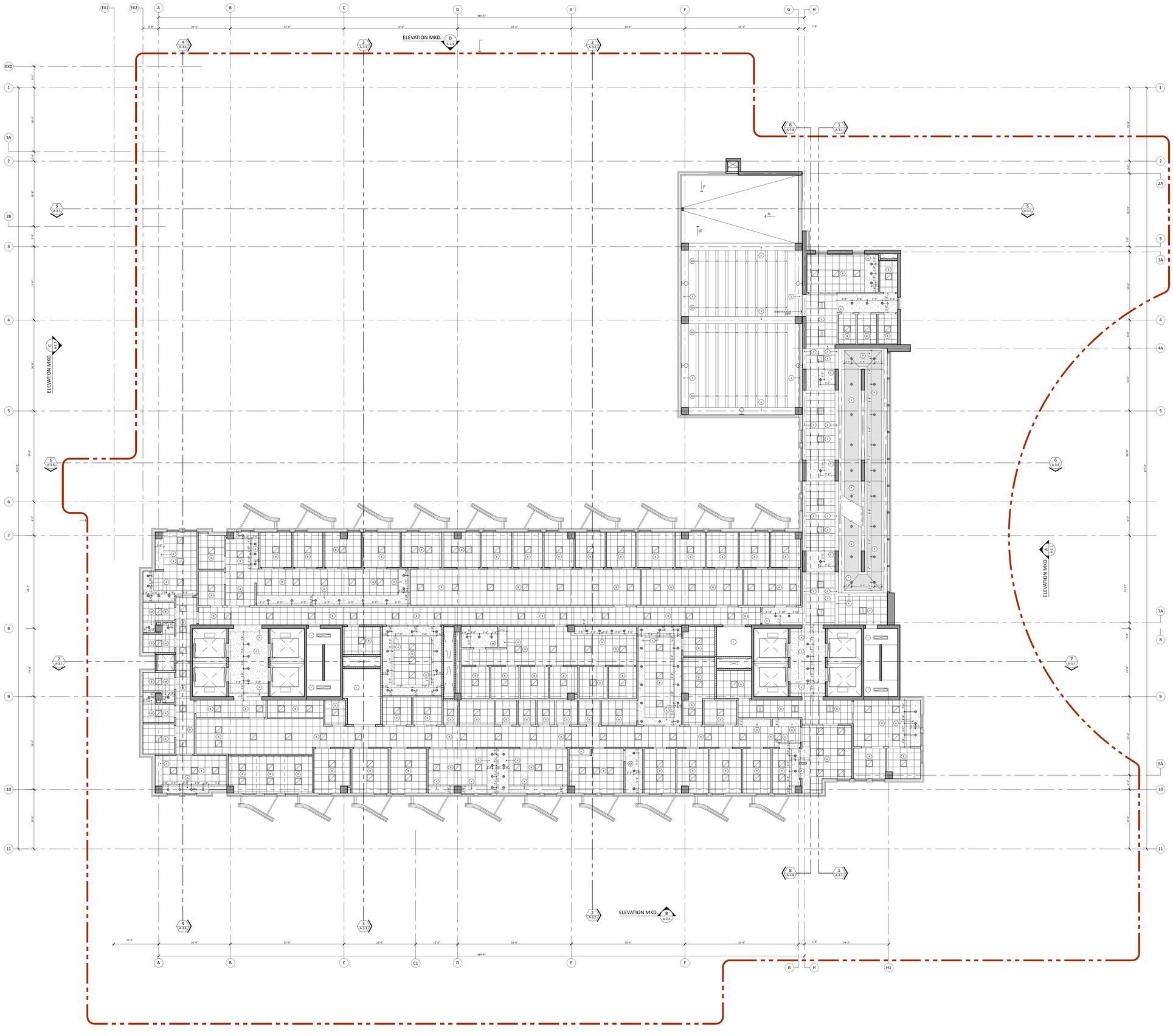
SHEET TITLE:

REFLECTED CEILING PLAN - SECOND LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER

A-4.3



REFLECTED CEILING PLAN - THIRD LEVEL

SCALE: 3/32"= 1'-0"

NOTES:
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  NOT FOR CONSTRUCTION.

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NO.	DATE	DESCRIPTIONS

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DATE: JULY 2026

DRAWN BY:

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SCALE: AS SHOWN

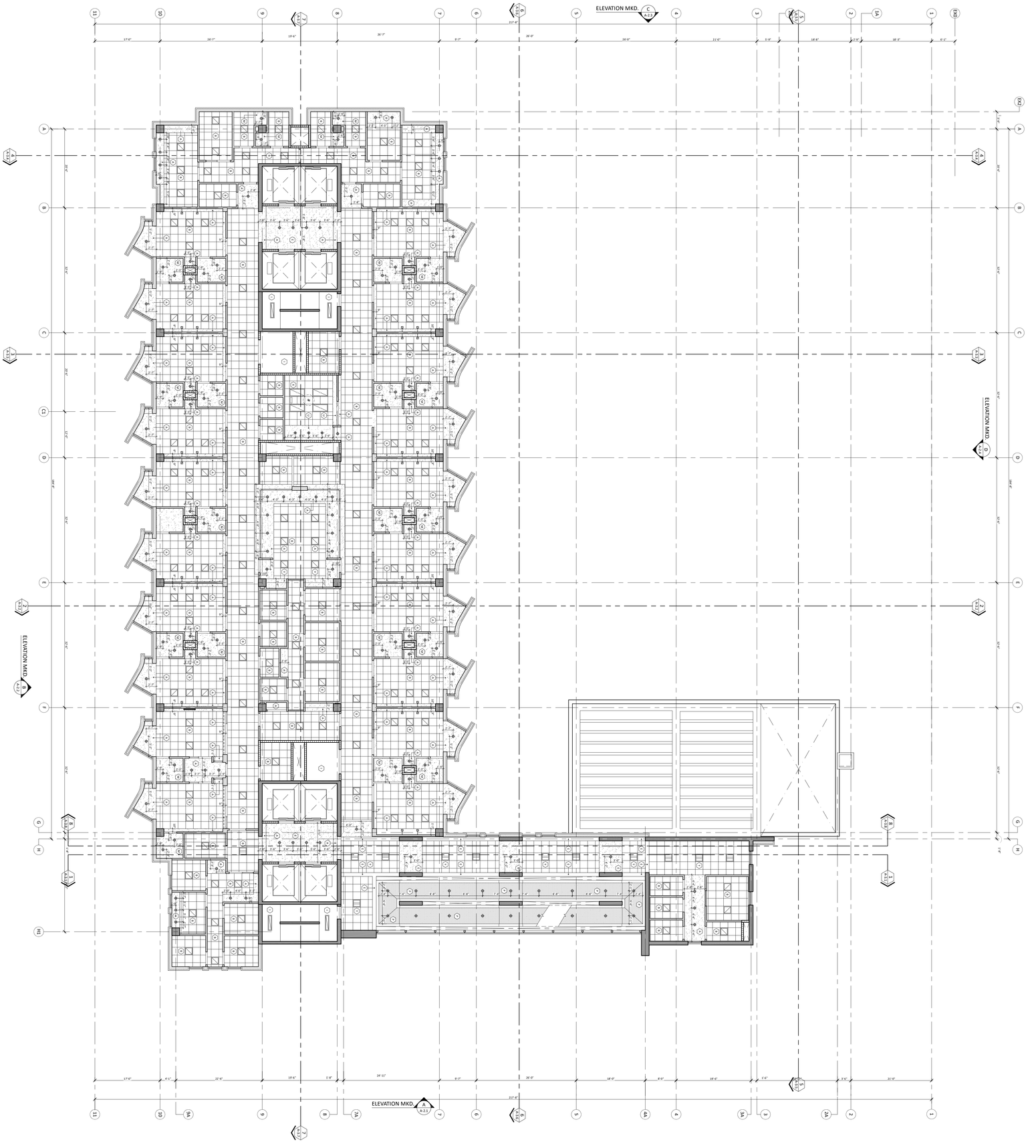
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
REFLECTED CEILING PLAN - THIRD LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 100 SAN JUAN PR 00926

DRAWING NUMBER

A-4.4



REFLECTED CEILING PLAN - FOURTH LEVEL

SCALE: 3/32"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

A-4.5
DRAWING NUMBER

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

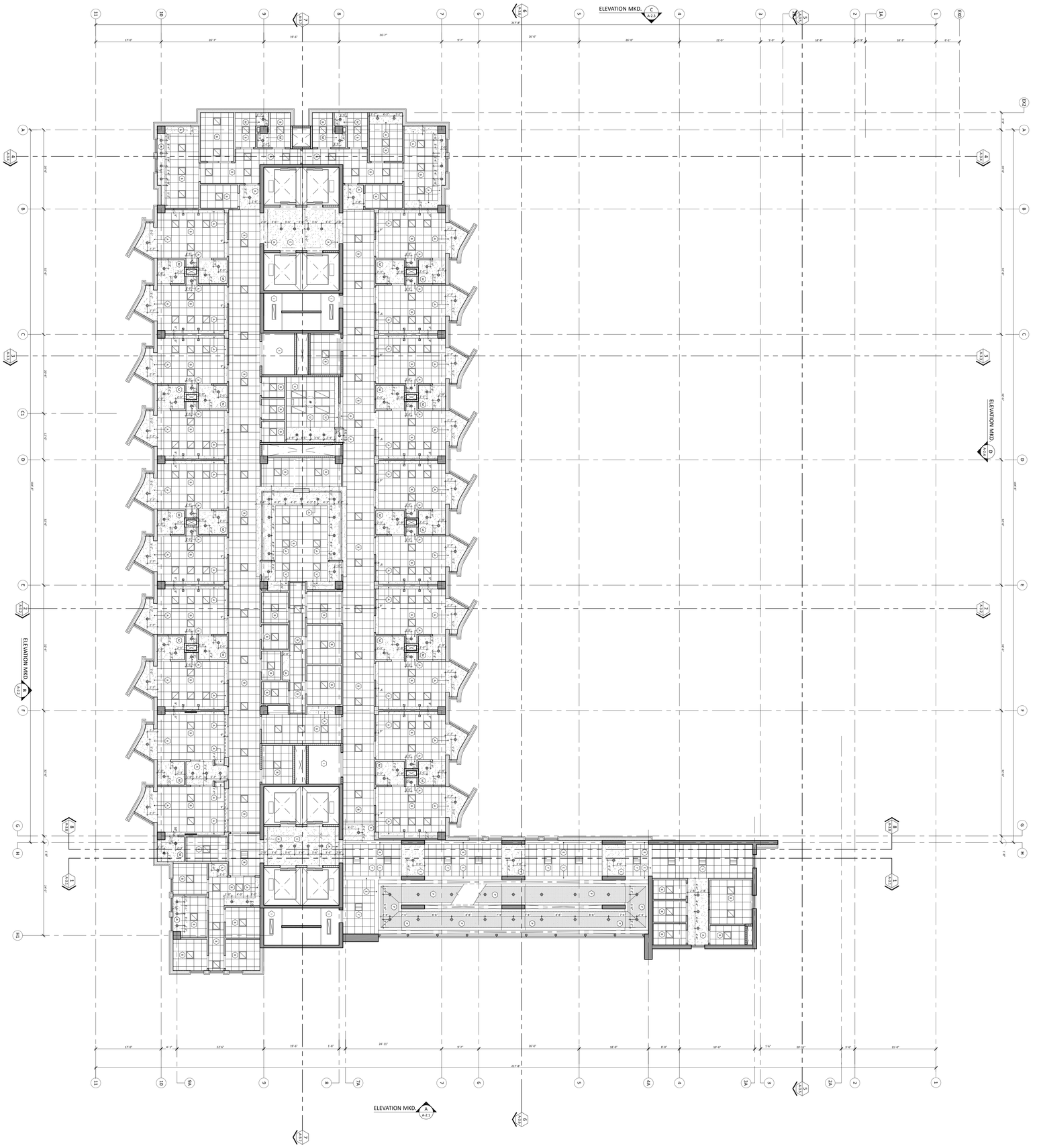
SHEET TITLE:
FOURTH LEVEL - REFLECTED CEILING PLAN

NO.	DATE	DESCRIPTIONS

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THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF ESTABLISHING THE OWNER'S PROGRAMMATIC REQUIREMENTS, FUNCTIONAL OBJECTIVES, DESIGN INTENT, PERFORMANCE CRITERIA, AND TECHNICAL BASIS OF DESIGN FOR USE IN THE DESIGN-BUILD PROCUREMENT PROCESS. THESE DOCUMENTS ARE NOT CONSTRUCTION DOCUMENTS AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, PROCUREMENT, CONSTRUCTION, OR ANY OTHER PURPOSE EXCEPT AS REFERENCE DESIGN GUIDANCE FOR THE DESIGN-BUILD ENTITY.THE SELECTED DESIGN-BUILD ENTITY, OR SUCH ENTITY'S DULY LICENSED ARCHITECT AND/OR ENGINEER OF RECORD, SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, CODE COMPLIANCE, PERMITTING, AND PREPARATION OF ALL FINAL DESIGN, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE EXECUTION OF THE PROJECT. THE DESIGN-BUILD ENTITY SHALL INDEPENDENTLY VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, QUANTITIES, DESIGN CRITERIA, AND TECHNICAL INFORMATION CONTAINED HEREIN AND SHALL NOT RELY UPON THESE DOCUMENTS AS FINAL DESIGN OR CONSTRUCTION DOCUMENTS. USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN



REFLECTED CEILING PLAN – FIFTH LEVEL

SCALE: 3/32"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

DRAWING NUMBER
A-4.6

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

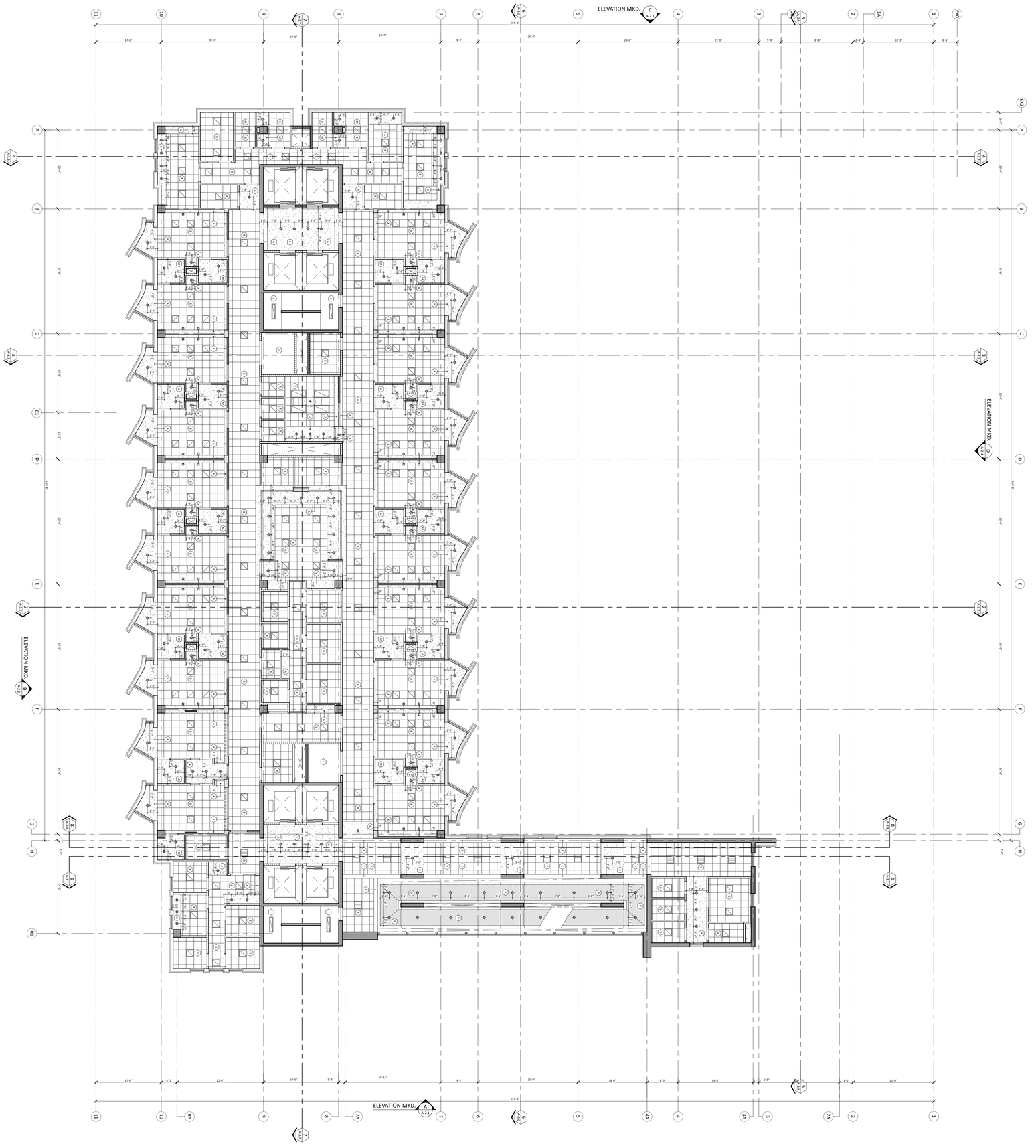
SHEET TITLE:
REFLECTED CEILING PLAN - FIFTH LEVEL

NO.	DATE	DESCRIPTIONS

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DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN



REFLECTED CEILING PLAN - SIXTH LEVEL

SCALE: 3/32"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

DRAWING NUMBER
A-4.7

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

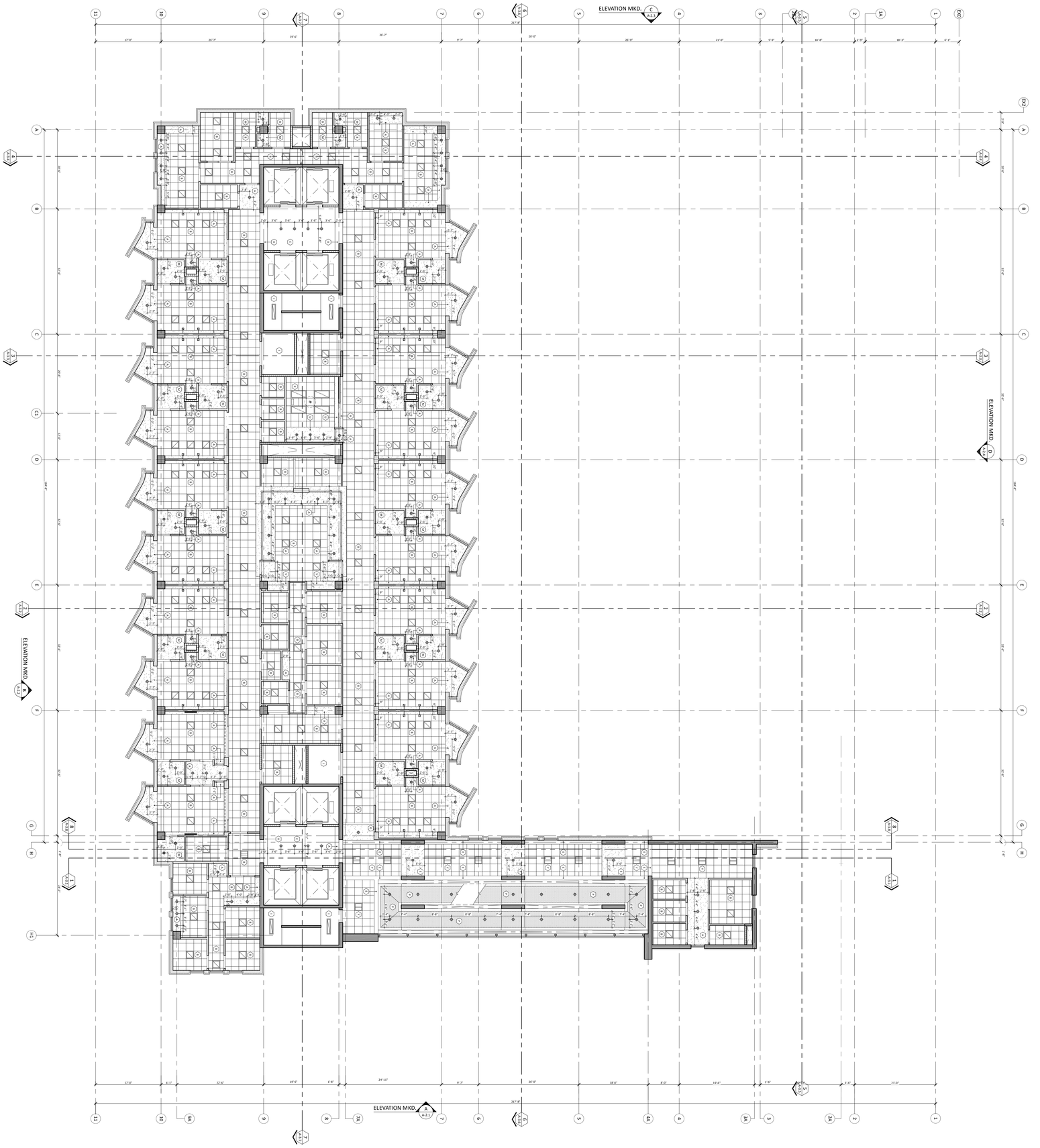
SHEET TITLE:
REFLECTED CEILING PLAN - SIXTH LEVEL

NO.	DATE	DESCRIPTIONS

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DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN



REFLECTED CEILING PLAN - SEVENTH LEVEL

SCALE: 3/32"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

DRAWING NUMBER
A-4.8

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

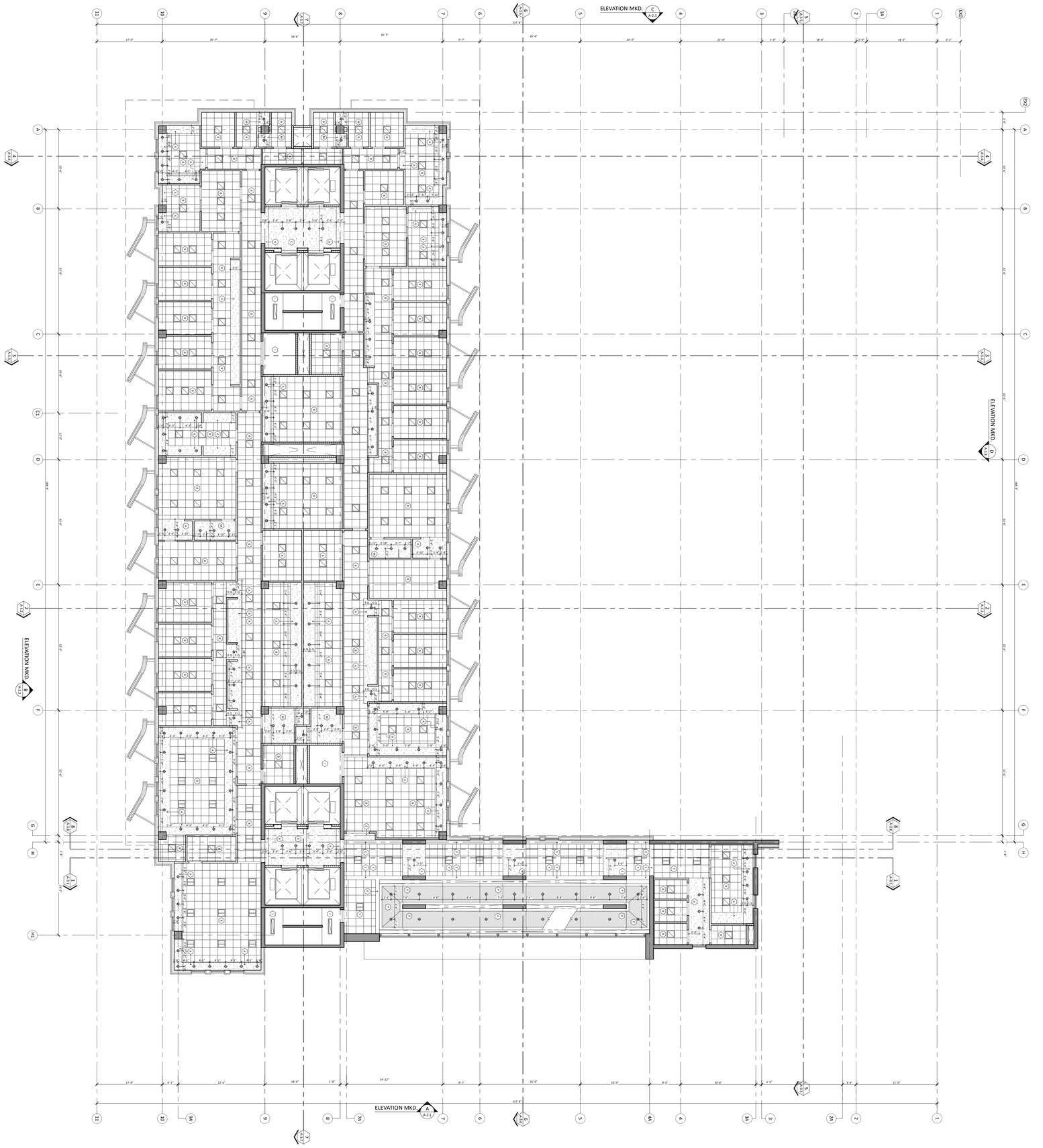
SHEET TITLE:
REFLECTED CEILING PLAN - SEVENTH LEVEL

NO.	DATE	DESCRIPTIONS

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DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN



REFLECTED CEILING PLAN - EIGTH LEVEL

SCALE: 1/8"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

DRAWING NUMBER
A-4.9

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

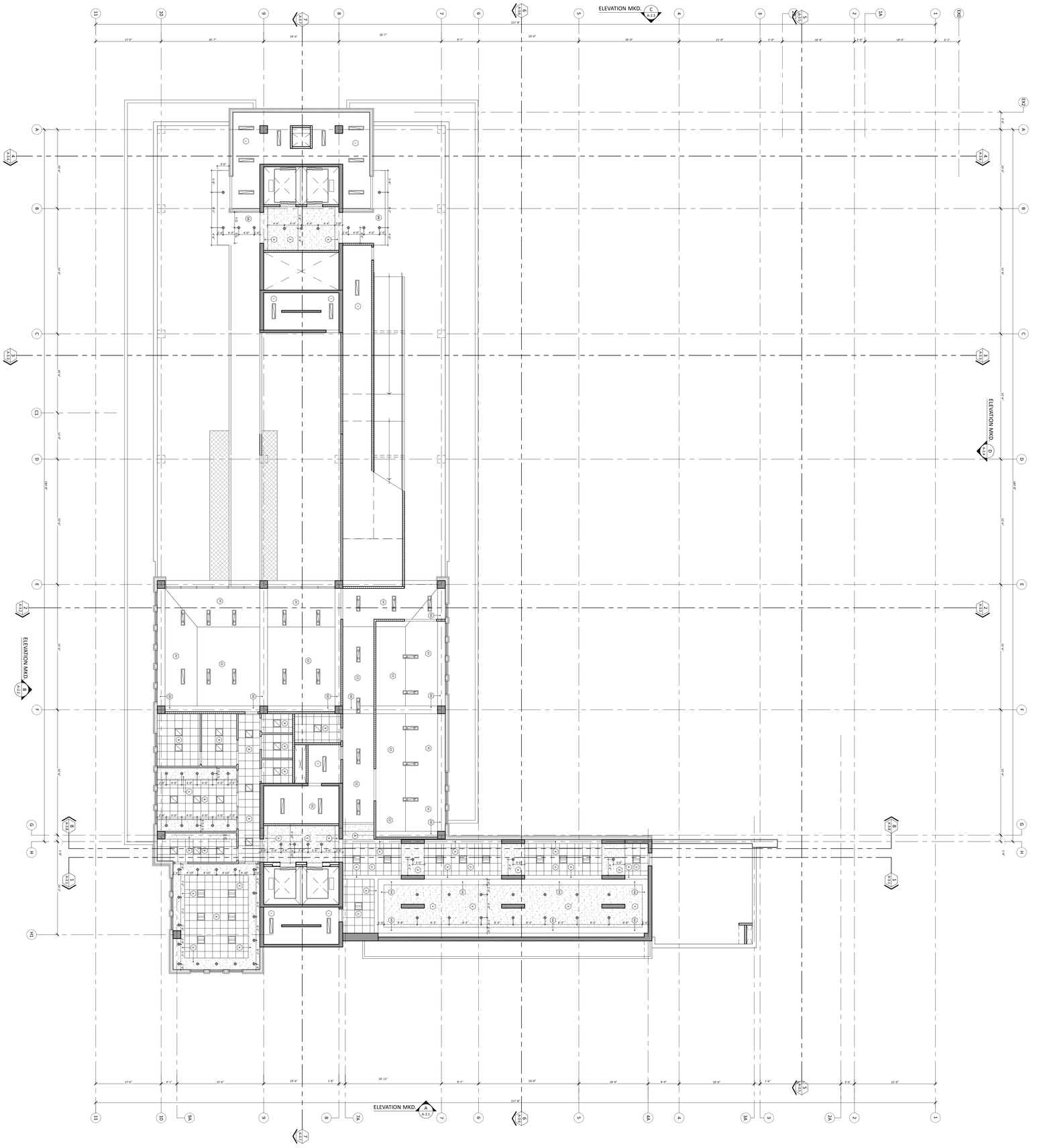
SHEET TITLE:
REFLECTED CEILING PLAN - EIGTH LEVEL

NO.	DATE	DESCRIPTIONS

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DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN



REFLECTED CEILING PLAN - NINTH LEVEL

SCALE: 3/32" = 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

A-4.10

DRAWING NUMBER

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
REFLECTED CEILING PLAN - NINTH LEVEL

NO.	DATE	DESCRIPTIONS

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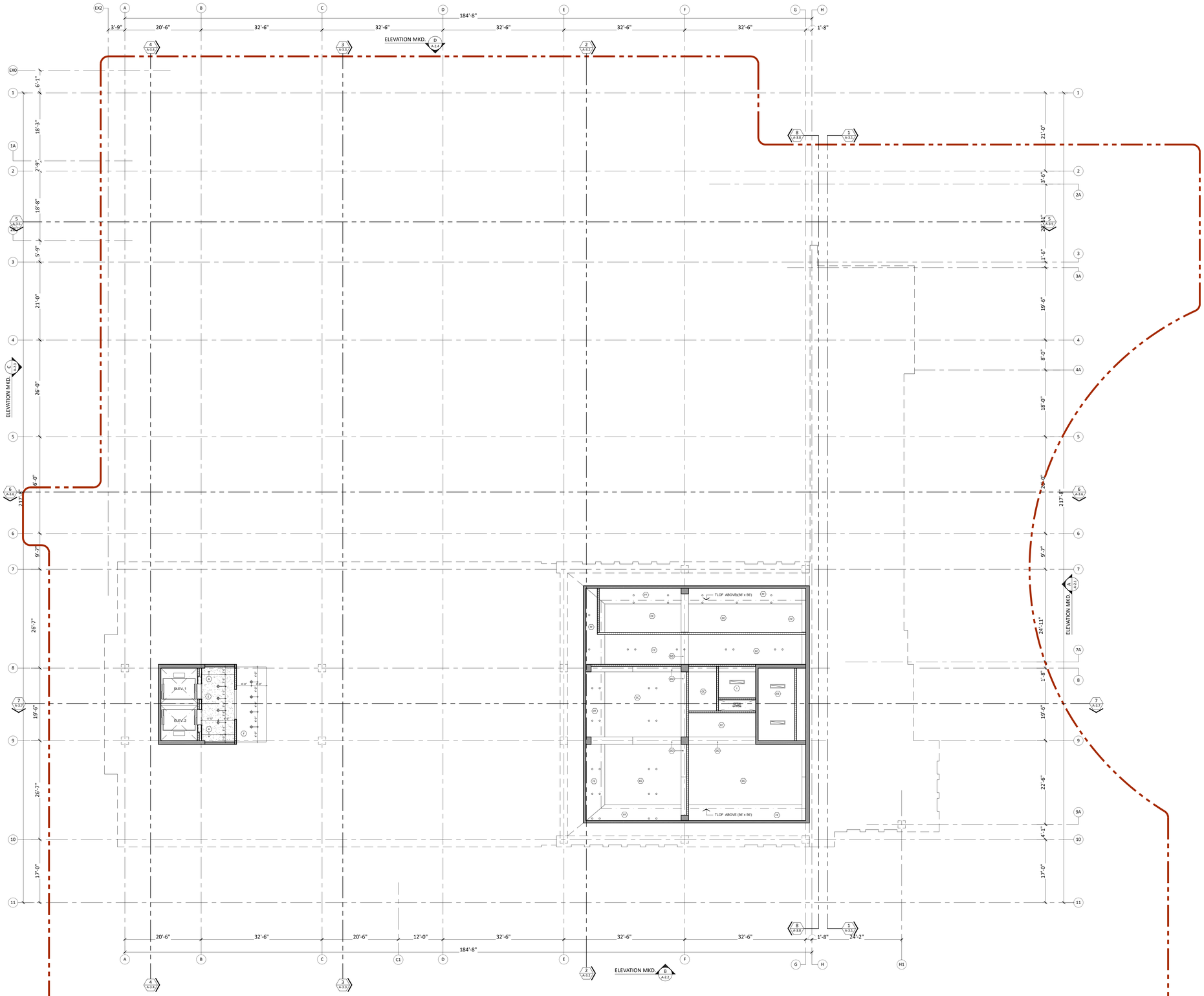
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DATE: JULY 2026

DRAWN BY:

APROVED BY:

SCALE: AS SHOWN



REFLECTED CEILING PLAN - TENTH LEVEL

SCALE: 3/32"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

DATE: JULY 2026

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

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NO.	DATE	DESCRIPTIONS

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PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

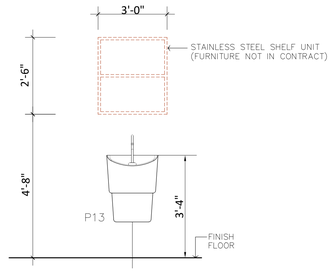
SHEET TITLE:

REFLECTED CEILING PLAN - TENTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1504 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00920

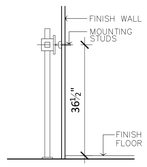
DRAWING NUMBER

A-4.11



TYPICAL ICS SCRUB SINK (P13) & FURNITURE ELEVATION

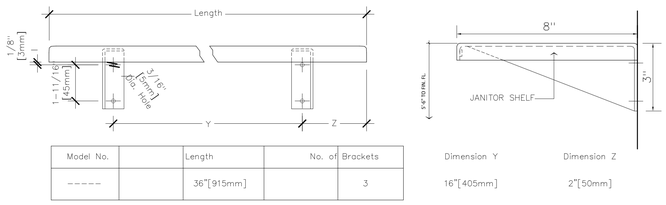
NOT TO SCALE



TYPICAL ICS SCRUB SINK MOUNTING CARRIER DETAIL

NOT TO SCALE

NOTE: CONTRACTOR SHALL SUBMIT SHOP DRAWING FOR ARCHITECT APPROVAL.



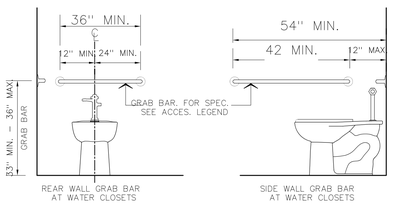
Model No.		Length	No. of Brackets	Dimension Y	Dimension Z
-----		36"[915mm]	3	16"[405mm]	2"[50mm]

– NOTE: SHELVES LONGER THAN 8 FEET ARE TO BE FURNISHED IN MULTIPLE SECTIONS.

TYPICAL JANITOR SHELF INSTALLATION

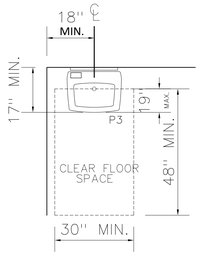
1 / A-6.0

NOT TO SCALE



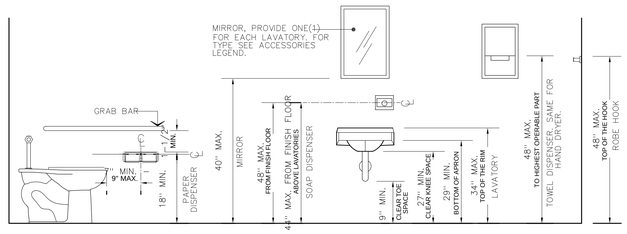
TYPICAL ELEVATION & FLOOR PLAN FOR HANDICAPPED TOILETS & LAVATORIES A.D.A. COMPLIANCE

NOT TO SCALE



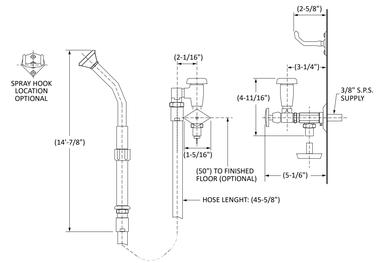
TYPICAL LAVATORY CLEAR FLOOR SPACE

NOT TO SCALE



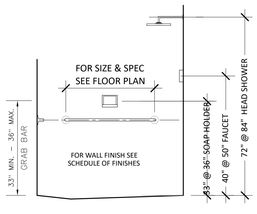
TYPICAL ELEVATION OF TOILET ACCESSORIES A.D.A. COMPLIANCE

NOT TO SCALE



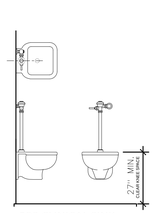
TYPICAL BED PAN CLEANSERS ELEVATION (P4)

NOT TO SCALE



TYP. SHOWER H.C. GRAB BARS ELEV.

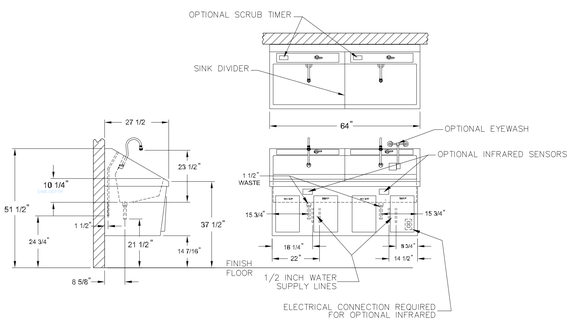
NOT TO SCALE



P22 CLINICAL SINK

CLINICAL SINK DETAILS (P14)

NOT TO SCALE



SURGICAL SCRUB SINK (DUAL STATION) (P16) DETAILS

NOT TO SCALE

BATHROOM ACCESSORIES & PLUMBING FIXTURES GENERAL NOTES:

1. ALL BATHROOM ACCESSORIES SHALL HAVE A SATIN FINISH UNLESS OTHERWISE NOTED.
2. ALL BATHROOM ACCESSORIES SHALL BE COMPLIANT WITH A.D.A. STANDARDS FOR ACCESSIBLE DESIGN.
3. FOR THE BATHROOM ACCESSORIES HEIGHT ABOVE FLOOR SHALL BE AS PER MANUFACTURER'S RECOMMENDED MOUNTING HEIGHT FOR A.D.A. STANDARDS FOR ACCESSIBLE DESIGN.
4. ALL BATHROOM ACCESSORIES SHALL BE HOSPITAL GRADE.
5. CONTRACTOR SHALL BRING PROMPTLY TO THE ATTENTION OF THE OWNER ANY DISCREPANCIES BETWEEN THE ACCESSORIES & PLUMBING FIXTURES BEFORE INSTALLATION.
6. ALL PLUMBING EQUIPMENT SPECIFIED IN THE LEGEND HEREIN SHALL BE INSTALLED AS INSTRUCTED IN THE PLUMBING DRAWINGS AND/OR AS REQUIRED, WITH ALL THE FIXTURES AND FITTINGS, TO THE PROPOSED WATER AND DRAIN UTILITY LINES. INSTALLATION SHALL BE EXECUTED AND CERTIFIED, FOR PROPER OPERATION, BY A LICENCED MASTER PLUMBER.
7. ALL BATHROOM ACCESSORIES AND/OR PLUMBING EQUIPMENT SPECIFIED IN THE LEGENDS HEREIN, THAT REQUIRE ELECTRICAL SERVICE, SHALL BE INSTALLED AS INSTRUCTED IN THE ELECTRICAL DRAWINGS AND/OR AS SERVICE, SHALL BE INSTALLED AS INSTRUCTED IN THE ELECTRICAL DRAWINGS AND/OR AS REQUIRED TO THE NEAREST PROPOSED ELECTRICAL CIRCUIT FOR PROPER OPERATION.

BATHROOM FIXTURES & ACCESSORIES SCHEDULE

NO.	DESCRIPTION	MANUFACTURER	MODEL	HEIGHT ABOVE FINISH FLOOR	REMARKS
1	PAPER TOWEL DISPENSER	----------	----------	54" MAX. TO TOP (ACCESSIBLE DESIGN)	SURFACE MOUNTED STAINLESS STEEL - SATIN FINISH
2	MIRROR - TILTED (18" X 36")	----------	----------	69-1/2" MAX. TO TOP (ACCESSIBLE DESIGN)	SATIN FINISH
3	SOAP DISPENSER	----------	----------	40" - 48" MAX. TO TOP (ACCESSIBLE DESIGN)	SURFACE MOUNTED STAINLESS STEEL - SATIN FINISH
4	HAND DRYER	----------	----------	48" MAX. TO TOP (ACCESSIBLE DESIGN)	SURFACE MOUNTED 115V
5	TOILET TISSUE DISPENSER	----------	----------	22" MAX. TO TOP (ACCESSIBLE DESIGN)	SURFACE MOUNTED SATIN FINISH
6	24" GRAB BAR	----------	----------	34" (ACCESSIBLE DESIGN)	SATIN FINISH
7	36" GRAB BAR	----------	----------	34" (ACCESSIBLE DESIGN)	SATIN FINISH
8	42" GRAB BAR	----------	----------	34" (ACCESSIBLE DESIGN)	SATIN FINISH
9	JANITOR SHELF	----------	----------	66" TO TOP	STAINLESS STEEL - SATIN FINISH
10	SINGLE ROBE HOOK	----------	----------	38" - 40" MAX. TO TOP (ACCESSIBLE DESIGN)	SURFACE MOUNTED STAINLESS STEEL - SATIN FINISH
11	SOAP DISH	----------	----------	AS PER MANUFACTURER (ACCESSIBLE DESIGN)	SURFACE MOUNTED STAINLESS STEEL - SATIN FINISH
12	SHOWER SEAT	----------	----------	17" - 19" MAX. TO TOP (ACCESSIBLE DESIGN)	STAINLESS STEEL - SATIN FINISH
13	SHOWER CURTAIN ROD	----------	----------	74-1/2" TO TOP	STAINLESS STEEL - SATIN FINISH
14	SOAP DISPENSER	----------	----------	----------	COUNTER MOUNTED STAINLESS STEEL - SATIN FINISH
15	PAPER TOWEL DISPENSER & WASTE RECEPTACLE	----------	----------	59-1/2" MAX. TO TOP (ACCESSIBLE DESIGN)	SURFACE MOUNTED STAINLESS STEEL - SATIN FINISH
16	PARTITIONS & SCREENS	----------	----------	----------	STAINLESS STEEL - SATIN FINISH
17	BABY CHANGING STATION / TABLE	----------	----------	48" MAX. TO TOP (ACCESSIBLE DESIGN)	COLOR - WHITE GRANITE
18	30" GRAB BAR	----------	----------	34" (ACCESSIBLE DESIGN)	SATIN FINISH
19	MIRROR (18" X 36")	----------	----------	69-1/2" MAX. TO TOP (ACCESSIBLE DESIGN)	SATIN FINISH
20	SHOWER CURTAIN ROD	----------	----------	----------	----------

PLUMBING FIXTURES LEGEND

P1	WATER CLOSET (HANDICAPPED BOWL) ELONGATED 1.6gpf, 16.5" HEIGHT, WHITE (Floor Drain) or ELONGATED 1.6gpf, 16.5" HEIGHT, WHITE (Wall Drain). SOLID PLASTIC OPEN FRONT ELONGATED SEAT, WHITE. 1.6gpf, MANUAL FLUSH VALVE, CHROME or 1.28gpf, MANUAL FLUSH VALVE, CHROME or 1.6gpf, SENSOR FLUSH VALVE, CHROME.
P2	LAVATORY WALL HUNG FOR HANDICAPPED 21"X18" WALL HUNG. BATTERY AUTOMATIC SENSOR FAUCET, CHROME or BATTERY AUTOMATIC SENSOR FAUCET, CHROME. PERFORATED GRID DRAIN CHROME. SEMI-CAST BRASS P-TRAP 1 ¼" CHROME.
P3	SHOWER FAUCET (AMERICAN STANDARD) COMMERCIAL SHOWER SYSTEM TRIM KIT or PRESURE BALANCE VALVE VALVES HANDSHOWER HOSE SLIDE BAR IN-LINE VACUUM BREAKER TRIM ONLY FLOOR DRAIN 2" STRAINER NICKEL BRONCE
P4	BED PAN CLEANSER BED PAN CLEANSERS WITH VOLUME REGULATOR SHALL FEATURE WALL MOUNTED BRASS SINGLE INLET VOLUME CONTROL WITH CERAMIC DISK VALVE, LOOSE KEY STOP AND VACUUM BREAKER. SHALL FEATURE A 10" LONG SPRAY END AT THE END OF 45" LONG RUBBER HOSE. WALL MOUNTED BRASS SPRAY HOOK.
P5	URINAL FLOWISE UNIVERSAL URINAL, VITREOUS CHINA WITH EVERCLEAN, SUPPLIED WITH ALL MANUFACTURER'S SUGGESTED FITTINGS AND ACCESSORIES. EXPOSED, SENSOR-OPERATED SELECTRONIC FLUSH VALVE, DC POWER (TOP SPUD), 1.0 gpf URINAL. 0.5gpf, SENSOR FLUSH VALVE, CHROME
P6	ORBIT UNDERCOUNTER SINK ROUND UNDERCOUNTER SINK (15-1/2" ROUND), (4-3/8" DEEP) MADE FROM VITREOUS CHINA FRONT OVERFLOW UNGLAZED RIM FOR UNDERCOUNTER MOUNTING SUPPLIED WITH MOUNTING KIT (047194-0070a) AND TEMPLATE 6" DEEP. BATTERY AUTOMATIC SENSOR FAUCET, CHROME or ELECTRONIC SENSOR ACTIVATED, CHROME. PERFORATED GRID DRAIN CHROME SEMI-CAST BRASS P-TRAP 1 ¼" CHROME
P7	WATER CLOSET CHAIR HEIGHT ELONGATED ONE-PIECE TOILET WITH SEAT VITREOUS CHINA 1.28GPF, 12" ROUGH-IN TOILET WITH 16-1/2" RIM CHAIR HEIGHT, WHITE.
P8	LAVATORY COUNTERTOP LOFT ABOVE COUNTER SINK WITH FAUCET HOLE, FIRE CLAY.
P9	JANITOR SINK MOP SINK 24" X 24" MOLDED STONE PLASTIC FLOOR INSTALLATION WHITE SERVICE FAUCET, CHROME PLATED WITH VACUMM BREAKER, INTEGRAL STOPS AND ADJUSTABLE WALL BRACE AND PAIL HOOK STAINLESS STEEL RIM GUARD MOP HANGER
P10	WATER FOUNTAIN SINGLE STATION BARRIER FREE WATER FOUNTAIN STAINLESS STEEL WATER CHILLER 1 ¼" SEMI CAST POLISH BRASS P-TRAP
P11	SINK (SINGLE) STAINLESS STEEL SINGLE SINK 15"X17" TOP MOUNT 7 ⅝" DEPT or STAINLESS STEEL SINGLE SINK 18"X18" UNDERMOUNT 9" DEPT. BATTERY AUTOMATIC SENSOR FAUCET, CHROME or BATTERY AUTOMATIC SENSOR FAUCET, CHROME. STRAINER 1 ½" STAINLESS STEEL. SEMI-CAST BRASS P-TRAP 1 ½" CHROME.
P12	S/S SINK 22"X22" 10" DEPTH BOWL ELECTRONIC SENSOR ACTIVATED. GOOSENECK FAUCET WITH TRANSFORMER POLISH CHROME FINISH. STRAINER 1-1/2" STAINLESS STEEL. 1-1/2" SEMI CAST BRASS P-TRAP POLISH CHROME ½" ANGLE SUPPLY WITH LOOSE KEY POLISH CHROME AND CAST BRASS ESCUTCHEON.
P13	ICS SCRUB SINK ICS SCRUB SINK. LAVATORY FAUCET. THERMOSTATIC MIXING VALVE. FLOOR MOUNTED LAVATORY CARRIER or FLOOR MOUNTED SINK SUPPORT.
P14	CLINICAL SINK VITREOUS CHINA, WALL - HUNG 25" X 21". MANUAL FLUSH VALVE. EXPOSED YOKE, WALL-MOUNT, UTILITY FAUCET.
P15	WALL-MOUNTED DELUXE SCRUB STAINLESS STEEL WALL MOUNTED DELUXE SCRUB SINK PROVIDE ALL REQUIRED FITTINGS FOR PROPER ASSEMBLY AND OPERATION AS PER MANUFACTURER REQUIREMENTS. FAUCET FOR HANDS-FREE OPERATION. KNEE ACTIVATED SOAP DISPENSER FOR HANDS-FREE OPERATION.
P16	SURGICAL SCRUB SINK (DUAL STATION) KNEE OPERATED PROVIDE ALL REQUIRED FITTINGS FOR PROPER ASSEMBLY AND OPERATION AS PER MANUFACTURER REQUIREMENTS.
P17	DECONTAMINATION SHOWER PRESSURE BALANCE ROUGH VALVE WITH SCREWDRIVERS STOPS SOFT TRIMS VALVES. PROOF SHOWER HEAD POLISH CHROME. CAST-IRON FLOOR DRAIN IN "2" WITH PRIMER TRAP. SQUARE STRAINER NICKEL BRONZE.
P18	ICE MACHINE (OVER COUNTER)
P19	WATER CLOSET (SINGLE) COMPACT CADET 3 FLOWISE RIGHT HEIGHT ELONGATED ONE-PIECE TOILET MATCHIN SOLID PLASTIC TOILET SEAT & COVER WITH SLOW CLOSE HINGES. CADET 3 FLUSHING SYSTEM
P20	BATHTUB PENDANT PORCELAIN ENAMEL 60" x 30" X 14 1/4" BATHTUB STANDARD BACK DESIGN
P21	WATER CLOSET 16-1/2" HEIGHT ELONGATED FLUSHOMETER TOILET VITREOUS CHINA WITH EVERCLEAN FLOOR MOUNT REAR OUTLET
P22	ICE MACHINE (BELOW COUNTER)
P23	ICE MACHINE

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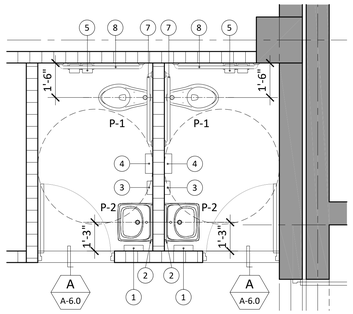
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
TOILET DETAILS, ACCESORIES & PLUMBING FIXTURES

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00909

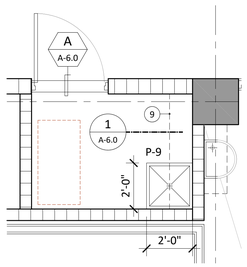
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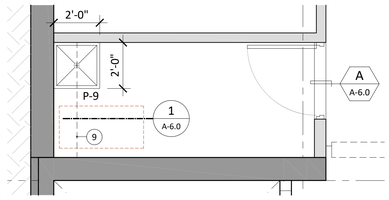
TOILET BLOW-UP PLAN
SPACES 0-019 & 0-020

SCALE: 3/8"= 1'-0"



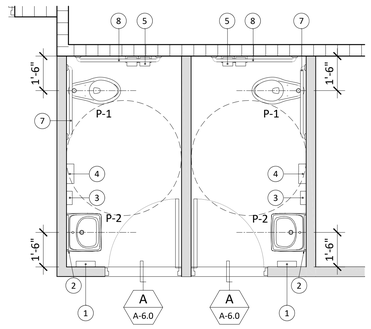
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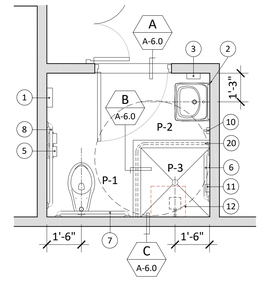
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SPACE 0-049

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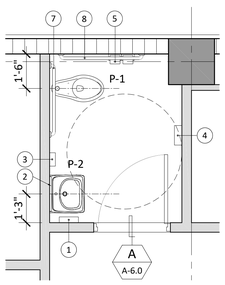
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SPACES 0-051 & 0-052

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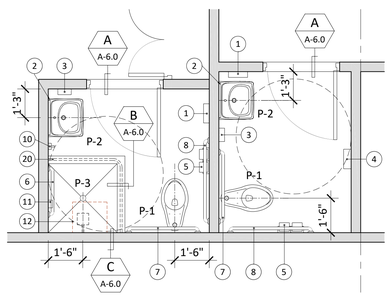
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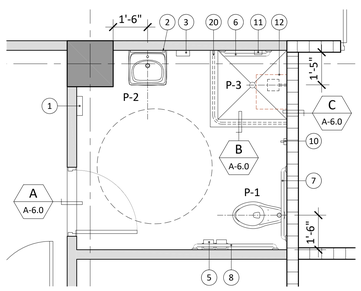
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SPACE 0-069

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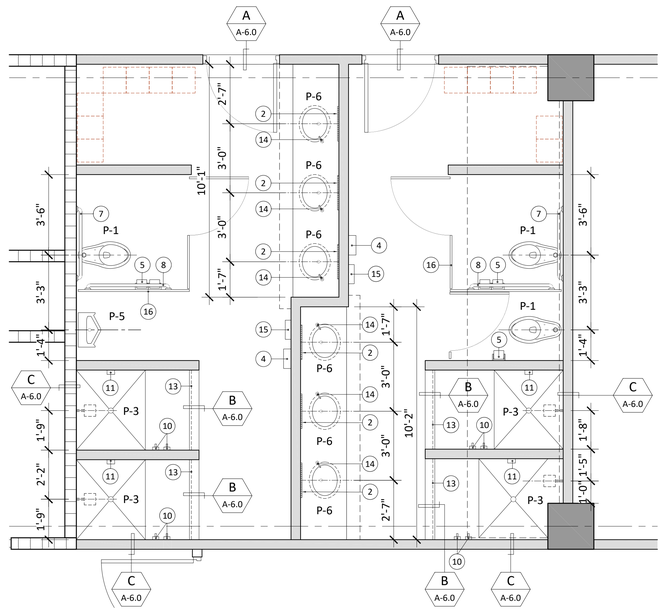
TOILET BLOW-UP PLAN
SPACES 0-072 & 0-073

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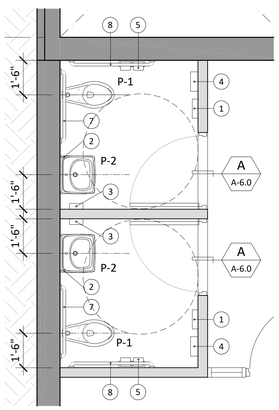
TOILET BLOW-UP PLAN
SPACE 0-097

SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACES 0-111 & 0-110

SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACES 0-121 & 0-122

SCALE: 3/8"= 1'-0"

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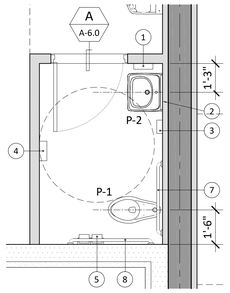
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
PLUMBING FIXTURES - BASEMENT LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00909

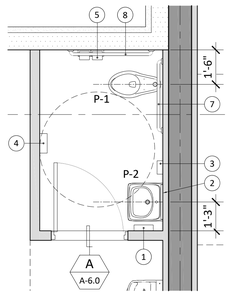
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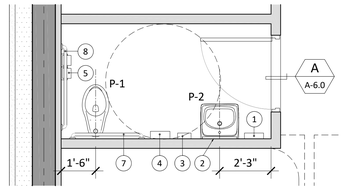
TOILET BLOW-UP PLAN
SPACE 1-005

SCALE: 3/8"= 1'-0"



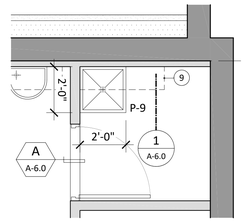
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SPACE 1-006

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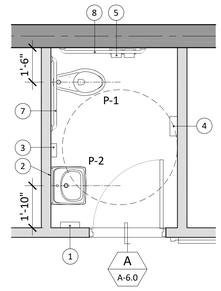
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SPACE 1-008

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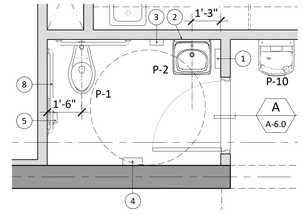
JANITOR BLOW-UP PLAN
SPACE 1-020

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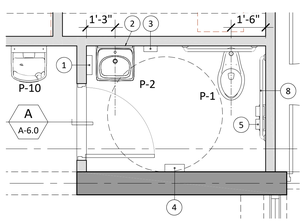
TOILET BLOW-UP PLAN
SPACE 1-037

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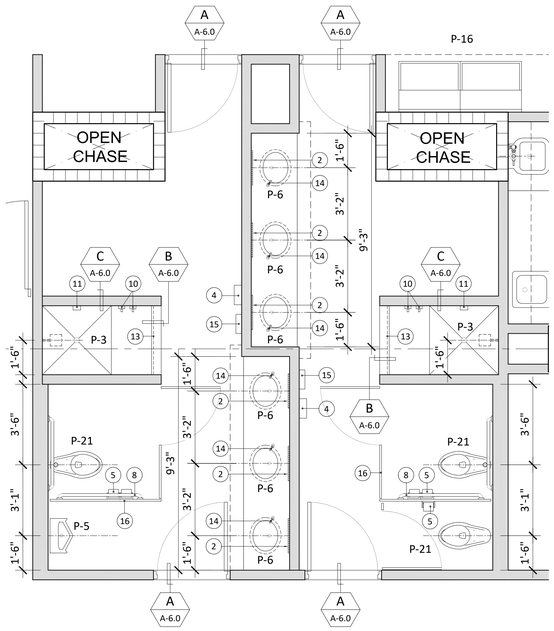
TOILET BLOW-UP PLAN
SPACE 1-044

SCALE: 3/8"= 1'-0"



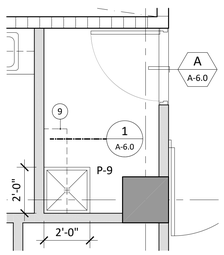
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SPACE 1-045

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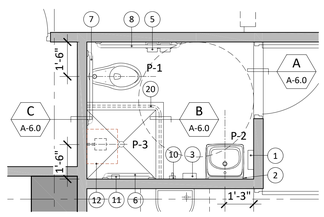
TOILET BLOW-UP PLAN
SPACES 1-056 & 1-057

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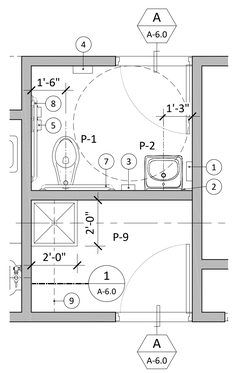
JANITOR BLOW-UP PLAN
SPACE 1-059

SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 1-079

SCALE: 3/8"= 1'-0"



TOILET & JANITOR BLOW-UP PLAN
SPACES 1-094 & 1-095

SCALE: 3/8"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: JULY 2026
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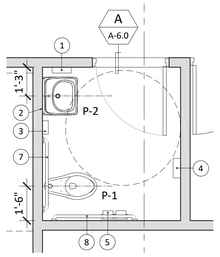
NO. | DATE | DESCRIPTIONS

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

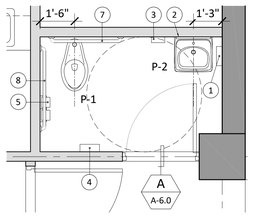
SHEET TITLE:
PLUMBING FIXTURES - FIRST LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00909

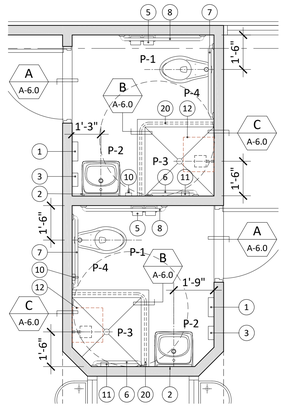
DRAWING NUMBER
A-6.2



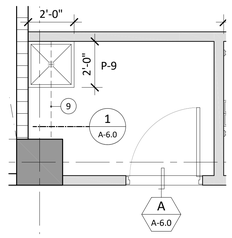
TOILET BLOW-UP PLAN
SPACE 1-113
SCALE: 3/8"= 1'-0"



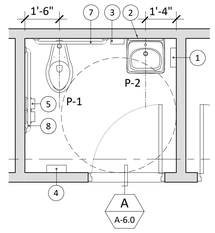
TOILET BLOW-UP PLAN
SPACE 1-120
SCALE: 3/8"= 1'-0"



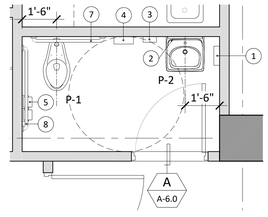
TOILET BLOW-UP PLAN
SPACES 1-124 & 1-129
(SPACES 1-132 & 1-133, 1-139 & 1-140,
1-144 & 1-145, 1-149 & 1-152 EQUAL)
SCALE: 3/8"= 1'-0"



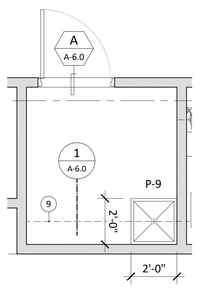
JANITOR BLOW-UP PLAN
SPACE 1-164
SCALE: 3/8"= 1'-0"



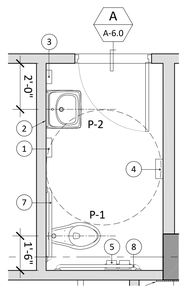
TOILET BLOW-UP PLAN
SPACE 1-166
SCALE: 3/8"= 1'-0"



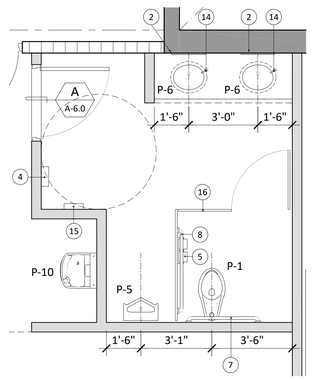
TOILET BLOW-UP PLAN
SPACE 1-171
SCALE: 3/8"= 1'-0"



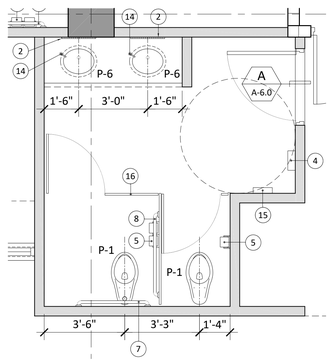
JANITOR BLOW-UP PLAN
SPACE 1-178
SCALE: 3/8"= 1'-0"



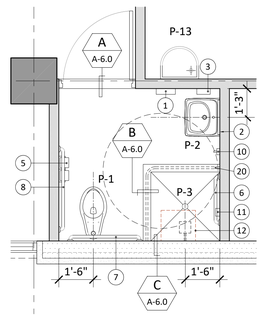
TOILET BLOW-UP PLAN
SPACE 1-183
SCALE: 3/8"= 1'-0"



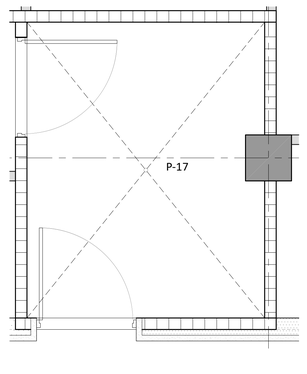
TOILET BLOW-UP PLAN
SPACE 1-194
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 1-197
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 1-197
SCALE: 3/8"= 1'-0"



DECONTAMINATION TRIAGE
SPACE 1-223
SCALE: 3/8"= 1'-0"

NOTES:
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DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

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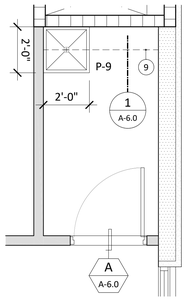
NO.	DATE	DESCRIPTIONS

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
PLUMBING FIXTURES - FIRST LEVEL

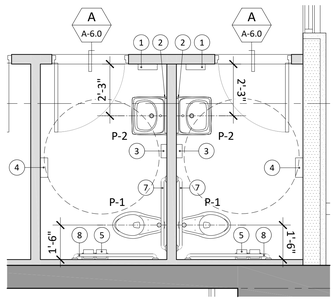
DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER
A-6.3



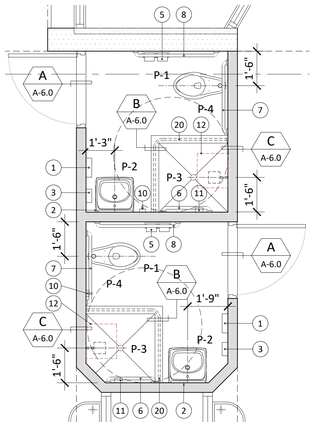
JANITOR BLOW-UP PLAN
SPACE 2-010

SCALE: 3/8"= 1'-0"



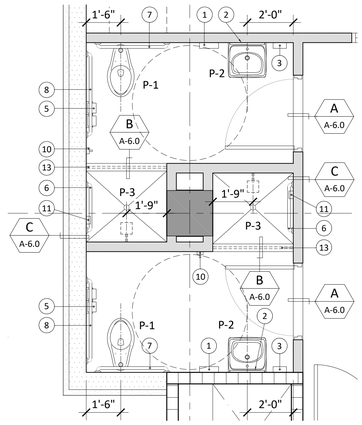
TOILET BLOW-UP PLAN
SPACES 2-015 & 2-016

SCALE: 3/8"= 1'-0"



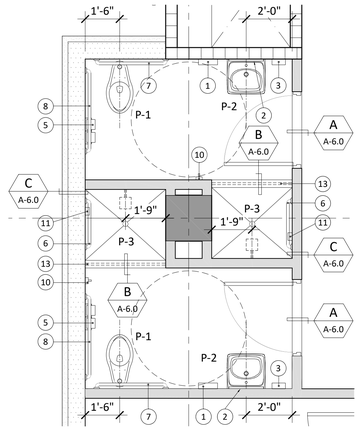
TOILET BLOW-UP PLAN
SPACES 2-027 & 2-028
(SPACES 2-032 & 2-033, 2-038 & 2-039,
2-043 & 2-044, 2-049 & 2-050 EQUAL)

SCALE: 3/8"= 1'-0"



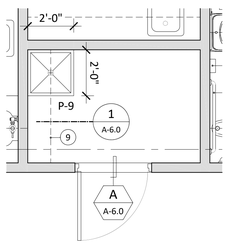
TOILET BLOW-UP PLAN
SPACES 2-057 & 2-059

SCALE: 3/8"= 1'-0"



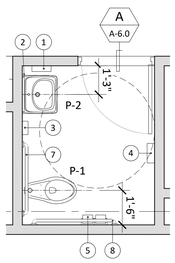
TOILET BLOW-UP PLAN
SPACES 2-060 & 2-061

SCALE: 3/8"= 1'-0"



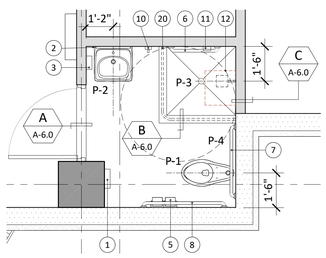
JANITOR BLOW-UP PLAN
SPACE 2-080

SCALE: 3/8"= 1'-0"



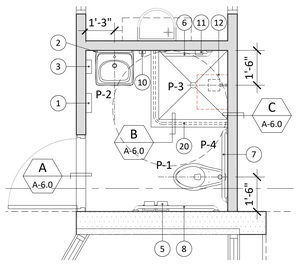
TOILET BLOW-UP PLAN
SPACE 2-081

SCALE: 3/8"= 1'-0"



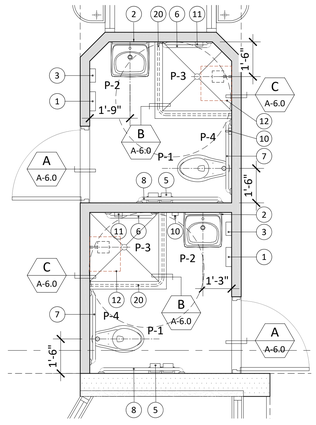
TOILET BLOW-UP PLAN
SPACE 2-095

SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 2-099

SCALE: 3/8"= 1'-0"

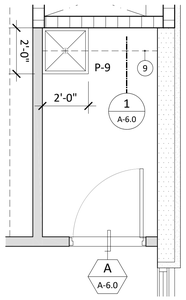


TOILET BLOW-UP PLAN
SPACES 2-103 & 2-104
(SPACES 2-109 & 2-110, 2-014 & 2-015,
2-120 & 2-121 EQUAL)

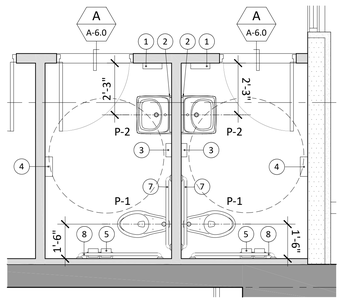
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NOTES:
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  NOT FOR CONSTRUCTION.

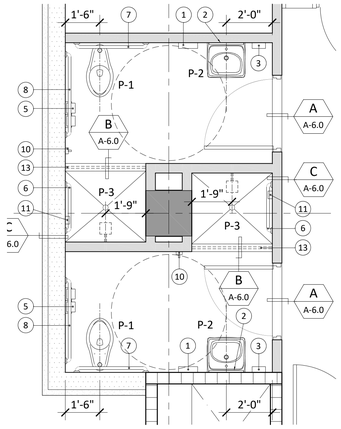
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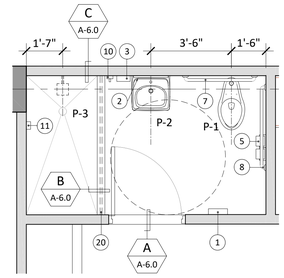
JANITOR BLOW-UP PLAN
SPACE 3-002
SCALE: 3/8"= 1'-0"



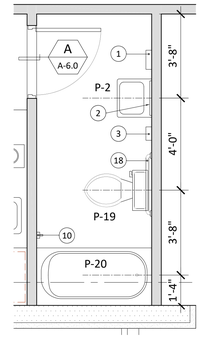
TOILET BLOW-UP PLAN
SPACES 3-005 & 3-006
SCALE: 3/8"= 1'-0"



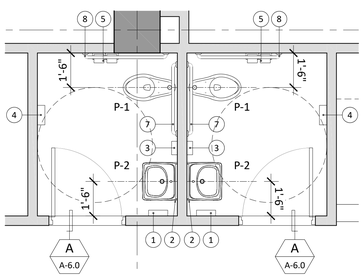
TOILET BLOW-UP PLAN
SPACES 3-030 & 3-031
SCALE: 3/8"= 1'-0"



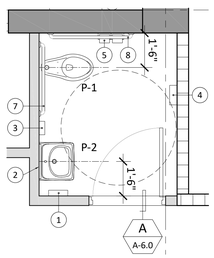
TOILET BLOW-UP PLAN
SPACE 3-042
SCALE: 3/8"= 1'-0"



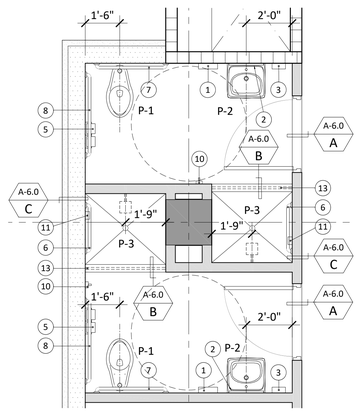
TOILET BLOW-UP PLAN
SPACE 3-067
SCALE: 3/8"= 1'-0"



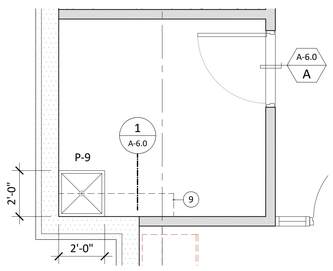
TOILET BLOW-UP PLAN
SPACES 3-070 & 3-073
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 3-090
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACES 3-095 & 3-097
SCALE: 3/8"= 1'-0"



JANITOR BLOW-UP PLAN
SPACE 3-098
SCALE: 3/8"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: JULY 2026
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SCALE: AS SHOWN

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NO.	DATE	DESCRIPTIONS

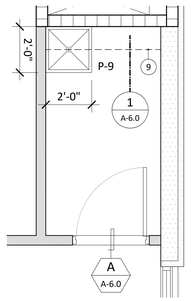
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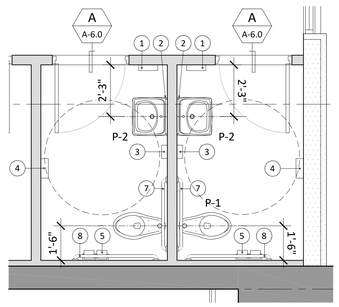
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PLUMBING FIXTURES - THIRD LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00909

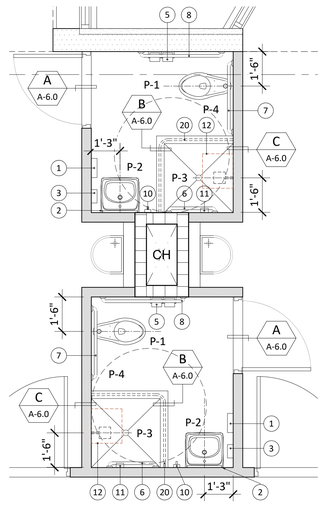
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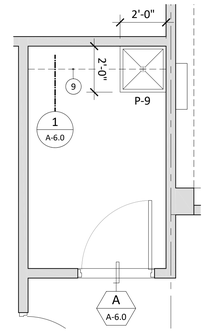
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SPACE 4-001
SCALE: 3/8"= 1'-0"



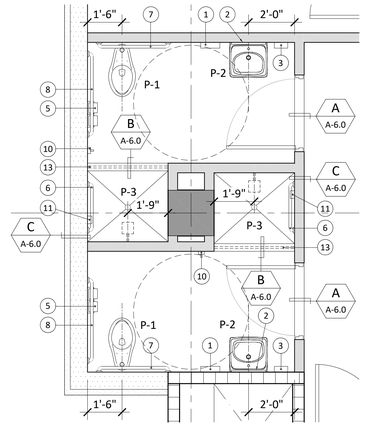
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SPACES 4-004 & 4-005
SCALE: 3/8"= 1'-0"



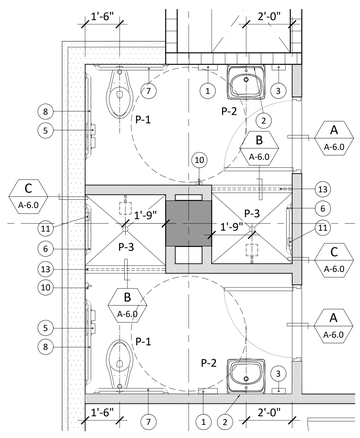
TOILET BLOW-UP PLAN
SPACES 4-014 & 4-015
(SPACES 4-018 & 4-019, 4-023 & 4-024,
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SCALE: 3/8"= 1'-0"



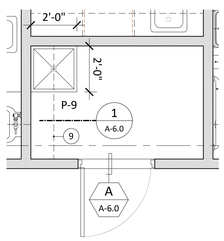
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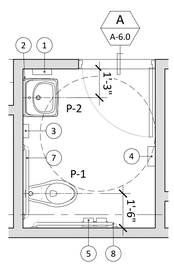
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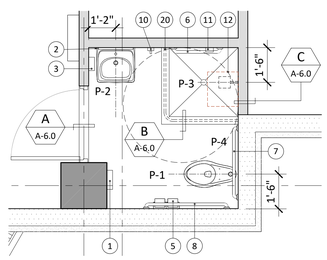
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SPACES 4-041 & 4-101
SCALE: 3/8"= 1'-0"



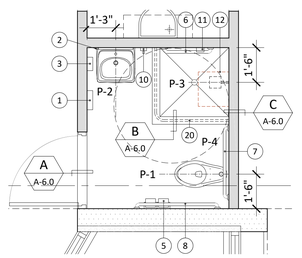
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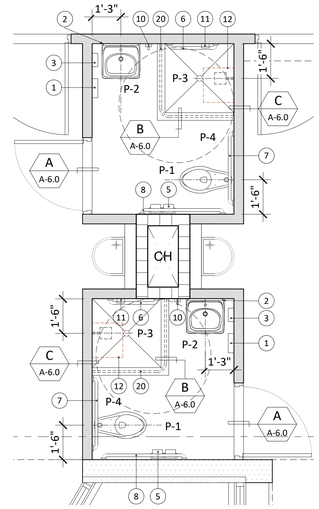
TOILET BLOW-UP PLAN
SPACE 4-060
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 4-073
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 4-078
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACES 4-082 & 4-083
(SPACES 4-087 & 4-088,
4-091 & 4-092, 4-095 & 4-096 EQUAL)
SCALE: 3/8"= 1'-0"

NOTES:
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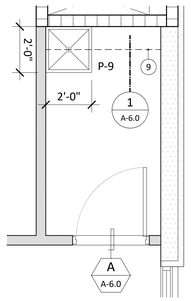
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PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

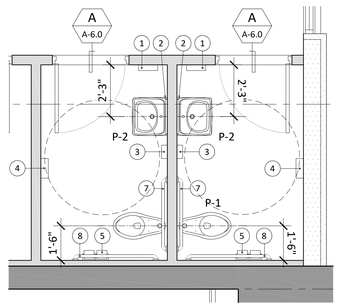
SHEET TITLE:
PLUMBING FIXTURES - FOURTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

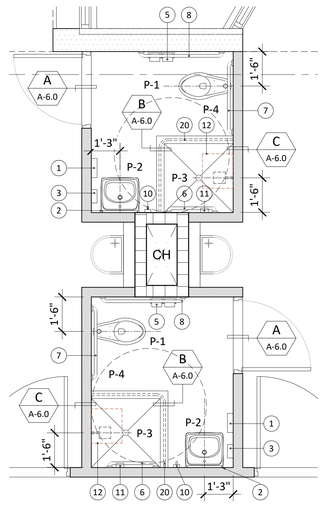
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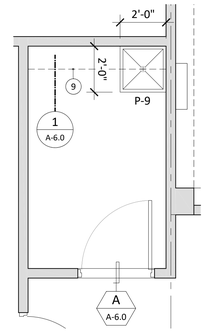
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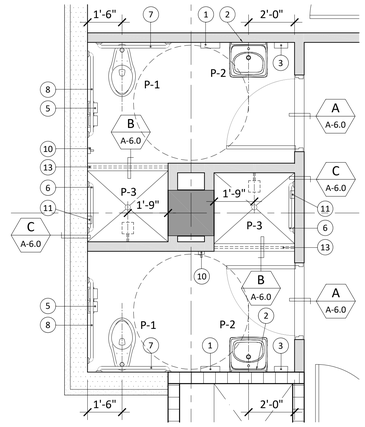
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SPACES 5-004 & 5-005
SCALE: 3/8"= 1'-0"



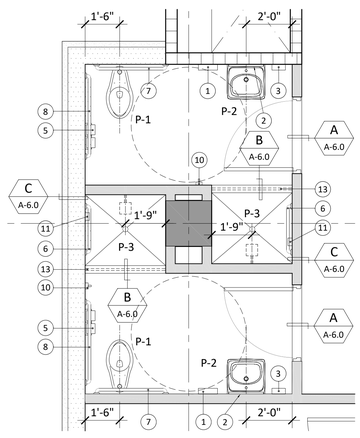
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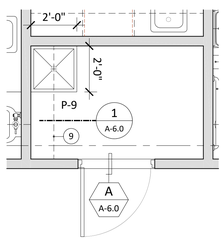
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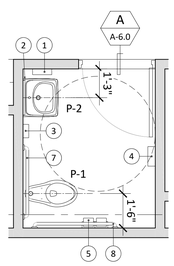
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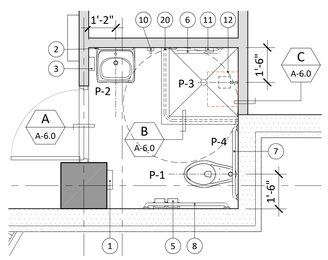
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SPACES 5-041 & 5-101
SCALE: 3/8"= 1'-0"



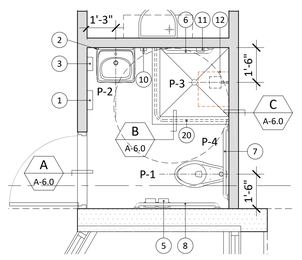
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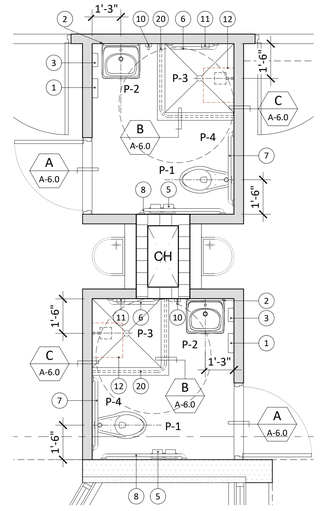
TOILET BLOW-UP PLAN
SPACE 5-060
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 5-073
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 5-078
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACES 5-082 & 5-083
(SPACES 5-087 & 5-088,
5-091 & 5-092, 5-095 & 5-096 EQUAL)
SCALE: 3/8"= 1'-0"

NOTES:
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NO.	DATE	DESCRIPTIONS

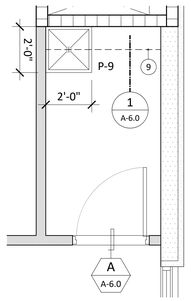
DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

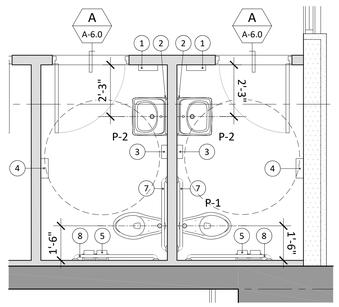
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PLUMBING FIXTURES - FIFTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00909

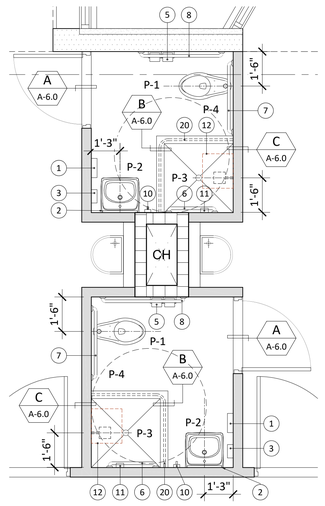
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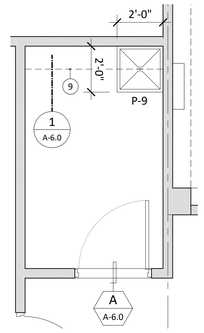
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SPACE 6-001
SCALE: 3/8"= 1'-0"



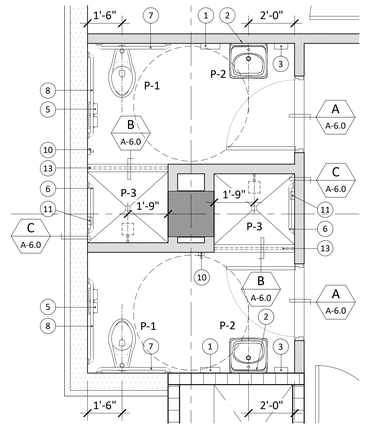
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SPACES 6-004 & 6-005
SCALE: 3/8"= 1'-0"



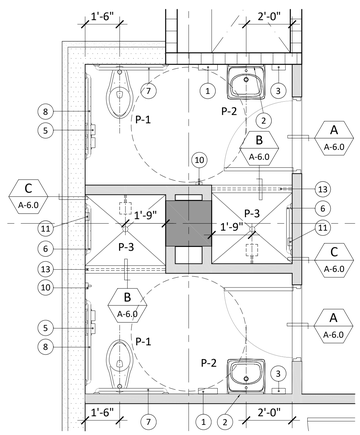
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SPACES 6-014 & 6-015
(SPACES 6-018 & 6-019, 6-023 & 6-024,
6-027 & 6-028, 6-031 & 6-033 EQUAL)
SCALE: 3/8"= 1'-0"



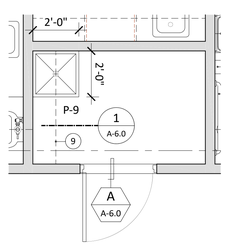
JANITOR BLOW-UP PLAN
SPACE 6-035
SCALE: 3/8"= 1'-0"



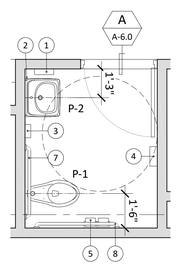
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SPACES 6-038 & 6-040
SCALE: 3/8"= 1'-0"



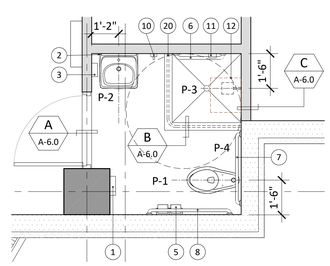
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SPACES 6-041 & 6-101
SCALE: 3/8"= 1'-0"



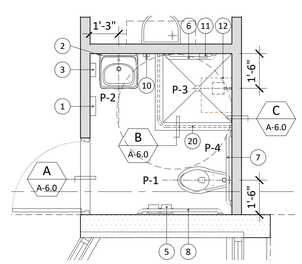
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SPACE 6-059
SCALE: 3/8"= 1'-0"



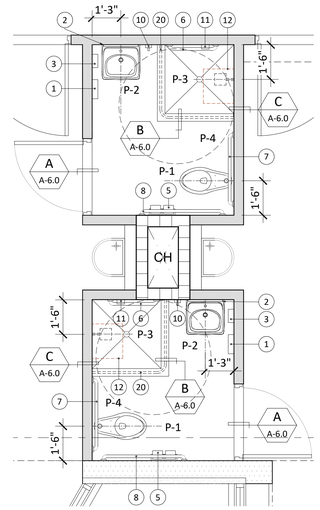
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SPACE 6-060
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 6-073
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 6-078
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACES 6-082 & 6-083
(SPACES 6-087 & 6-088,
6-091 & 6-092, 6-095 & 6-096 EQUAL)
SCALE: 3/8"= 1'-0"

NOTES:
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  NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE INCOMPLETE FOR CONSTRUCTION OBJECTIVES. DESIGN-BUILT, PERFORMANCE CRITERIA, AND MECHANICAL/ELECTRICAL/PLUMBING (MEP) SYSTEMS ARE NOT FINALIZED. THESE DOCUMENTS ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION PURPOSES. THEY ARE INTENDED ONLY TO SERVE AS A FRAMEWORK FOR GUIDANCE FOR THE DESIGN-BUILD ENTITY. THE SELECTED DESIGN-BUILD ENTITY WILL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL ALSO BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND APPROVALS. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, AND TECHNICAL INFORMATION CONTAINED HEREIN, AND SHALL NOT RELY ON THESE DOCUMENTS FOR ANY PURPOSE. THE DESIGN-BUILD ENTITY MAY MAKE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES ONLY AT ITS OWN RISK AND WITHOUT LIABILITY TO DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS.

NO. | DATE | DESCRIPTIONS

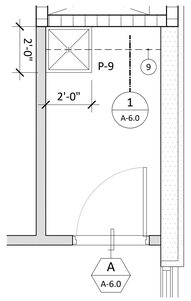
THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. THEY ARE NOT TO BE USED IN WHOLE OR IN PART, FOR ANY OTHER PROJECT AND ARE NOT TO BE ASSIGNED TO ANY THIRD PARTY WITHOUT THE EXPRESS WRITTEN CONSENT OF DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. THESE DOCUMENTS ARE TO BE USED SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES WHO HAVE BEEN AUTHORIZED AND EMPOWERED TO DO SO BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. ANY UNAUTHORIZED USE, REUSE, MODIFICATION, DISCLOSURE, REPRODUCTION, ALTERATION, OR ADAPTATION OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS STRICTLY PROHIBITED AND MAY RESULT IN LEGAL ACTION. ANY UNAUTHORIZED MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS.

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

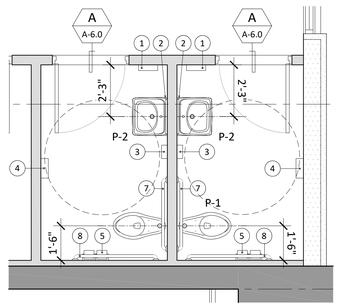
SHEET TITLE:
PLUMBING FIXTURES - SIXTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00909

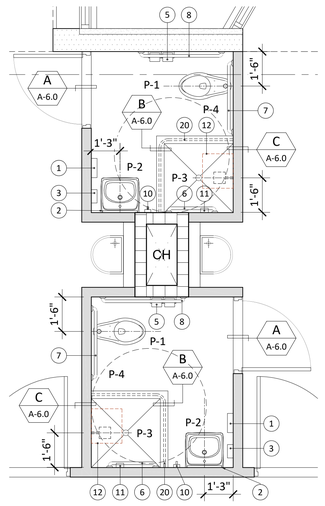
DRAWING NUMBER
A-6.8



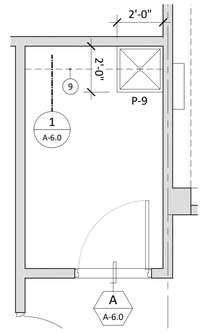
JANITOR BLOW-UP PLAN
SPACE 7-001
SCALE: 3/8"= 1'-0"



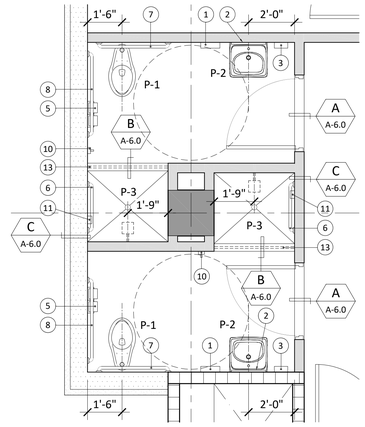
TOILET BLOW-UP PLAN
SPACES 7-003 & 7-004
SCALE: 3/8"= 1'-0"



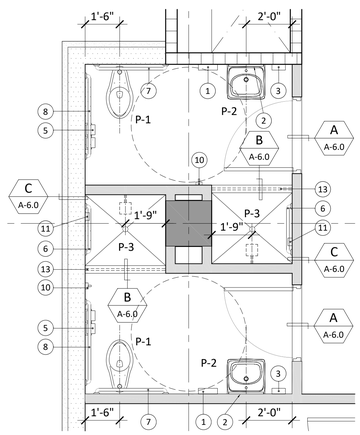
TOILET BLOW-UP PLAN
SPACES 7-013 & 6-015
(SPACES 7-018 & 7-019, 7-022 & 7-024,
7-027 & 7-028, 7-031 & 7-032 EQUAL)
SCALE: 3/8"= 1'-0"



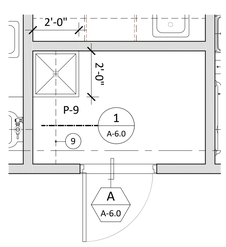
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SCALE: 3/8"= 1'-0"



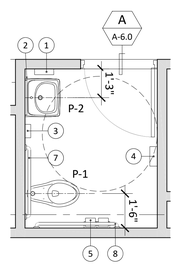
TOILET BLOW-UP PLAN
SPACES 7-038 & 7-040
SCALE: 3/8"= 1'-0"



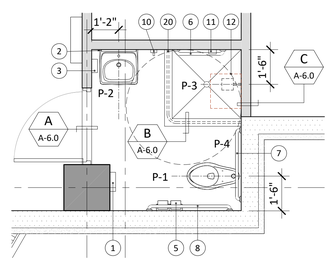
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SPACES 7-041 & 7-042
SCALE: 3/8"= 1'-0"



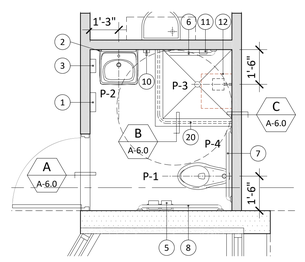
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SPACE 7-062
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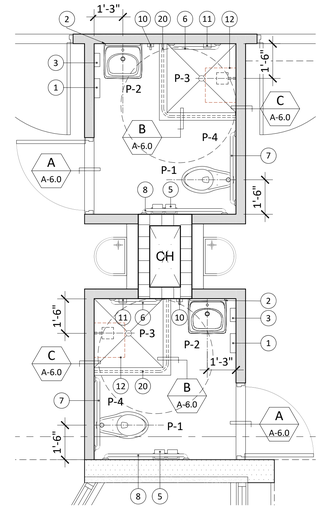
TOILET BLOW-UP PLAN
SPACE 7-064
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 7-080
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 7-083
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACES 7-086 & 7-087
(SPACES 7-090 & 7-091,
7-094 & 7-095, 7-098 & 7-099 EQUAL)
SCALE: 3/8"= 1'-0"

NOTES:
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DATE: JULY 2026
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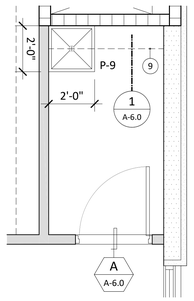
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PROJECT:
PUERTO RICO TRAUMA HOSPITAL
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SAN JUAN, PUERTO RICO

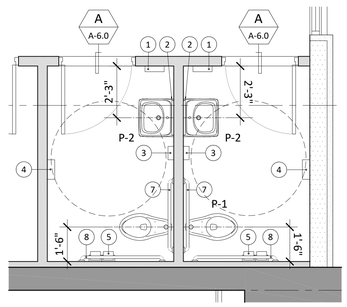
SHEET TITLE:
PLUMBING FIXTURES - SEVENTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

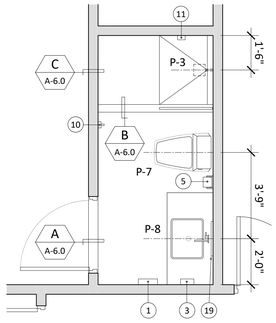
DRAWING NUMBER
A-6.9



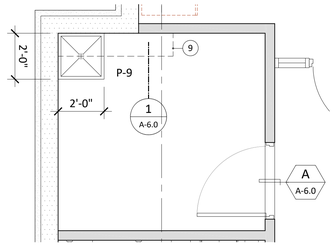
JANITOR BLOW-UP PLAN
SPACE 8-001
SCALE: 3/8"= 1'-0"



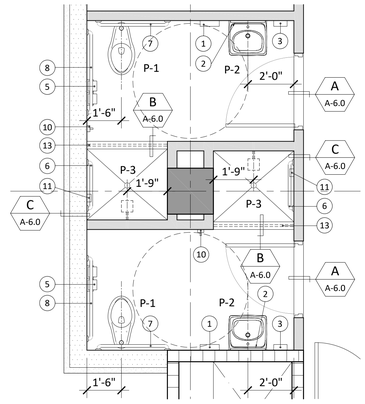
TOILET BLOW-UP PLAN
SPACES 8-004 & 8-005
SCALE: 3/8"= 1'-0"



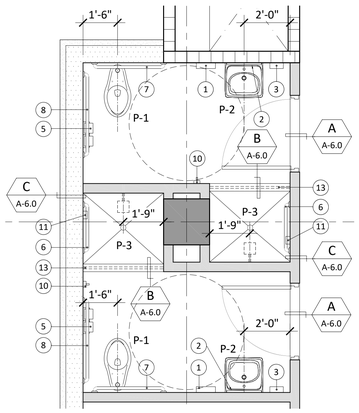
TOILET BLOW-UP PLAN
SPACE 8-022
SCALE: 3/8"= 1'-0"



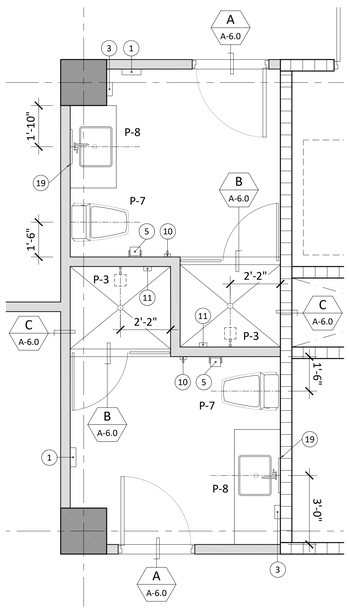
JANITOR BLOW-UP PLAN
SPACE 8-038
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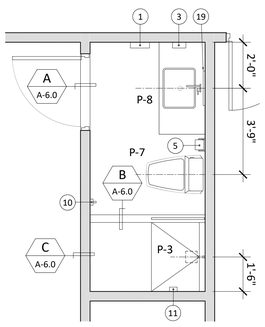
TOILET BLOW-UP PLAN
SPACES 8-040 & 8-041
SCALE: 3/8"= 1'-0"



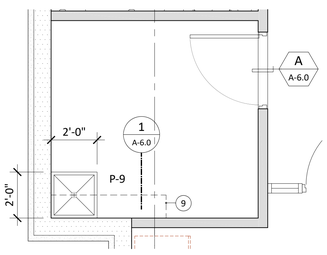
TOILET BLOW-UP PLAN
SPACES 8-042 & 8-043
SCALE: 3/8"= 1'-0"



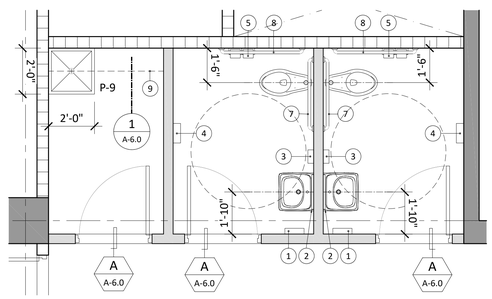
TOILET BLOW-UP PLAN
SPACES 8-056 & 8-058
SCALE: 3/8"= 1'-0"



TOILET BLOW-UP PLAN
SPACE 8-073
SCALE: 3/8"= 1'-0"



JANITOR BLOW-UP PLAN
SPACE 8-085
SCALE: 3/8"= 1'-0"



JANITOR & TOILETS BLOW-UP PLAN
SPACE 9-011, 9-012, 9-013
SCALE: 3/8"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

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NO.	DATE	DESCRIPTIONS

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PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
PLUMBING FIXTURES - EIGHTH & NINTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1580 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER
A-6.10

LEGEND OF FINISHES

FLOORING

ID. NO.	TYPE	DESCRIPTION	REMARKS
PCF	CEMENT	CEMENT TOPPING WITH A LIGHT ABBRASIVE MACHINE POLISHED TROWEL FINISHED WITH EPOXY PAINT FLOOR GRADE PRO-INDUSTRIAL PRE-CATALIZED	
SSR-1	URETHANE FLOORING	URETHANE FLOORING SYSTEM (3mm TO 5mm)	COLOR TO BE SELECTED BY ARCHITECT
SSR-2	URETHANE FLOORING	RTZ2 RESILIENT URETHANE FLOORING SYSTEM (3mm TO 5mm)	COLOR TO BE SELECTED BY ARCHITECT
MET	MONOLITHIC TROWEL EPOXY TERRAZO	MONOLITHIC TROWEL EPOXY TERRAZO SLURRY WITH EPOXY CHIPS ADDITIVES WITH SANITARY ANTIMICROBIAL & NON-SLIP ADDITIVES.	COLOR TO BE SELECTED BY ARCHITECT
PFS	PROTECT - ALL FLOORING SYSTEM	SLIP RESISTANT VINYL FLOORING (3/8" THICK/ COLOR CITYSCAPE) WITH CHEMICAL WELDING INSTALLATION.	COLOR TO BE SELECTED BY ARCHITECT
ETM	EPOXY TERRAZZO FLOORING WITH MARBLE AGGREGATES	EPOXY TERRAZZO THINSET 3/8" RESIN VENEER FLOOR OVER LEVELED CONCRETE SLAB TOPPING. SHALL HAVE #O & #1 AGGREGATE SIZE (50% BLACK & 50% TRAVERTINE MARBLE), CRACK SUPPRESION MEMBRANE, AND DIVIDER STRIPS 5'-0" SPACED ON CENTERS.	COLOR TO BE SELECTED BY ARCHITECT
ETG	EPOXY TERRAZZO FLOORING WITH GLASS AGGREGATES	EPOXY TERRAZZO THINSET 3/8" RESIN VENEER FLOOR OVER LEVELED CONCRETE SLAB TOPPING. SHALL HAVE #O & #1 AGGREGATE SIZE (50% BLACK & 50% BLUE GLASS), CRACK SUPPRESION MEMBRANE, AND DIVIDER STRIPS 5'-0" SPACED ON CENTERS.	COLOR TO BE SELECTED BY ARCHITECT
ETS	EPOXY TERRAZZO FLOORING WITH SYNTHETIC BLACK AGGREGATES	EPOXY TERRAZZO THINSET 3/8" RESIN VENEER FLOOR OVER LEVELED CONCRETE SLAB TOPPING. SHALL HAVE #O & #1 BLACK AGGREGATE SIZE, CRACK SUPPRESION MEMBRANE, AND DIVIDER STRIPS 5'-0" SPACED ON CENTERS.	COLOR TO BE SELECTED BY ARCHITECT
BCF	CEMENT	BRUSHED CEMENT FINISH	
HTP	HELIPAD TEXTURED PAINT	HELIPAD NON-SLIP, WATERPROOF PAINT, WITH ADDED SILICA SAND.	COLOR TO BE SELECTED BY ARCHITECT
PCB	CEMENT	POLISHED CEMENT WITH BULLNOSE FINISH	
CT-1	CERAMIC TILE	FULL BODY RECTIFIED 24"X24" SPACING LESS THAN 1/16"	COLOR TO BE SELECTED BY ARCHITECT
FP	FLOOR PATTERN		COLOR TO BE SELECTED BY ARCHITECT

WALLS

ID. NO.	TYPE	DESCRIPTION	REMARKS
SPP-1	SMOOTH GYPSUM BOARD PLASTER & PAINTED	PAINTED EG-SHEL FINISH	COLOR TO BE SELECTED BY ARCHITECT
SPP-2	SMOOTH PLASTER & PAINTED	SMOOTH PLASTER FINISH WITH WATER BASED EPOXY CLEAN ROOM PAINT FINISH	COLOR TO BE SELECTED BY ARCHITECT
EFT	EQUAL TO FLOOR TILE	(UP TO CEILING HEIGHT)	
GMU	GERFLOR - MURAL WALL	WALL COVERING UP TO CEILING HEIGHT	COLOR TO BE SELECTED BY ARCHITECT
CGC	COMBINATION	COMBINATION OF SMOOTH CEMENT & GYPSUM BOARD PLASTER FINISH.	
SCF	SMOOTH CEMENT PLASTER FINISH	SMOOTH CONCRETE FINISH	COLOR TO BE SELECTED BY ARCHITECT
VWP	VYNIL WALL PROTECTION	WALL COVERING UP TO CEILING HEIGHT	
CT-2	CERAMIC TILE	FULL BODY RECTIFIED 24"X24" SPACING LESS THAN 1/16"	
SPM	GERFLOR SPM - MURAL WALL	WALL COVERING UP TO CEILING HEIGHT	
WMW	WAINSCOT METAL MURAL WALL	WALL COVERING UP TO CEILING HEIGHT	
RFWP	RICOCHET FLEXIBLE WALL PROTECTION	WALL COVERING UP TO CEILING HEIGHT	

BASE

ID. NO.	TYPE	DESCRIPTION	REMARKS
CCB	CONTINUOS COVE BASE	6" CONTINUOS COVE BASE & MONOLITHIC USING SPECIFIED FLOOR SYSTEM	
VWB	VINYL WALL BASE	4" HIGH VINYL WALL BASE USING SPECIFIED FLOOR SYSTEM	COLOR TO BE SELECTED BY ARCHITECT

CEILING

ID. NO.	TYPE	DESCRIPTION	REMARKS
AP-1	ACOUSTIC PANEL	24"X 24" TEGULAR LAY-IN CEILING SYSTEM	
AP-2	ACOUSTIC PANEL	24" X 24" CLEAN ROOM SQUARE LAY-IN GASKETED CEILING TILES ON REQUIRED CLEAN ROOM SUSPENSION SYSTEM ASSEMBLY	
AP-3	ACOUSTIC PANEL	30" X 30" WOODWORK TECHZONE PANELS (UNPERFORATED) (RIFT WHITE OAK)	
AP-4	ACOUSTIC PANEL	WOODWORKS LINEAR VENEERED CLOSED, SUSPENDED CEILING (RIFT WHITE OAK)	
AP-5	ACOUSTIC PANEL	SUSPENDED CEILING ASSEMBLY	
EXS	EXPOSED STRUCTURE	EXPOSED STRUCTURE PAINTED	
GB-1	GYPSUM BOARD	5/8" GYPSUM BOARD PLASTERED & PAINTED CEILING SYSTEM	
GB-2	GYPSUM BOARD	5/8" MOISTURE RESISTANT GYPSUM BOARD WITH WATER BASED EPOXY CLEAN ROOM PAINT FINISH	
GB-3	GYPSUM BOARD	5/8" GYPSUM BOARD WITH WATER BASED EPOXY CLEAN ROOM PAINT FINISH	
GB-4	GYPSUM BOARD	5/8" MOISTURE RESISTANT GYPSUM BOARD PLASTERED & PAINTED EG-SHEL FINISH.	
GAC	COMBINATION	SPECIFIED ACOUSTIC TILE AND GYPSUM BOARD CEILING SYSTEM COMBINATION	
CPP	CEMENT PLASTER PAINTED	SMOOTH CEMENT PLASTER PAINTED	
DU	DUROCK	EXTERIOR CEMENT BOARD SYSTEM	
SWF	SYNTHETIC WOOD FINISH		

SUPPLEMENTARY FINISH NOTES:

1. EPOXY PAINT PRE-CATALYZED WATER BASED EPOXY. EG-SHELL FINISH. COLOR TO BE SELECTED BY ARCHITECT.
2. ALL WALLS SPECIFIED MURAL WALL COVERING FINISH SHALL BE INSTALLED ON MOISTURE RESISTANT GYPSUM BOARD.
3. ALL FLOORS SPECIFIED WITH RESILIENT URETHANE FLOORING SYSTEM SHALL BE LEVELED WITH THE APPLICATION OF A SELF-LEVELING TOPPING BEFORE INSTALLATION OF FLOOR FINISH.

GENERAL FINISH NOTES:

A - CERAMIC TILES:
1. ALL CERAMIC TILES SHALL BE FHA APPROVED. (FIRST QUALITY)
2. ALL CERAMIC TILES SHALL BE RECTIFIED WITH VERY PRECISE TOLERANCE. (FIRST QUALITY - COMMERCIAL GRADE)
3. ALL CERAMIC TILES QUALITY , TEXTURE, AND COLOR TO BE SELECTED & APPROVED BY OWNER.
4. CERAMIC & GLAZED TILES COLOR , PATTERN & SIZES TO BE SELECTED BY THE ARCHITECT.
5. SUBMIT SAMPLES OF ALL CERAMIC TILES FOR ARCHITECT'S APPROVAL.

B - WOOD:
1. ALL WOOD DOORS & FRAMES SHALL BE FINISHED WITH SEALER & 2 COATS OF ENAMEL PAINT, SHALL BE SHOP PAINTED.

C - METAL:
1. ALL METALS, INCLUDING BUT NOT LIMIT TO DOORS, FRAMES, HANDRAILS, GUARDRAILS, ETC., SHALL BE PRIMED & SHOP PAINTED.
2. SUBMIT RAILINGS SHOP DRAWINGS.

D - OPENINGS:
1. ALL FINAL MASONRY OPENINGS DIMENSIONS FOR WINDOWS & DOORS SHALL BE CHECKED & VERIFIED AT JOB SITE PRIOR TO CONSTRUCTION ORDER FOR WINDOWS & DOORS.
2. SUBMIT SAMPLE OF MARBLE SADDLE FOR ARCHITECT'S APPROVAL.

E - INTERIOR PAINT:
1. INTERIOR PAINT SHALL BE TWO COATS.
2. ALL PAINT COLOR TO BE SELECTED BY ARCHITECT.

F - WALLS:
1. ALL EXISTING WALLS TO REMAIN SHALL BE STRIPPED, REPAIRED AND PATCHED TO CREATE A SMOOTH FINISH FOR PAINT APPLICATION.
2. GYPSUM BOARD WALL FURRING SHALL BE ADDED ON ALL EXISTING WALLS TO REMAIN INSIDE THE PROJECT LIMIT.
3. ALL WALL TILE FINISHES SHALL BE EXTENDED UP TO FINISHED CEILING LEVEL AS INDICATED IN DRAWINGS.
4. ALL NEW INTERIOR AND EXTERIOR CONSTRUCTED SURFACES SHALL HAVE A SMOOTH PLASTER & PAINT FINISH.

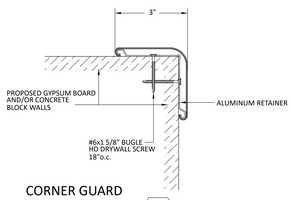
G - FLOORS:
1. EXISTING FLOOR FINISHES SHALL BE REMOVED. EXISTING FLOOR SUBSTRATE SHALL BE REPAIRED, SEALED AND LEVELED FOR PROPER INSTALLATION OF NEW FINISHES.
2. WHERE REQUIRED FOR PROPER LEVELING OF SPECIFIED FLOOR FINISHES, LEVEL-RIGHT SELF-LEVELING CEMENTITIOUS FLOOR UNDERLAYMENT SHALL BE USED.
3. WHERE REQUIRED FOR PROPER CEMENTITIOUS BONDING, ACRYLIC LATEX BONDING AGENT AND ADMIXTURE SHALL BE USED.
4. APPLY VAPOR BARRIER OVER EXISTING CONCRETE SUBFLOOR WHERE REQUIRED TO CONTROL HUMIDITY AND IN ALL SPECIFIED AREAS.
5. ALL NEW SLABS ON GRADE OR OVER EXISTING FLOOR SLABS SHALL BE TREATED WITH A VAPOR BARRIER SYSTEM TO CONTROL HUMIDITY.

H - EXTERIOR PAINT:
1. ONE COAT OF PRIMER (WHITE). TWO COATS DURA-CRAFT EXTERIOR 100% ACRYLIC FLAT B2 SERIES (WITH M-1 MILDEW ADDITIVE).

I - PARKING BUILDING:
1. ALL PARKING SPACES STRIPES, ROADWAY CIRCULATION STRIPES, CROSSING AND/OR WALKWAYS STRIPES AND HANDICAPPED SIMBOLS, LAYOUTS SHOWN IN THE PLANS, SHALL BE PAINTED WHITE WITH A FULL EVEN COAT OF HEAVYDUTY ROADWAY TRAFFIC PAINT.
2. ALL PARKING SPACES SHALL HAVE A PRECAST WHEEL STOP AS PER DETAILS 20/AS-1.3 AND 21/AS-1.3.
3. THE FINISHED FLOOR ELEVATION LEVEL OF THE PARKING FLOOR DECKS SHALL MATCH FLUSH ABUTTING TO THE SAME LEVEL OF THE EXISTING AND/OR PROPOSED ADJACENT AND CONNECTING BUILDING AS LAID OUT IN THE PLANTS.

J - GENERAL:
1. COLORS, TEXTURES AND TYPE OF ALL SPECIFIED FINISHES SHALL BE SELECTED BY THE ARCHITECT FROM THE SPECIFIED BRAND NAMES.
2. "OR EQUAL" SUBSTITUTIONS SHALL BE ALLOWED FOR ALL SPECIFIED BRAND NAMES. SUBSTITUTIONS OF COMPARABLE PRODUCTS ARE ALLOWED WHEN QUALITY & PERFORMANCE ARE NOT COMPROMISED. SUBSTITUTION REQUESTS MUST BE SUBMITTED PRIOR TO THE BID & WILL BE EVALUATED AND IF ACCEPTED, WILL BE INCLUDED IN THE FORM OF AN ADDENDUM. "OR EQUAL" REFERS TO ANY MATERIAL OR EQUIPMENT THAT WILL FULLY PERFORM THE DUTIES SPECIFIED, IS EQUIVALENT IN PERFORMANCE & QUALITY & CARRIES PROOF OF SUCH EQUIVALENCY. ALL PRODUCTS TO BE SUBSTITUTED MUST BE APPROVED BY ARCHITECT PRIOR TO SUBSTITUTION.
3. CONTRACTOR MUST VERIFY CONGRUENCE BETWEEN PRODUCT NUMBER AND PRODUCT NAME PRIOR TO PURCHASING/INSTALLING MATERIAL. ANY DISCREPANCIES SHALL BE PRESENTED TO ARCHITECT FOR CLARIFICATION.
4. THE INTERIOR SURFACE OF ALL WALLS OF SPACES FACING EARTHFILL ALONG PERIMETER OF PROJECT LIMIT SHALL HAVE A SPRAYED-ON WATER PROOFING TREATMENT CEMENT BASE BARRIER COATING EQUAL TO CHEM-MASTER,CHEM-SEAL.
5. THE EXTERIOR FACE OF ALL WALLS FACING EARTHFILL SHALL BE TREATED WITH A VAPOR BARRIER SYSTEM AND WATERPROOFING PANEL FORMWORK LEAVE-IN ASSEMBLY.
6. FULL SPACE ENCLOSURE (WALLS AND CEILINGS) SHALL BE TREATED AS REQUIRED WITH NOISE ABATEMENT SYSTEM TO ENSURE THAT ADJACENT SPACES (HORIZONTALLY AND VERTICALLY) DO NOT GET MORE THAN 85 DECIBELS (dB) OF SOUND TRANSMISSION. USING A NOISE ABATEMENT SYSTEM EQUAL OR SIMILAR TO KINETICS NOISE CONTROL INC.

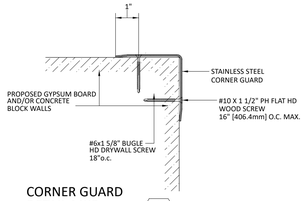
NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.



CORNER GUARD DETAIL MKD. 1 A-7.0

NOT TO SCALE

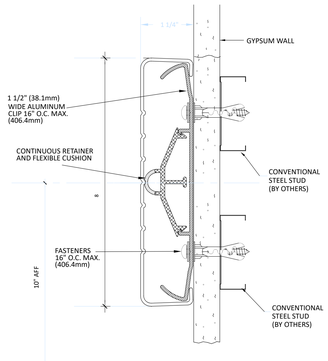
NOTES:
1. APPLIES ON ALL EXTERIOR CORNERS OF SPACES INDICATED IN FINISH SCHEDULE SHEETS A-7.0 TO A-7.10.
2. CORNER GUARD SHALL BE 4'-6" HIGH ABOVE FINISHED FLOOR.



CORNER GUARD DETAIL MKD. 2 A-7.0

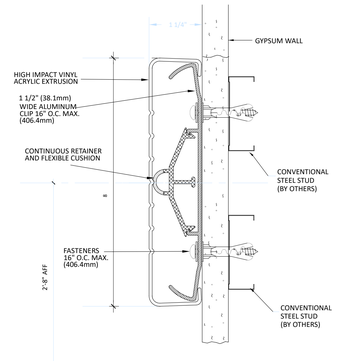
NOT TO SCALE

NOTES:
1. APPLIES ON ALL EXTERIOR CORNERS OF SPACES INDICATED IN FINISH SCHEDULE SHEETS A-7.0 TO A-7.10.
2. CORNER GUARD SHALL BE 4'-6" HIGH ABOVE FINISHED FLOOR.



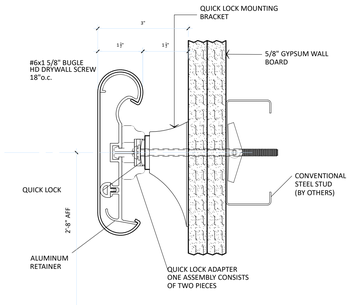
WALLGUARD DETAIL MKD. 3 A-7.0

NOT TO SCALE



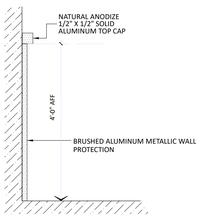
WALLGUARD DETAIL MKD. 4 A-7.0

NOT TO SCALE



HANDRAIL DETAIL MKD. 5 A-7.0

NOT TO SCALE



WALL PROTECTION DETAIL MKD. 6 A-7.0

NOT TO SCALE

DATE : JULY 2020
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION PURPOSES. THEY ARE INCOMPLETE AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, PROCUREMENT, OR CONSTRUCTION. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL USE THESE DOCUMENTS ONLY AS GUIDANCE FOR THE DESIGN-BUILD ENTITY'S SELECTED DESIGN-BUILD CRITERIA PACKAGE. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL USE THESE DOCUMENTS ONLY AS GUIDANCE FOR THE DESIGN-BUILD ENTITY'S SELECTED DESIGN-BUILD CRITERIA PACKAGE. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL USE THESE DOCUMENTS ONLY AS GUIDANCE FOR THE DESIGN-BUILD ENTITY'S SELECTED DESIGN-BUILD CRITERIA PACKAGE. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL USE THESE DOCUMENTS ONLY AS GUIDANCE FOR THE DESIGN-BUILD ENTITY'S SELECTED DESIGN-BUILD CRITERIA PACKAGE. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL USE THESE DOCUMENTS ONLY AS GUIDANCE FOR THE DESIGN-BUILD ENTITY'S SELECTED DESIGN-BUILD CRITERIA PACKAGE. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL USE THESE DOCUMENTS ONLY AS GUIDANCE FOR THE DESIGN-BUILD ENTITY'S SELECTED DESIGN-BUILD CRITERIA PACKAGE. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL USE THESE DOCUMENTS ONLY AS GUIDANCE FOR THE DESIGN-BUILD ENTITY'S SELECTED DESIGN-BUILD CRITERIA PACKAGE. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL USE THESE DOCUMENTS ONLY AS GUIDANCE FOR THE DESIGN-BUILD ENTITY'S SELECTED DESIGN-BUILD CRITERIA PACKAGE. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL USE THESE DOCUMENTS ONLY AS GUIDANCE FOR THE DESIGN-BUILD ENTITY'S SELECTED DESIGN-BUILD CRITERIA PACKAGE. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL USE THESE DOCUMENTS ONLY AS GUIDANCE FOR THE DESIGN-BUILD ENTITY'S SELECTED DESIGN-BUILD CRITERIA PACKAGE. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL USE THESE DOCUMENTS ONLY AS GUIDANCE FOR THE DESIGN-BUILD ENTITY'S SELECTED DESIGN-BUILD CRITERIA PACKAGE.

NO. | DATE | DESCRIPTIONS

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PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SCHEDULE OF FINISHES & NOTES

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1580 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER

A-7.0

SCHEDULE OF FINISHES

BASEMENT LEVEL

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
0-000	BIO-SECURITY STORAGE	PFC		CCB							SCF					EXS	
0-001	SERVICE CORRIDOR	PFC		CCB	A.W.				A.C.		SCF					EXS	SEE DETAIL 2 & 6 (A-7.0)
0-002	GENERAL WASTE	PFC		CCB							SCF					EXS	
0-003	STAIR	PCB		-----							SCF					EXS	
0-004	SERVICE YARD	PFC		-----							-----					-----	
0-005	FIRE PUMP ROOM	PFC		CCB							SCF					EXS	
0-006	SERVICE CORRIDOR	PFC		CCB	A.W.				A.C.		SCF					EXS	SEE DETAIL 2 & 6 (A-7.0)
0-007	SUB-STATION	PFC		CCB					A.C.		SCF					EXS	SEE NOTE 6 (A-7.0)
0-008	PORTABLE WATER PUMP ROOM	PFC		CCB							SCF					EXS	
0-009	VACUUM PUMP MEDICAL AIR	PFC		CCB							SCF					EXS	
0-010	MEDICAL GAS	PFC		CCB							SCF					EXS	
0-011	ACCESS CORRIDOR	PFC		CCB	A.W.				A.C.		SCF					EXS	SEE DETAIL 2 & 6 (A-7.0)
0-012	GENERATOR ROOM	PFC		CCB					A.C.		SCF					EXS	SEE DETAIL 2 (A-7.0)
0-013	GENERATOR ROOM	PFC		CCB					A.C.		SCF					EXS	SEE NOTE 6 (A-7.0)
0-014	PARALLELING	PFC		CCB					A.C.		SCF					EXS	SEE DETAIL 2 (A-7.0)
0-015	MAIN GENERAL STORAGE	PFC		CCB					A.C.		SCF					EXS	SEE DETAIL 2 (A-7.0)
0-016	MAIN GENERAL STORAGE	PFC		CCB					A.C.		SCF					EXS	SEE DETAIL 2 (A-7.0)
0-017	ELECTRICAL	PFS		CCB							GMU					AP-1	
0-018	LOCKERS	PFS		CCB							GMU					AP-1	
0-019	TOILET	PFS		-----							SCF/CT-2					AP-1	
0-020	TOILET	PFS		-----							SCF/CT-2					AP-1	
0-021	SEATING AREA	ETG	FP	CCB						A.C.	SCF	RFWP				AP-1 / GB-1	SEE DETAIL 1 (A-7.0)
0-022	RAMP	ETG	FP	CCB							SCF				RFWP	GB-1	
0-023	RAMP	ETG	FP	CCB							SCF					GB-1	
0-024	RAMP	ETG	FP	CCB							SCF					GB-1	
0-025	RAMP	ETG	FP	CCB							SCF					GB-1	
0-026	RAMP	ETG	FP	CCB							SCF					GB-1	
0-027	WASHING	PFS		CCB							GMU					AP-1	
0-028	VESTIBULE	PFS		CCB	A.W.					A.C.	GMU					AP-1	SEE DETAIL 1 (A-7.0)
0-029	JANITOR	PFS		CCB							GMU					AP-1	
0-030	WASTE	PFS		CCB							GMU					AP-1	
0-031	KITCHEN	PFS		CCB						A.C.	GMU					AP-1	SEE DETAIL 1 (A-7.0)
0-032	SERVING AREA	ETM		CCB						A.C.	SCF					AP-1 / GB-1	SEE DETAIL 1 (A-7.0)
0-033	VESTIBULE	PFS		CCB						A.C.	GMU					AP-1	SEE DETAIL 1 (A-7.0)
0-034	DRY STORAGE	PFS		CCB						A.C.	GMU					AP-1	SEE DETAIL 1 (A-7.0)
0-035	FREEZER	PCF		-----							GMU					EXS	
0-036	COOLER	PCF		-----							GMU					EXS	
0-037	SERVICE CORRIDOR	PFC		CCB	A.W.				A.C.		SCF					EXS	SEE DETAIL 2 & 6 (A-7.0)
0-038	MAIN CHILLER ROOM	PFC		CCB					A.C.		SCF					EXS	SEE NOTE 6 (A-7.0)
0-039	SERVICE CORRIDOR	PFC		CCB	A.W.				A.C.		SCF					EXS	SEE DETAIL 2 & 6 (A-7.0)
0-040	HOT WATER GENERATOR	PFC		CCB					A.C.		SCF					EXS	SEE DETAIL 2 (A-7.0)
0-041	SERVICE CORRIDOR	PFC		CCB	A.W.				A.C.		SCF					EXS	SEE DETAIL 2 & 6 (A-7.0)
0-042	CYLINDER STORAGE	PFC		CCB					A.C.		SCF					EXS	SEE DETAIL 2 (A-7.0)
0-043	MATERIAL STORAGE	PFC		CCB							SCF					EXS	
0-044	SERVICE CORRIDOR	PFC		CCB	A.W.				A.C.		SCF					EXS	SEE DETAIL 2 & 6 (A-7.0)
0-045	SUPPLY STORAGE	PFC		CCB					A.C.		SCF					EXS	SEE DETAIL 2 (A-7.0)
0-046	OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-047	LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-048	LACTATION	ETM		CCB							SPP-1					AP-1	
0-049	JANITOR	ETS		CCB							SPP-1					AP-1	
0-050	CORRIDOR	ETS		CCB	A.W.					A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 & 6 (A-7.0)
0-051	TOILET	ETS		-----							SCF/CT-2					AP-1	
0-052	TOILET	ETS		-----							SCF/CT-2					AP-1	
0-053	MAIN. COMM	ETS		CCB							SCF					AP-1	
0-054	WATSON ROOM	ETM		CCB							SCF/SPP-1					AP-1	
0-055	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
0-056	ASSISTANT	ETM		CCB							SPP-1					AP-1	
0-057	CORRIDOR	ETS		CCB	A.W.						SCF/SPP-1					AP-1	
0-058	ASSISTANT	ETM		CCB							SPP-1					AP-1	
0-059	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
0-060	BATHROOM	ETS/CT-1		CCB							EFT/CT-2					GB-4	
0-061	RESTING RM	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-062	RESTING RM	ETM		CCB							SCF/SPP-1					AP-1	
0-063	LIVING AREA	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-064	RESTING RM	ETM		CCB							SCF/SPP-1					AP-1	
0-065	RESTING RM	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-066	RESTING RM	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-067	RESTING RM	ETM		CCB							SCF/SPP-1					AP-1	
0-068	RESTING RM	ETM		CCB							SCF/SPP-1					AP-1	
0-069	TOILET	ETM		-----						A.C.	SCF/CT-2					AP-1	SEE DETAIL 1 (A-7.0)
0-070	PANTRY	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-071	CORRIDOR	ETS		CCB	A.W.						SPP-1					AP-1	SEE DETAIL 6 (A-7.0)
0-072	BATHROOM	ETS/CT-1		-----							EFT/CT-2					GB-4	
0-073	TOILET	ETM		CCB							SCF/CT-2					AP-1	
0-074	DINING ROOM	ETM		CCB						A.C.	SCF/SPP-1					AP-1 / GB-1	SEE DETAIL 1 (A-7.0)
0-075	CORRIDOR	ETG	FP	CCB	A.W.					A.C.	SCF	RFWP				GB-1	SEE DETAIL 1 (A-7.0)
0-076	SEATING AREA	ETG	FP	CCB						A.C.	SCF			RFWP		AP-1 / GB-1	SEE DETAIL 1 (A-7.0)
0-077	STAIRS #2	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
0-078	ELEVATOR LOBBY	ETG		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
0-079	CORRIDOR	ETG		CCB							SCF/SPP-1					AP-1	
0-080	WAITING RECEPTION	ETM		CCB						A.C.	SCF/SPP-1					AP-1 / GB-1	SEE DETAIL 1 (A-7.0)
0-081	CONFERENCE	ETM		CCB						A.C.	SCF/SPP-1					AP-1 / GB-1	SEE DETAIL 1 (A-7.0)
0-082	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
0-083	OFFICE	ETM		CCB							SPP-1					AP-1	
0-084	OFFICE	ETM		CCB							SPP-1					AP-1	
0-085	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1 / GB-1	SEE DETAIL 1 (A-7.0)
0-086	OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-087	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
0-088	OFFICE	ETM		CCB							SPP-1					AP-1	
0-089	A/C	ETS		CCB							SCF					EXS	
0-090	ELECTRICAL	ETS		CCB							SCF					AP-1	
0-091	CORRIDOR	ETM		CCB							SCF/SPP-1					AP-1	
0-092	ASSISTANT	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-093	ASSISTANT	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-094	OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-095	OFFICE	ETM		CCB							SPP-1					AP-1	
0-096	I.T. / TELECOM	PFC		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-097	BATHROOM	SSR-1/CT-1		-----						A.C.	EFT/CT-2					GB-2	SEE DETAIL 1 (A-7.0)
0-098	ANTE-ROOM	SSR-1		CCB							SPP-2					GB-3	
0-099	TRAINING ROOM D	SSR-1		CCB		E.W.	E.W.				GB-3					AP-1	SEE DETAIL 3 & 4 (A-7.0)
0-100	WORK AREA	SSR-1		CCB						A.C.	GB-3					AP-1	SEE DETAIL 1 (A-7.0)
0-101	COMPUTER LAB	ETM		CCB							SCF/SPP-1					AP-1	
0-102	CONFERENCE	ETM		CCB						A.C.	SCF/SPP-1					GB-1/AP-1	SEE DETAIL 1 (A-7.0)

SCHEDULE OF FINISHES

BASEMENT LEVEL - (CONT.)

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
0-103	TRAINING ROOM C	SSR-1		CCB		E.W.	E.W.				GB-3					AP-1	SEE DETAIL 3 & 4 (A-7.0)
0-104	TRAINING ROOM B	SSR-1		CCB		E.W.	E.W.			A.C.	GB-3					AP-1	SEE DETAIL 1,3 & 4 (A-7.0)
0-105	WORK AREA	ETM		CCB						A.C.	GB-1					AP-1	SEE DETAIL 1 (A-7.0)
0-106	CONFERENCE	ETM		CCB						A.C.	SCF/SPP-1					GB-1/AP-1	SEE DETAIL 1 (A-7.0)
0-107	CONFERENCE	ETM		CCB						A.C.	SCF/SPP-1					GB-1/AP-1	SEE DETAIL 1 (A-7.0)
0-108	CORRIDOR	ETM		CCB							SCF/SPP-1					AP-1	
0-109	TRAINING ROOM A	SSR-2		CCB						A.C.	SPM					GB-3	SEE DETAIL 1 (A-7.0)
0-110	BATHROOM	ETS/CT-1		-----						A.C.	EFT/CT-2					GB-4	SEE DETAIL 1 (A-7.0)
0-111	BATHROOM	ETS/CT-1		CCB						A.C.	EFT/CT-2					GB-4	SEE DETAIL 1 (A-7.0)
0-112	PATIENT TRANSPORT	ETM		CCB							SCF/SPP-1					AP-1	
0-113	A/C	ETS		CCB						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
0-114	ELECTRICAL	ETS		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
0-115	STAIRS #1	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
0-116	WORK AREA	ETM		CCB							SPP-1					AP-1	
0-117	OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-118	CLEAN STORAGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
0-119	CORRIDOR	ETM		CCB							SCF/SPP-1					AP-1	
0-120	ELEVATOR LOBBY	ETG		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
0-121	TOILET	ETS		-----							SCF/CT-2					AP-1	
0-122	TOILET	ETS		-----							SCF/CT-2					AP-1	
0-123	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
0-124	SOILED WORK	ETM		CCB							SCF/SPP-1					AP-1	
0-125	LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
0-126	SAMPLING	ETM		CCB							SCF/SPP-1					AP-1	
0-127	CONFERENCE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)

LEGEND

N.W. - NORTH WALL
S.W. - SOUTH WALL
E.W. - EAST WALL
W.W. - WEST WALL
A.W. - ALL WALL
A.C. - ALL CORNERS

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
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PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SCHEDULE OF FINISHES - BASEMENT LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1580 AVE.PONCE DE LEON, STE 103 SAN JUAN PR 00909

DRAWING NUMBER
A-7.1

SCHEDULE OF FINISHES

FIRST LEVEL

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
1-001	ASEM VESTIBULE	ETM		CCB							SCF					AP-1	
1-002	ASEM LOBBY	ETM		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
1-003	RECEPTION	ETG		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-004	WAITING	ETG		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-005	TOILET	ETS		CCB							SCF/CT-2					AP-1	
1-006	TOILET	ETS		CCB							SCF/CT-2					AP-1	
1-007	SOILED WORK	SSR-1		CCB							SPM					AP-2	
1-008	TOILET	ETS		-----							CT-2					AP-2	
1-009	POST-OP CUBICLES	SSR-1		CCB		N.W.	N.W.			A.C.	SPM					AP-2/GB-3	SEE DETAIL 1, 3 & 4 (A-7.0)
1-010	PRE-OP CUBICLES	SSR-1		CCB		N.W.	N.W.				SPM					AP-2/GB-3	SEE DETAIL 3 & 4 (A-7.0)
1-011	CORRIDOR	SSR-1		CCB							SPM					AP-2/GB-3	
1-012	POST-OP CUBICLES	SSR-1		CCB		E.W.	E.W.			A.C.	SPM					AP-2/GB-3	SEE DETAIL 1, 3 & 4 (A-7.0)
1-013	CORRIDOR	SSR-1		CCB		A.W.	A.W.				SPM					AP-2/GB-3	SEE DETAIL 3 & 4 (A-7.0)
1-014	NURSE STATION	SSR-1		CCB		A.W.	A.W.				SPM					AP-2/GB-3	SEE DETAIL 3 & 4 (A-7.0)
1-015	CORRIDOR	SSR-1		CCB		A.W.	A.W.				SPM					AP-2/GB-3	SEE DETAIL 3 & 4 (A-7.0)
1-016	VESTIBULE	SSR-1		CCB		A.W.	A.W.			A.C.	SPM					AP-2/GB-3	SEE DETAIL 1, 3 & 4 (A-7.0)
1-017	MED. PREP.	SSR-1		CCB						A.C.	SPM					AP-2	SEE DETAIL 1 (A-7.0)
1-018	OFFICE	SSR-1		CCB							SPM					AP-2	
1-019	SUPPLIES	SSR-1		CCB						A.C.	SPM					AP-2	SEE DETAIL 1 (A-7.0)
1-020	JANITOR	SSR-1		CCB							SPM					AP-2	
1-021	SOILED LINEN	SSR-1		CCB							SPM					AP-2	
1-022	WASTE	SSR-1		CCB							SPM					AP-2	
1-023	CLEAN LINEN	SSR-1		CCB							SPM					AP-2	
1-024	OPERATING ROOM A	SSR-2		CCB						A.C.	SPM					GB-2	SEE DETAIL 1 (A-7.0)
1-025	CORRIDOR	SSR-2		CCB		A.W.	A.W.			A.C.	SPM					AP-2/GB-3	SEE DETAIL 1, 3 & 4 (A-7.0)
1-026	TISSUE WORK	SSR-2		CCB							SPM					AP-2	
1-027	OPERATING ROOM B	SSR-2		CCB						A.C.	SPM					GB-2	SEE DETAIL 1 (A-7.0)
1-028	OPERATING ROOM C	SSR-2		CCB						A.C.	SPM					GB-2	SEE DETAIL 1 (A-7.0)
1-029	OPERATING ROOM D	SSR-2		CCB						A.C.	SPM					GB-2	SEE DETAIL 1 (A-7.0)
1-030	CORRIDOR	SSR-2		CCB		A.W.	A.W.			A.C.	SPM					AP-2/GB-3	SEE DETAIL 1, 3 & 4 (A-7.0)
1-031	OPERATING ROOM E	SSR-2		CCB						A.C.	SPM					GB-2	SEE DETAIL 1 (A-7.0)
1-032	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-033	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
1-034	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-035	SECURITY	ETM		CCB							SCF/SPP-1					AP-1	
1-036	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
1-037	TOILET	ETS		CCB							SCF/CT-2					AP-1	
1-038	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
1-039	VAULTS	ETM		CCB							SCF/SPP-1					AP-1	
1-040	RETEN	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-041	WAITING	ETG		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-042	VESTIBULE	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-043	PANTRY	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-044	TOILET	ETS		CCB							SCF/CT-2					AP-1	
1-045	TOILET	ETS		CCB							SCF/CT-2					AP-1	
1-046	WAITING	ETG	FP	CCB						A.C.	SCF				RFWP	AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-047	MAIN LOBBY	ETG	FP	CCB						A.C.	SCF			RFWP		AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-048	CORRIDOR	ETG	FP	CCB						A.C.	SCF	RFWP				AP-1	SEE DETAIL 1 (A-7.0)
1-049	SUPPLY STORAGE	SSR-2		CCB						A.C.	SPM					AP-2	SEE DETAIL 1 (A-7.0)
1-050	STERILE STORAGE	SSR-2		CCB							SPM					AP-2	
1-051	ELECTRIC	ETS		CCB							SCF					AP-1	
1-052	STERILE WORK	SSR-2		CCB							SPM					AP-2	
1-053	STERILE RECEIVING	SSR-2		CCB							SPM					AP-2	
1-054	SOILED DISPATCH	SSR-2		CCB						A.C.	SPM					AP-2	SEE DETAIL 1 (A-7.0)
1-055	SOILED WASH	SSR-2		CCB						A.C.	SPM					AP-2	SEE DETAIL 1 (A-7.0)
1-056	BATHROOM	ETS		-----						A.C.	EFT/CT-2					AP-2/GB-2	SEE DETAIL 1 (A-7.0)
1-057	BATHROOM	ETS		-----						A.C.	EFT/CT-2					AP-2/GB-2	SEE DETAIL 1 (A-7.0)
1-058	CORRIDOR	ETM		CCB	A.W.		X			A.C.	GB-1					AP-1	SEE DETAIL 1, 3 & 6 (A-7.0)
1-059	JANITOR	SSR-2		CCB						A.C.	SPM					AP-2	SEE DETAIL 1 (A-7.0)
1-060	SURG. MED. SUPPLIES	ETS		CCB							SCF/SPP-1					AP-1	
1-061	MED.PREP	ETS		CCB							SCF/SPP-1					AP-1	
1-062	MED. PREP.	SSR-2		CCB							SPM					AP-2	
1-063	CORRIDOR	SSR-2		CCB			X			A.C.	SPM					AP-2	SEE DETAIL 1 (A-7.0)
1-064	ANESTH. WORK	SSR-2		CCB							SPM					AP-2	
1-065	MD.'S CHARTING	SSR-2		CCB						A.C.	SPM					AP-2/GB-3	SEE DETAIL 1 (A-7.0)
1-066	EQUIPMENT ALCOVE	SSR-2		CCB						A.C.	SPM					AP-2	SEE DETAIL 1 (A-7.0)
1-067	ANESTHESIA SUPERVISOR	SSR-1		CCB							SPM					AP-2	
1-068	OBSERV CUBICLES	SSR-1		CCB		X	X			A.C.	SPM					AP-2/GB-3	SEE DETAIL 1, 3 & 4 (A-7.0)
1-069	PRE-OP CUBICLES	SSR-1		CCB						A.C.	SPM					AP-2/GB-3	SEE DETAIL 1 (A-7.0)
1-070	CORRIDOR	SSR-1		CCB						A.C.	SPM					AP-2/GB-3	SEE DETAIL 1 (A-7.0)
1-071	CORRIDOR	ETM		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
1-072	CORRIDOR	ETM		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
1-073	CORRIDOR	ETM		CCB	A.W.					A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 & 6 (A-7.0)
1-074	ELECTRICAL	SSR-1		CCB							SPM					AP-2	
1-075	BIO WASTE	SSR-1		CCB							SPM					AP-2	
1-076	I.V. STORAGE	SSR-1		CCB							SPM					AP-2	
1-077	SOILED LINEN	SSR-1		CCB						A.C.	SPM					AP-2	SEE DETAIL 1 (A-7.0)
1-078	CORRIDOR	ETM		CCB	A.W.					A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 & 6 (A-7.0)
1-079	BATHROOM	SSR-1/CT-1		-----							EFT/CT-2					GB-2	
1-080	ANTE-ROOM	SSR-1		CCB							SPM					GB-2	
1-081	STABILIZATION CUBICLES	SSR-1		CCB		X	X			A.C.	SPM					AP-2/GB-3	SEE DETAIL 1, 3 & 4 (A-7.0)
1-082	CORRIDOR	ETM		CCB	A.W.					A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 & 6 (A-7.0)
1-083	CORRIDOR	SSR-1		CCB			X			A.C.	SPM					AP-2/GB-3	SEE DETAIL 1 & 3 (A-7.0)
1-084	ISOLATION	SSR-1		CCB							SPM					AP-2	
1-085	OFFICE	SSR-1		CCB						A.C.	SPM					AP-2	SEE DETAIL 1 (A-7.0)
1-086	STABILIZATION CUBICLES	SSR-1		CCB		X	X			A.C.	SPM					AP-2/GB-3	SEE DETAIL 1, 3 & 4 (A-7.0)
1-087	CORRIDOR	SSR-1		CCB			X			A.C.	SPM					AP-2/GB-3	SEE DETAIL 1 & 3 (A-7.0)
1-088	NURSE STATION	SSR-1		CCB						A.C.	SPM					AP-2/GB-3	SEE DETAIL 1 (A-7.0)
1-089	STABILIZATION CUBICLES	SSR-1		CCB		X	X			A.C.	SPM					AP-2/GB-3	SEE DETAIL 1, 3 & 4 (A-7.0)
1-090	CORRIDOR	ETM		CCB	A.W.					A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 & 6 (A-7.0)
1-091	STABILIZATION CUBICLES	SSR-1		CCB		X	X			A.C.	SPM					AP-2/GB-3	SEE DETAIL 1, 3 & 4 (A-7.0)
1-092	CORRIDOR	SSR-1		CCB			X			A.C.	SPM					AP-2/GB-3	SEE DETAIL 1 & 3 (A-7.0)

SCHEDULE OF FINISHES

FIRST LEVEL - (CONT.)

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
1-093	SOILED WORK	SSR-1		CCB							SPM					AP-2	
1-094	TOILET	SSR-1		-----							CT-2					AP-2	
1-095	JANITOR	SSR-1		CCB							SPM					AP-2	
1-096	SUPERVISOR	SSR-1		CCB						A.C.	SPM					AP-2	SEE DETAIL 1 (A-7.0)
1-097	CORRIDOR	ETM		CCB	A.W.		X			A.C.	SPP-1					AP-1	SEE DETAIL 1, 3 & 6 (A-7.0)
1-098	HOLDING	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-099	NURSE STATION	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-100	WASTE	ETS		CCB							SPP1					AP-1	
1-101	BIO-WASTE	ETS		CCB							SPP-1					AP-1	
1-102	CORRIDOR	ETM		CCB	A.W.		X			A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 6 (A-7.0)
1-103	X-RAY ROOM	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-104	CONTROL	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-105	LOUNGE	ETM		CCB							SCF/SPP-1					AP-1/GB-1	
1-106	RAMP	ETG	FP	CCB							SCF				RFWP	GB-1	
1-107	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-108	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
1-109	C.T. SCAN	ETM		CCB							SCF/SPP-1					AP-1	
1-110	VESTIBULE	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-111	WAITING	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-112	CASHIER	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-113	TOILET	ETS		-----							CT-2					AP-1	
1-114	CONTROL	ETM		CCB							SCF/SPP-1					AP-1	
1-115	ELECTRICAL	ETS		CCB							SCF					AP-1	
1-116	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
1-117	RAMP	ETG	FP	CCB							SCF					GB-1	
1-118	RAMP	ETG	FP	CCB							SCF					GB-1	
1-119	CORRIDOR WAITING	ETG	FP	CCB	A.W.					A.C.	SCF	RFWP				AP-1/GB-1	SEE DETAIL 1 & 6 (A-7.0)
1-120	TOILET	ETS		-----						A.C.	CT-2					AP-1	SEE DETAIL 1 (A-7.0)
1-121	RESP. THERAPY STORAGE	ETM		CCB							SCF/SPP-1					AP-1	
1-122	OXYGEN STORAGE	ETS		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-123	CORRIDOR	ETM		CCB	A.W.					A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 & 6 (A-7.0)
1-124	BATHROOM	ETS		-----							EFT/CT-2					GB-4	
1-125	PATIENT ROOM	ETM		CCB		X	X			A.C.	SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
1-126	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF			RFWP		GB-1	SEE DETAIL 1 (A-7.0)
1-127	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-128	NURSE	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
1-129	BATHROOM	ETS		-----							EFT/CT-2					GB-4	
1-130	PATIENT ROOM	ETM		CCB		X	X			A.C.	SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
1-131	PATIENT ROOM	ETM		CCB		X	X			A.C.	SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
1-132	BATHROOM	ETS		-----							EFT/CT-2					GB-4	
1-133	BATHROOM	ETS		-----							EFT/CT-2					GB-4	
1-134	NURSE	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
1-135	PATIENT ROOM	ETM		CCB		X	X			A.C.	SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
1-136	CORRIDOR	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
1-137	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-138	PATIENT ROOM	ETM		CCB		X	X			A.C.	SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
1-139	BATHROOM	ETS		-----							EFT/CT-2					GB-4	
1-140	BATHROOM	ETS		-----							EFT/CT-2					GB-4	
1-141	NURSE	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
1-142	PATIENT ROOM	ETM		CCB		X	X			A.C.	SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
1-143	PATIENT ROOM	ETM		CCB		X	X			A.C.	SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
1-144	BATHROOM	ETS		-----							EFT/CT-2					GB-4	
1-145	BATHROOM	ETS		-----							EFT/CT-2					GB-4	
1-146	NURSE	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
1-147	PATIENT ROOM	ETM		CCB		X	X			A.C.	SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
1-148	PATIENT ROOM	ETM		CCB		X	X			A.C.	SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
1-149	BATHROOM	ETS		-----							EFT/CT-2					GB-4	
1-150	PATIENT ROOM	ETM		CCB		X	X			A.C.	SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
1-151	CORRIDOR	ETM		CCB	A.W.					A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 & 6 (A-7.0)
1-152	BATHROOM	ETS		-----							EFT/CT-2					GB-4	
1-153	NURSE	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
1-154	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-155	ELEVATOR LOBBY	ETM		CCB	A.W.					A.C.	SCF					GB-1	SEE DETAIL 1 & 6 (A-7.0)
1-156	ELEVATOR LOBBY	ETG		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
1-157	STAIRS #1	PCB		-----							SCF					EXS	
1-158	ELECTRICAL	ETS		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
1-159	A/C	ETS		CCB						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
1-160	WASTE	ETS		CCB							SCF					AP-1	
1-161	MINOR PROCEDURE	SSR-2		CCB						A.C.	SPM					GB-3	SEE DETAIL 1 (A-7.0)
1-162	TOILET	ETS		-----							CT-2					AP-1	
1-163	SOILED LINEN	ETS		CCB							SCF/SPP-1					AP-1	
1-164	JANITOR	ETS		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-165	NURSE STATION	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-166	TOILET	ETS		-----							CT-2					AP-1	
1-167	PANTRY	ETM		CCB							SPP-1					AP-1	
1-168	WORK AREA	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-169	PANTRY	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-170	PANTRY	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-171	TOILET	ETS		-----							CT-2					AP-1	
1-172	I.V. / SERUM BAG	ETS		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-173	NOURISH. AREA	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-174	SOILED LINEN	ETS		CCB							SPP-1					AP-1	
1-175	CORRIDOR	ETM		CCB							SCF					AP-1	
1-176	BIO-WASTE	ETS		CCB							SPP-1					AP-1	
1-177	WASTE	ETS		CCB							SPP-1					AP-1	
1-178	JANITOR	ETS		CCB							SPP-1					AP-1	
1-179	MED. PREP.	ETS		CCB							SPP-1					AP-1	
1-180	SURG. MED. SUPPLIES	ETS		CCB							SPP-1					AP-1	
1-181	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-182	SOILED WORK	ETS		CCB							SPP-1					AP-1	
1-183	STAFF TOILET	ETS		-----							CT-2					AP-1	
1-184	I.T. ROOM	ETS		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)

LEGEND

N.W. - NORTH WALL
S.W. - SOUTH WALL
E.W. - EAST WALL
W.W. - WEST WALL
A.W. - ALL WALL
A.C. - ALL CORNERS

NOTES:

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  NOT FOR CONSTRUCTION.

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NO.	DATE	DESCRIPTIONS

DATE: JULY 2026

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SCHEDULE OF FINISHES - FIRST LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. OARBE 1599 AVE PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER

A-7.2

SCHEDULE OF FINISHES

FIRST LEVEL - (CONT.)

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
1-185	A/C	ETS		CCB							SCF					EXS	
1-186	ELECTRICAL	ETS		CCB							SCF					AP-1	
1-187	ELEVATOR LOBBY	ETG		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
1-188	STAIRS #2	PCB		CCB						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
1-189	STORAGE	ETS		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-190	RECEPTION	ETG		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-191	REGISTER	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-192	CONCESSION	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-193	COFFEE	ETM		CCB						A.C.	SCF/SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
1-194	TOILET	ETS		-----						A.C.	CT-2					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-195	WAITING AREA	ETG		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-196	VESTIBULE	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
1-197	TOILET	ETS		-----						A.C.	CT-2					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-198	CASHIER	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-199	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-200	VITALS	ETM		CCB							SCF/SPP-1					AP-1	
1-201	VITALS	ETM		CCB							SCF/SPP-1					AP-1	
1-202	WAITING AREA	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-203	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-204	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-205	EVALUATION	ETM		CCB							SPP-1					AP-1	
1-206	REGISTRATION	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-207	EVALUATION	ETM		CCB							SPP-1					AP-1	
1-208	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
1-209	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
1-210	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-211	NURSE STATION	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-212	CUBICLES	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-213	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-214	VESTIBULE	ETM		CCB							SCF/SPP-1					AP-1	
1-215	VESTIBULE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-216	CUBICLES	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
1-217	TRIAGE	ETM		CCB							SCF/SPP-1					AP-1/GB-1	
1-218	TRIAGE	ETM		CCB							SCF/SPP-1					AP-1/GB-1	
1-219	CORRIDOR	ETM		CCB	A.W.					A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 & 6 (A-7.0)
1-220	TRIAGE	ETM		CCB							SCF/SPP-1					AP-1/GB-1	
1-221	AIR LOCK	ETS		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-222	COMM. & CONTROL CENTER	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-223	DECONTAMINATION TRIAGE	ETS		CCB						A.C.	SCF/SPP-1					EXS	SEE DETAIL 1 (A-7.0)
1-224	SECURITY	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
1-225	ELECTRICAL	ETS		CCB							SCF/SPP-1					AP-1	
1-226	CORRIDOR	ETM		CCB						A.C.	SCF					AP-1	
1-227	EXTERIOR CORRIDOR	PCF		-----							SCF					EXS	
1-228	PATIENT DROP-OFF	PCF		-----							SCF					EXS	
1-229	TRIAGE	ETM		CCB							SCF/SPP-1					AP-1/GB-1	

LEGEND

N.W. - NORTH WALL
S.W. - SOUTH WALL
E.W. - EAST WALL
W.W. - WEST WALL
A.W. - ALL WALL
A.C. - ALL CORNERS

NOTES:
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NO.	DATE	DESCRIPTIONS

DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SCHEDULE OF FINISHES - FIRST LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER
A-7.3

SCHEDULE OF FINISHES

SECOND LEVEL

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
2-000	ROOF	PCF		-----							SCF					EXS	
2-001	ROOF	PCF		-----							SCF					EXS	
2-002	ROOF	PCF		-----							SCF					EXS	
2-003	STAIRS	PCB		-----							SCF					EXS	
2-004	ROOF	PCF		-----							SCF					EXS	
2-005	STAIRS	PCB		-----							SCF					EXS	
2-006	STORAGE	ETS		CCB							SCF/SPP-1					AP-1	
2-007	MEDITATION	ETG		CCB						A.C.	SCF/SPP-1					-----	SEE DETAIL 1 (A-7.0)
2-008	AUDITORIUM	ETG		CCB						A.C.	SCF/SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
2-009	EXTERIOR TERRACE	PCF		-----							SCF					-----	
2-010	JANITOR	ETS		CCB							SCF/SPP-1					AP-1	
2-011	VISITOR'S PANTRY	ETM		CCB							SCF/SPP-1					AP-1/GB-1	
2-012	CORRIDOR	ETG		CCB						A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
2-013	CORRIDOR	ETG		CCB							SCF/SPP-1					GB-1	
2-014	ELECT. ROOM	ETS		CCB							SPP-1					AP-1	
2-015	TOILET	ETS		CCB							SPP-1					AP-1	
2-016	TOILET	ETS		CCB							SPP-1					AP-1	
2-017	LANDING	ETG	FP	CCB						A.C.	SPP-1				RFWP	GB-1	SEE DETAIL 1 (A-7.0)
2-018	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
2-019	LANDING	ETG	FP	CCB							SPP-1					GB-1	
2-020	LANDING	ETG	FP	CCB							SPP-1					GB-1	
2-021	LANDING	ETG	FP	CCB							SPP-1					GB-1	
2-022	CORRIDOR	ETG	FP	CCB						A.C.	SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
2-023	WAITING	ETG	FP	CCB						A.C.	SPP-1	RFWP		RFWP		GB-1	SEE DETAIL 1 (A-7.0)
2-024	CORRIDOR	ETM		CCB			A.W	A.W		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 4 & 5 (A-7.0)
2-025	NURSE	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
2-026	CRITICAL CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-027	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-028	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-029	CRITICAL CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-030	NURSE	ETM		CCB			A.W	A.W		A.C.	SPP-1					GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-031	CRITICAL CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-032	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-033	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-034	CRITICAL CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-035	CORRIDOR	ETM		CCB			A.W	A.W		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-036	NURSE	ETM		CCB			A.W	A.W		A.C.	SPP-1					GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-037	CRITICAL CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-038	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-039	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-040	CRITICAL CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-041	NURSE	ETM		CCB			A.W	A.W		A.C.	SPP-1					GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-042	CRITICAL CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-043	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-044	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-045	CRITICAL CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-046	CORRIDOR	ETM		CCB			A.W	A.W		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-047	NURSE	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
2-048	CRITICAL CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-049	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-050	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-051	CRITICAL CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-052	ROOF	PCF		-----							SCF					EXS	
2-053	ROOF	PCF		-----							SCF					EXS	
2-054	ROOF	PCF		-----							SCF					EXS	
2-055	CORRIDOR	ETM		CCB						A.C.	SCF					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
2-056	STAFF LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
2-057	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
2-058	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
2-059	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
2-060	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
2-061	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
2-062	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
2-063	ELEVATOR LOBBY	ETM		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
2-064	STAIRS #1	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
2-065	ELECTRICAL	ETS		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
2-066	A/C	ETS		CCB						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
2-067	WASTE	ETS		CCB							SCF					AP-1	
2-068	MINOR PROCEDURE	SSR-2		CCB						A.C.	GMU					GB-3	SEE DETAIL 1 (A-7.0)
2-069	BIO-WASTE	ETS		CCB							SCF					AP-1	
2-070	SOILED LINEN	ETS		CCB							SCF					AP-1	
2-071	CORRIDOR	ETM		CCB			A.W	A.W		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-072	CORRIDOR	ETM		CCB			A.W	A.W		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-073	NURSE STATION / CHARTING	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
2-074	HEAD NURSE	ETM		CCB							SPP-1					GB-1	
2-075	I.V. / SERUM BAGS	ETS		CCB							SPP-1					AP-1	
2-076	SOILED WORK	ETS		CCB							SPP-1					AP-1	
2-077	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
2-078	MED. PREP.	ETS		CCB							SPP-1					AP-1	
2-079	SUPPLIES SURG. MED.	ETS		CCB							SPP-1					AP-1	
2-080	JANITOR	ETS		CCB							SPP-1					AP-1	
2-081	TOILET	ETS		-----							CT-2					AP-1	
2-082	NOURISH. AREA	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
2-083	A/C	ETS		CCB							SCF/SPP-1					EXS	
2-084	ELECTRICAL	ETS		CCB							SCF/SPP-1					AP-1	
2-085	ELEVATOR LOBBY	ETG		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
2-086	STAIRS #2	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
2-087	SOCIAL WORK	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
2-088	DISCHARGE SERVICES	ETM		CCB							SCF/SPP-1					AP-1	
2-089	WAITING	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
2-090	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)

SCHEDULE OF FINISHES

SECOND LEVEL - (CONT.)

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
2-091	OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
2-092	FAMILY SUPPORT	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
2-093	NUTRITION	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
2-094	I.T. / TELECOM.	ETS		CCB							SPP-1					AP-1	
2-095	BATHROOM	ETS/CT-1		-----						A.C.	SCF/EFT					GB-4	SEE DETAIL 1 (A-7.0)
2-096	ISOLATION	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-097	CORRIDOR	ETM		CCB			A.W.	A.W		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-098	ANTE-ROOM	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
2-099	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-100	ISOLATION	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-101	CRITICAL CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-102	NURSE	ETM		CCB			A.W.	A.W		A.C.	SPP-1					GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-103	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-104	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-105	CRITICAL CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-106	CORRIDOR	ETM		CCB			A.W.	A.W		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-107	NURSE	ETM		CCB			A.W.	A.W		A.C.	SPP-1					GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-108	CRITICAL CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	
2-109	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-110	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-111	CRITICAL CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-112	CRITICAL CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-113	NURSE	ETM		CCB			A.W.	A.W		A.C.	SPP-1					GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-114	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-115	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-116	CRITICAL CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-117	CORRIDOR	ETM		CCB			A.W.	A.W		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-118	NURSE	ETM		CCB			A.W.	A.W		A.C.	SPP-1					GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
2-119	CRITCAL CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-120	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-121	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
2-122	CRITICAL CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
2-123	OXYGEN STORAGE	ETS		CCB							SPP-1					AP-1	
2-124	MD.'S LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
2-125	MD.'S WORK AREA	ETM		CCB							SCF/SPP-1					AP-1	
2-126	LANDING	ETM		CCB							SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
2-127	LANDING																
2-128	LANDING																
2-129	STAIRS	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)

LEGEND

N.W. - NORTH WALL
S.W. - SOUTH WALL
E.W. - EAST WALL
W.W. - WEST WALL
A.W. - ALL WALL
A.C. - ALL CORNERS

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NO.	DATE	DESCRIPTIONS

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SCHEDULE OF FINISHES - SECOND LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1569 AVE. PONCE DE LEON, STE. 105 SAN JUAN PR 00926

DRAWING NUMBER

A-7.4

SCHEDULE OF FINISHES

THIRD LEVEL

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
3-000	WELLNESS TERRACE	-----		-----						A.C.	-----					-----	SEE DETAIL 1 (A-7.0)
3-001	HOTELING CONFERENCE	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-002	JANITOR	ETS		CCB							SCF/SPP-1					AP-1	
3-003	CORRIDOR	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
3-004	ELECTRICAL	ETS		CCB							SPP-1					GB-1	
3-005	TOILET	ETS		CCB							SPP-1					GB-1	
3-006	TOILET	ETS		CCB							SPP-1					AP-1/GB-1	
3-007	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-008	LANDING	ETG	FP	CCB						A.C.	SCF				RFWP	GB-1	SEE DETAIL 1 (A-7.0)
3-009	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-010	UP LANDING	ETG	FP	CCB							SCF					GB-1	
3-010	DN LANDING	ETG	FP	CCB							SCF					GB-1	
3-011	LANDING	ETG	FP	CCB							SCF					GB-1	
3-012	INTERVIEW	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-013	INTERVIEW	ETM		CCB							SCF/SPP-1					AP-1	
3-014	CONFERENCE	ETM		CCB							SCF/SPP-1					AP-1	
3-015	DIRECTOR'S ASSISTANT	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-016	DIRECTOR'S OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
3-017	CONFERENCE	ETM		CCB							SCF/SPP-1					AP-1	
3-018	RISK OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-019	QUALITY OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
3-020	M.D. CONSULTANT OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
3-021	ASSOC. DIRECTOR'S OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-022	DIRECTOR'S OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
3-023	DIRECTOR'S OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
3-024	ASSOC. DIRECTOR'S OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-025	EPIDEM. OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
3-026	CONFERENCE	ETM		CCB							SCF/SPP-1					AP-1	
3-027	RECEPTION	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-028	FILE STORAGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-029	LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-030	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
3-031	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
3-032	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-033	EQUIPMENT STORAGE	ETS		CCB							SPP-1					AP-1	
3-034	WAITING	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-035	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-036	ELEVATOR LOBBY	ETM		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
3-037	AREA WORK	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-038	ELECTRICAL	ETS		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
3-040	CORRIDOR	ETM		CCB							SCF/SPP-1					AP-1	
3-041	AREA WORK	ETM		CCB							SPP-1					AP-1	
3-042	BATHROOM	ETS/CT-1		-----							SCF/EFT					AP-1	
3-043	RESTING AREA	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-044	AREA WORK / RECEPTION	ETM		CCB							SPP-1					AP-1	
3-045	CORRIDOR	ETM		CCB							SCF/SPP-1					AP-1	
3-046	STORAGE	ETS		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-047	A/C	ETS		CCB							SCF/SPP-1					EXS	
3-048	PRE-ADMISSIONS	ETM		CCB							SPP-1					AP-1	
3-049	CORRIDOR	ETG		CCB						A.C.	SCF/SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
3-050	WAITING	ETG	FP	CCB						A.C.	SCF		RFWP	RFWP		GB-1	SEE DETAIL 1 (A-7.0)
3-051	STAIRS #2	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
3-052	ELEVATOR LOBBY	ETG		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
3-053	RECEPTION WAITING	ETG		CCB							SCF/SPP-1					AP-1/GB-1	
3-054	OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-055	MEETING ROOM	ETM		CCB							SCF/SPP-1					AP-1	
3-056	WAITING	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-057	CORRIDOR	ETG		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-058	RECEPTION	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-059	VITALS	ETM		CCB							SCF/SPP-1					AP-1	
3-060	EXAM ROOM	ETM		CCB							SCF/SPP-1					AP-1	
3-061	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-062	STORAGE	ETS		CCB							SCF/SPP-1					AP-1	
3-063	ELECTRICAL	ETS		CCB							SCF/SPP-1					AP-1	
3-064	I.T. / TELECOM.	ETS		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-065	OCCUPATIONAL THERAPY	ETM		CCB							SPP-1					AP-1/GB-1	
3-066	EXAM / TREATMENT	ETM		CCB							SCF/SPP-1					AP-1	
3-067	BATHROOM	ETS		-----							CT-2					GB-4	
3-068	A.D.I. TRAINING	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-069	STAFF WORK AREA	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-070	TOILET	ETS		CCB							SPP-1					AP-1	
3-071	RESTING RM.	ETM		CCB							SPP-1					AP-1	
3-072	RESTING RM.	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-073	TOILET	ETS		-----							CT-2					AP-1	
3-074	RESTING RM.	ETM		CCB							SPP-1					AP-1	
3-075	SOILED WASTE	ETS		CCB							SPP-1					AP-1	
3-076	CORRIDOR	ETM		CCB							SPP-1					AP-1	
3-077	PHYSICAL THERAPY	ETS		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-078	SOILED LINEN	ETS		CCB							SPP-1					AP-1	
3-079	RESTING RM.	ETM		CCB							SPP-1					AP-1	
3-080	CLEAN LINEN	ETS		CCB							SPP-1					AP-1	
3-081	RESTING RM.	ETM		CCB							SPP-1					AP-1	
3-082	STAFF WORK AREA	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-083	STORAGE	ETS		CCB							SCF/SPP-1					AP-1	
3-084	OFFICE	ETM		CCB							SPP-1					AP-1	
3-085	OFFICE	ETM		CCB							SPP-1					AP-1	
3-086	ULTRASOUND	ETM		CCB							SPP-1					AP-1	
3-087	DIAGNOSTIC	ETM		CCB							SPP-1					AP-1	
3-088	A/C	ETS		CCB						A.C.	SCF/SPP-1					EXS	SEE DETAIL 1 (A-7.0)
3-089	STAIRS #1	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
3-090	TOILET	ETS		-----							CT-2					AP-1	

SCHEDULE OF FINISHES

THIRD LEVEL - (CONT.)

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
3-091	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-092	DIAGNOSTIC	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-093	CUBICLES	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-094	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-095	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
3-096	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-097	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
3-098	JANITOR	ETS		CCB							SCF/SPP-1					AP-1	
3-099	WORK AREA	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-100	LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
3-101	ACCREDITATION OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
3-102	EXAM ROOM	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
3-103	RESTING RM.	ETM		CCB							SPP-1					AP-1	

LEGEND

N.W. - NORTH WALL
S.W. - SOUTH WALL
E.W. - EAST WALL
W.W. - WEST WALL
A.W. - ALL WALL
A.C. - ALL CORNERS

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION OR PERMITTING PURPOSES. THESE DOCUMENTS ARE INCOMPLETE AND DO NOT REPRESENT THE FINAL DESIGN-BUILD SOLUTION. THEY ARE INTENDED TO PROVIDE GUIDANCE FOR THE DESIGN-BUILD ENTITY. THE SELECTED DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PERMITTING, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT'S CONSTRUCTION, AS WELL AS FOR ALL MEANS, METHODS, AND SAFETY PROCEDURES. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT

SCHEDULE OF FINISHES

FOURTH LEVEL

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
4-000	PANTRY	ETM		CCB							SPP-1					AP-1	
4-001	JANITOR	ETS		CCB							SCF/SPP-1					AP-1	
4-002	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
4-003	ELECT.	ETS		CCB							SPP-1					AP-1	
4-004	TOILET	ETS		-----							CT-2					AP-1	
4-005	TOILET	ETS		-----							CT-2					AP-1	
4-006	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
4-007	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
4-008	LANDING	ETG	FP	CCB						A.C.	SCF				RFWP	GB-1	SEE DETAIL 1 (A-7.0)
4-009	LANDING	ETG	FP	CCB							SCF					GB-1	
4-010	LANDING	ETG	FP	CCB							SCF					GB-1	
4-011	WAITING	ETG	FP	CCB						A.C.	SCF		RFWP	RFWP		GB-1	SEE DETAIL 1 (A-7.0)
4-012	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
4-013	TELEMETRY RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-014	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	SEE DETAIL 3 & 5 (A-7.0)
4-015	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-016	TELEMETRY RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-017	TELEMETRY RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-018	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-019	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-020	TELEMETRY RM.	ETM		CCB		N.W.	S.W. & N.W.				SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 3 & 4 (A-7.0)
4-021	TELEMTRY RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-022	TELEMTRY UNIT CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
4-023	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-024	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-025	TELEMETRY RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-026	TELEMETRY RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-027	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-028	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-029	TELEMETRY RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-030	TELEMETRY RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-031	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-032	TELEMETRY RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-033	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-034	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
4-035	JANITOR	ETS		CCB							SPP-1					AP-1	
4-036	STAFF LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
4-037	WATSON ROOM	ETM		CCB							SCF/SPP-1					AP-1/GB-1	
4-038	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
4-039	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
4-040	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
4-041	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
4-042	ELEVATOR LOBBY	ETM		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
4-043	STAIRS #1	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
4-044	ELECTRICAL	ETS		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
4-045	A/C	ETS		CCB						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
4-046	MINOR PROCEDURE RM.	SSR-2		CCB						A.C.	GMU					GB-3	SEE DETAIL 1 (A-7.0)
4-047	WASTE	ETS		CCB							SCF/SPP-1					AP-1	
4-048	BIO-WASTE	ETS		CCB							SPP-1					AP-1	
4-049	SOILED LINEN	ETS		CCB							SCF/SPP-1					AP-1	
4-050	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
4-051	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
4-052	NURSE STATION / CHARTING	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
4-053	HEAD NURSE	ETM		CCB							SPP-1					AP-1	
4-054	I.V. / SERUM BAG	ETM		CCB							SPP-1					AP-1	
4-055	SOILED WORK	ETS		CCB							SPP-1					AP-1	
4-056	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
4-057	MED. PREP.	ETS		CCB							SPP-1					AP-1	
4-058	SUPPLIES SURG. MED.	ETS		CCB							SPP-1					AP-1	
4-059	JANITOR	ETS		CCB							SPP-1					AP-1	
4-060	TOILET	ETS		-----							CT-2					AP-1	
4-061	NOURISH. AREA	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
4-062	A/C	ETS		CCB							SCF					AP-1	
4-063	ELECTRICAL	ETS		CCB							SCF					EXS	
4-064	ELEVATOR LOBBY	ETG		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
4-065	STAIRS #2	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
4-066	SOCIAL WORK	ETM		CCB							SCF/SPP-1					AP-1	
4-067	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
4-068	FAMILY SUPPORT	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
4-069	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
4-070	DISCHARGE SERVICES	ETM		CCB							SPP-1					AP-1	
4-071	WAITING	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
4-072	NUTRITION	ETM		CCB							SCF/SPP-1					AP-1	
4-073	BATHROOM	ETS/CT-1		-----						A.C.	SCF/EFT					GB-4	SEE DETAIL 1 (A-7.0)
4-074	I.T. / TELECOM	ETM		CCB							SPP-1					AP-1	
4-075	LOBBY	ETG		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
4-076	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 5 (A-7.0)
4-077	ISOLATION RM.	ETM		CCB		S.W.	S.W. & N.W.				SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 3 & 4 (A-7.0)
4-078	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-079	ANTE-ROOM	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
4-080	ISOLATION RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-081	TELEMETRY RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-082	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-083	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-084	TELEMETRY RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-085	TELEMETRY RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-086	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
4-087	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-088	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-089	TELEMETRY RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-090	TELEMETRY RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)

SCHEDULE OF FINISHES

FOURTH LEVEL - (CONT.)

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
4-091	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-092	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-093	INTER CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-094	TELEMETRY RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-095	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-096	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
4-097	TELEMERTY RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
4-098	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
4-099	OXYGEN STORAGE	ETS		CCB							SPP-1					AP-1/GB-1	
4-100	CORRIDOR	ETM		CCB							SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
4-101	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
4-102	MD.'S WORK AREA	ETM		CCB							SCF/SPP-1					AP-1	
4-103	MD.'S LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)

LEGEND

N.W. - NORTH WALL
S.W. - SOUTH WALL
E.W. - EAST WALL
W.W. - WEST WALL
A.W. - ALL WALL
A.C. - ALL CORNERS

NOTES:
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  NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PROPOSALS FOR DESIGN-BUILD SERVICES. THEY ARE NOT CONSTRUCTION DOCUMENTS AND ARE NOT INTENDED TO BE USED FOR PERMITTING, BIDDING, FABRICATION, OR INSTALLATION. THEY DO NOT CONTAIN SUFFICIENT INFORMATION AND ARE NOT INTENDED TO PROVIDE GUIDANCE FOR THE DESIGN-BUILD ENTITY. THE SELECTED DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, AND ACCURACY OF ALL CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL ALSO BE SOLELY RESPONSIBLE FOR THE ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES, AND FOR ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE PROJECT. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, AND ACCURACY OF ALL TECHNICAL INFORMATION CONTAINED IN SHOP DRAWINGS, AND SHALL NOT RELY ON THE ACCURACY OF ANY INFORMATION CONTAINED IN THESE DOCUMENTS. THE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS AND ARE THE PROPERTY OF THE ARCHITECT. THEY ARE NOT TO BE USED IN WHOLE OR IN PART, SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES WHO HAVE EXECUTED A WRITTEN AGREEMENT WITH THE ARCHITECT. ANY UNAUTHORIZED USE, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT THE PRIOR WRITTEN CONSENT OF THE ARCHITECT. BY RECEIVING OR USING THESE DOCUMENTS, THE USER AGREES TO INDEMNIFY AND HOLD HARMLESS THE ARCHITECT FROM ANY CLAIMS, LOSSES, OR LIABILITIES ARISING FROM THE USER'S USE OF THE DOCUMENTS. ANY USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT.

NO.	DATE	DESCRIPTIONS

DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SCHEDULE OF FINISHES - FOURTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER

A-7.6

SCHEDULE OF FINISHES

FIFTH LEVEL

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
5-000	PANTRY	ETM		CCB							SPP-1					AP-1	
5-001	JANITOR	ETS		CCB							SCF/SPP-1					AP-1	
5-002	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
5-003	ELECT.	ETS		CCB							SPP-1					AP-1	
5-004	TOILET	ETS		-----							CT-2					AP-1	
5-005	TOILET	ETS		-----							CT-2					AP-1	
5-006	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
5-007	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
5-008	LANDING	ETG	FP	CCB						A.C.	SCF				RFWP	GB-1	SEE DETAIL 1 (A-7.0)
5-009	LANDING	ETG	FP	CCB							SCF					GB-1	
5-010	LANDING	ETG	FP	CCB							SCF					GB-1	
5-011	WAITING	ETG	FP	CCB						A.C.	SCF		RFWP	RFWP		GB-1	SEE DETAIL 1 (A-7.0)
5-012	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 5 (A-7.0)
5-013	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-014	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-015	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-016	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-017	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-018	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-019	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-020	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-021	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-022	REHAB. / INTER. CARE AREA CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
5-023	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-024	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-025	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-026	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-027	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-028	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-029	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-030	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-031	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-032	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-033	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-034	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, & 5 (A-7.0)
5-035	JANITOR	ETS		CCB							SPP-1					AP-1	
5-036	LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
5-037	WATSON ROOM	ETM		CCB							SCF/SPP-1					AP-1/GB-1	
5-038	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
5-039	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
5-040	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
5-041	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
5-042	ELEVATOR LOBBY	ETM		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
5-043	STAIRS #1	PCB		-----							SCF					EXS	
5-044	ELECTRICAL	ETS		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
5-045	A/C	ETS		CCB						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
5-046	MINOR PROCEDURE RM.	SSR-2		CCB						A.C.	GMU					GB-3	SEE DETAIL 1 (A-7.0)
5-047	WASTE	ETS		CCB							SCF/SPP-1					AP-1	
5-048	BIO-WASTE	ETS		CCB							SPP-1					AP-1	
5-049	SOILED LINEN	ETS		CCB							SCF/SPP-1					AP-1	
5-050	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
5-051	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
5-052	NURSE STATION / CHARTING	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
5-053	HEAD NURSE	ETM		CCB							SPP-1					AP-1	
5-054	I.V. / SERUM BAG	ETM		CCB							SPP-1					AP-1	
5-055	SOILED WORK	ETS		CCB							SPP-1					AP-1	
5-056	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
5-057	MED. PREP.	ETS		CCB							SPP-1					AP-1	
5-058	SUPPLIES SURG. MED.	ETS		CCB							SPP-1					AP-1	
5-059	JANITOR	ETS		CCB							SPP-1					AP-1	
5-060	TOILET	ETS		-----							CT-2					AP-1	
5-061	NOURISH. AREA	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
5-062	A/C	ETS		CCB							SCF					AP-1	
5-063	ELECTRICAL	ETS		CCB							SCF					EXS	
5-064	ELEVATOR LOBBY	ETG		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
5-065	STAIRS #2	PCB		-----							SCF					EXS	
5-066	SOCIAL WORK	ETM		CCB							SCF/SPP-1					AP-1	
5-067	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
5-068	FAMILY SUPPORT	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
5-069	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
5-070	DISCHARGE SERVICES	ETM		CCB							SPP-1					AP-1	
5-071	WAITING	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
5-072	NUTRITION	ETM		CCB							SCF/SPP-1					AP-1	
5-073	BATHROOM	ETS/CT-1		-----						A.C.	SCF/EFT					GB-4	SEE DETAIL 1 (A-7.0)
5-074	I.T. / TELECOM	ETM		CCB							SPP-1					AP-1	
5-075	LOBBY	ETG		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
5-076	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 5 (A-7.0)
5-077	ISOLATION RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-078	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-079	ANTE-ROOM	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
5-080	ISOLATION RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-081	INTER CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-082	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-083	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-084	INTER CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-085	INTER CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-086	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
5-087	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-088	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-089	INTER CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-090	INTER CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)

SCHEDULE OF FINISHES

FIFTH LEVEL - (CONT.)

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
5-091	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-092	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-093	INTER CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-094	INTER CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-095	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-096	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
5-097	INTER CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
5-098	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
5-099	OXYGEN STORAGE	ETS		CCB							SPP-1					AP-1/GB-1	
5-100	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
5-101	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
5-102	MD.'S WORK AREA	ETM		CCB							SCF/SPP-1					AP-1	
5-103	MD.'S LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)

LEGEND

N.W. - NORTH WALL
S.W. - SOUTH WALL
E.W. - EAST WALL
W.W. - WEST WALL
A.W. - ALL WALL
A.C. - ALL CORNERS

NOTES:
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  NOT FOR CONSTRUCTION.

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DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SCHEDULE OF FINISHES - FIFTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 103 SAN JUAN PR 00926

DRAWING NUMBER

A-7.7

SCHEDULE OF FINISHES

SIXTH LEVEL

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
6-000	PANTRY	ETM		CCB							SPP-1					AP-1	
6-001	JANITOR	ETS		CCB							SCF/SPP-1					AP-1	
6-002	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
6-003	ELECT.	ETS		-----							CT-2					AP-1	
6-004	TOILET	ETS		-----							CT-2					AP-1	
6-005	TOILET	ETS		CCB							SCF/SPP-1					AP-1	
6-006	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
6-007	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
6-008	LANDING	ETG	FP	CCB						A.C.	SCF				RFWP	GB-1	SEE DETAIL 1 (A-7.0)
6-009	LANDING	ETG	FP	CCB							SCF					GB-1	
6-010	LANDING	ETG	FP	CCB							SCF					GB-1	
6-011	WAITING	ETG	FP	CCB						A.C.	SCF		RFWP	RFWP		GB-1	SEE DETAIL 1 (A-7.0)
6-012	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 5 (A-7.0)
6-013	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-014	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-015	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-016	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-017	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-018	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-019	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-020	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-021	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-022	REHAB. / INTERMEDIATE CARE AREA	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
6-023	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-024	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-025	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-026	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-027	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-028	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-029	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-030	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-031	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-032	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-033	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-034	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
6-035	JANITOR	ETS		CCB							SPP-1					AP-1	
6-036	LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
6-037	WATSON ROOM	ETM		CCB							SCF/SPP-1					AP-1/GB-1	
6-038	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
6-039	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
6-040	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
6-041	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
6-042	ELEVATOR LOBBY	ETM		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
6-043	STAIRS #1	PCB		-----							SCF					EXS	
6-044	ELECTRICAL	ETS		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
6-045	A/C	ETS		CCB						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
6-046	MINOR PROCEDURE RM.	SSR-2		CCB						A.C.	GMU					GB-3	SEE DETAIL 1 (A-7.0)
6-047	WASTE	ETS		CCB							SCF/SPP-1					AP-1	
6-048	BIO-WASTE	ETS		CCB							SPP-1					AP-1	
6-049	SOILED LINEN	ETS		CCB							SCF/SPP-1					AP-1	
6-050	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
6-051	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
6-052	NURSE STATION / CHARTING	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
6-053	HEAD NURSE	ETM		CCB							SPP-1					AP-1	
6-054	I.V. / SERUM BAG	ETS		CCB							SPP-1					AP-1	
6-055	SOILED WORK	ETS		CCB							SPP-1					AP-1	
6-056	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
6-057	MED. PREP.	ETS		CCB							SPP-1					AP-1	
6-058	SUPPLIES SURG. MED.	ETS		CCB							SPP-1					AP-1	
6-059	JANITOR	ETS		CCB							SPP-1					AP-1	
6-060	TOILET	ETS		-----							CT-2					AP-1	
6-061	NOURISH. AREA	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
6-062	A/C	ETS		CCB							SCF					AP-1	
6-063	ELECTRICAL	ETS		CCB							SCF					EXS	
6-064	ELEVATOR LOBBY	ETG		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
6-065	STAIRS #2	PCB		-----							SCF					EXS	
6-066	SOCIAL WORK	ETM		CCB							SCF/SPP-1					AP-1	
6-067	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
6-068	FAMILY SUPPORT	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
6-069	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
6-070	DISCHARGE SERVICES	ETM		CCB							SPP-1					AP-1	
6-071	WAITING	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
6-072	NUTRITION	ETM		CCB							SCF/SPP-1					AP-1	
6-073	BATHROOM	ETS/CT-1		-----						A.C.	SCF/EFT					GB-4	SEE DETAIL 1 (A-7.0)
6-074	I.T. / TELECOM	ETM		CCB							SPP-1					AP-1	
6-075	LOBBY	ETG		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
6-076	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 5 (A-7.0)
6-077	ISOLATION RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1			RFWP		AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-078	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-079	ANTE-ROOM	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
6-080	ISOLATION RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-081	INTER CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1			RFWP		AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-082	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-083	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-084	INTER CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-085	INTER CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1			RFWP		AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-086	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
6-087	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-088	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-089	INTER CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-090	INTER CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1			RFWP		AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)

SCHEDULE OF FINISHES

SIXTH LEVEL - (CONT.)

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
6-091	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-092	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-093	INTER CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-094	INTER CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-095	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-096	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
6-097	INTER CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
6-098	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
6-099	OXYGEN STORAGE	ETS		CCB							SPP-1					AP-1/GB-1	
6-100	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
6-101	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
6-102	MD.'S WORK AREA	ETM		CCB							SCF/SPP-1					AP-1	
6-103	MD.'S LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)

LEGEND

N.W. - NORTH WALL
S.W. - SOUTH WALL
E.W. - EAST WALL
W.W. - WEST WALL
A.W. - ALL WALL
A.C. - ALL CORNERS

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

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NO.	DATE	DESCRIPTIONS

DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SCHEDULE OF FINISHES - SIXTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER

A-7.8

SCHEDULE OF FINISHES

SEVENTH LEVEL

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
7-000	PANTRY	ETM		CCB							SPP-1					AP-1	
7-001	JANITOR	ETS		CCB							SCF/SPP-1					AP-1	
7-002	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
7-003	TOILET	ETS		-----							CT-2					AP-1	
7-004	TOILET	ETS		-----							CT-2					AP-1	
7-005	ELECT.	ETS		CCB							SPP-1					AP-1	
7-006	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-007	LANDING	ETG	FP	CCB						A.C.	SCF				RFWP	GB-1	SEE DETAIL 1 (A-7.0)
7-008	LANDING	ETG	FP	CCB							SCF					GB-1	
7-009	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF	RFWP				GB-1	SEE DETAIL 1 (A-7.0)
7-010	LANDING	ETG	FP	CCB							SCF					GB-1	
7-011	WAITING	ETG	FP	CCB						A.C.	SCF		RFWP	RFWP		GB-1	SEE DETAIL 1 (A-7.0)
7-012	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 5 (A-7.0)
7-013	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-014	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
7-015	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-016	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
7-017	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
7-018	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-019	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-020	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
7-021	REHAB. / INTER. CARE AREA CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
7-022	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-023	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
7-024	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-025	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
7-026	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
7-027	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-028	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-029	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
7-030	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
7-031	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-032	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-033	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
7-034	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
7-035	LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-036	JANITOR	ETS		CCB							SPP-1					AP-1	
7-037	WATSON ROOM	ETM		CCB							SCF/SPP-1					AP-1/GB-1	
7-038	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
7-039	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
7-040	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
7-041	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
7-042	TOILET	ETS/CT-1		-----						A.C.	SCF/EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
7-043	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
7-044	ELEVATOR LOBBY	ETM		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
7-045	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1, 3 & 5 (A-7.0)
7-046	STAIRS #1	PCB		-----							SCF					EXS	
7-047	ELECTRICAL	ETS		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
7-048	A/C	ETS		CCB						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
7-049	WASTE	ETS		CCB							SCF/SPP-1					AP-1	
7-050	MINOR PROCEDURE	SSR-2		CCB						A.C.	GMU					GB-3	SEE DETAIL 1 (A-7.0)
7-051	BIO WASTE	ETS		CCB							SPP-1					AP-1	
7-052	SOILED LINEN	ETS		CCB							SCF/SPP-1					AP-1	
7-053	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-054	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-055	NURSE STATION / CHARTING	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-056	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 5 (A-7.0)
7-057	I.V. / SERUM BAGS	ETS		CCB							SPP-1					AP-1	
7-058	HEAD NURSE	ETM		CCB							SPP-1					AP-1	
7-059	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-060	SOILED WORK	ETS		CCB							SPP-1					AP-1	
7-061	MED. PREP.	ETS		CCB							SPP-1					AP-1	
7-062	JANITOR	ETS		CCB							SPP-1					AP-1	
7-063	SUPPLIES SURG. MED.	ETS		CCB							SPP-1					AP-1	
7-064	TOILET	ETS		-----							CT-2					AP-1	
7-065	NOURISH. AREA	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-066	A/C	ETS		CCB							SCF					EXS	
7-067	ELECTRICAL	ETS		CCB							SCF					AP-1	
7-068	CORRIDOR	ETM		CCB			A.W.	A.W.		A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1, 3 & 5 (A-7.0)
7-069	ELEVATOR LOBBY	ETG		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
7-070	LOBBY	ETG		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
7-071	STAIRS #2	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
7-072	WAITING	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-073	DISCHARGE SERVICES	ETM		CCB							SCF/SPP-1					AP-1	
7-074	SOCIAL WORK	ETM		CCB							SCF/SPP-1					AP-1	
7-075	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
7-076	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-077	FAMILY SUPPORT	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-078	NUTRITION	ETM		CCB							SCF/SPP-1					AP-1	
7-079	I.T. / TELECOM.	ETM		CCB							SPP-1					AP-1	
7-080	BATHROOM	ETS/CT-1		-----						A.C.	SCF/EFT					GB-4	SEE DETAIL 1 (A-7.0)
7-081	ISOLATION RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-082	ANTE-ROOM	ETM		CCB						A.C.	SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
7-083	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-084	ISOLATION RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-085	INTER. CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-086	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-087	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-088	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-089	INTER CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-090	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	

SCHEDULE OF FINISHES

SEVENTH LEVEL - (CONT.)

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
7-091	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-092	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
7-093	INTER CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
7-094	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-095	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-096	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
7-097	INTER CARE RM.	ETM		CCB		S.W.	S.W. & N.W.			A.C.	SCF/SPP-1		RFWP			AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
7-098	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-099	BATHROOM	ETS/CT-1		-----							SCF/EFT					GB-4	
7-100	INTER. CARE RM.	ETM		CCB		N.W.	S.W. & N.W.			A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1, 3 & 4 (A-7.0)
7-101	OXYGEN STORAGE	ETS		CCB							SPP-1					AP-1/GB-1	
7-102	MD. S' LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
7-103	MD.'S WORK AREA	ETM		CCB							SCF/SPP-1					AP-1	

LEGEND

N.W. - NORTH WALL
S.W. - SOUTH WALL
E.W. - EAST WALL
W.W. - WEST WALL
A.W. - ALL WALL
A.C. - ALL CORNERS

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSES OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION OBJECTIVES. DESIGN-INTENT, PERFORMANCE CRITERIA, AND MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, AND STRUCTURAL SYSTEMS ARE INCLUDED FOR GUIDANCE ONLY. THESE DOCUMENTS ARE THE PROPERTY OF DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, PROCUREMENT, OR CONSTRUCTION PURPOSES. THE DESIGN-BUILD CONTRACTOR SHALL USE THESE AS GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY, IN COLLABORATION WITH ITS CONSULTANTS, SHALL DEVELOP THE FINAL DESIGN AND BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, AND CODE COMPLIANCE OF ALL CONSTRUCTION DOCUMENTS. ANY REUSE, ENDORSEMENT, PROCUREMENT, OR CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT SHALL BE PREPARED BY THE DESIGN-BUILD ENTITY AT ITS OWN RISK AND RESPONSIBILITY. DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS SHALL NOT BE RESPONSIBLE FOR ANY DECISIONS MADE OR ACTIONS TAKEN BASED ON THESE DOCUMENTS. THE DESIGN-BUILD ENTITY ASSUMES ALL RISKS AND TECHNICAL INFORMATION CONTAINED HEREIN, AND SHALL NOT HOLD DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS LIABLE FOR ANY DAMAGES RESULTING FROM USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS FOR USE SOLELY WITH RESPECT TO THIS PROJECT. THEY ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY OWNER OR OTHERS ON EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. ANY REUSE WITHOUT WRITTEN VERIFICATION OR ADAPTATION BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS FOR THE SPECIFIC PURPOSE INTENDED WILL BE AT OWNER'S SOLE RISK AND WITHOUT LIABILITY OR LEGAL EXPOSURE TO DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. OWNER SHALL INDEMNIFY AND HOLD HARMLESS DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS AND HIS OFFICERS AND EMPLOYEES FROM ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES INCLUDING ATTORNEYS' FEES ARISING OUT OF OR RESULTING THEREFROM. ANY DISTRIBUTION, DISCLOSURE, MODIFICATION, RELIANCE, OR RESALE OF THESE DOCUMENTS, IN WHOLE OR IN PART, TO ANY THIRD PARTY WITHOUT THE EXPRESS WRITTEN CONSENT OF DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS IS PROHIBITED. BY RECEIVING AND USING ANY PORTION OF THESE DOCUMENTS, THE USER AGREES TO THE FOREGOING TERMS. ANY UNAUTHORIZED USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS.

NO.	DATE	DESCRIPTIONS

DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SCHEDULE OF FINISHES - SEVENTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER

A-7.9

SCHEDULE OF FINISHES

EIGHT LEVEL

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
8-000	HOTELING CONFERENCE	ETM		CCB							SCF/SPP-1					AP-1/GB-1	
8-001	JANITOR	ETS		CCB							SCF/SPP-1					AP-1	
8-002	CORRIDOR	ETS		CCB						A.C.	SCF/SPP-1					GB-1	SEE DETAIL 1 (A-7.0)
8-003	ELECT.	ETS		CCB							SPP-1					AP-1	
8-004	TOILET	ETS		-----							CT-2					AP-1	
8-005	TOILET	ETS		-----							CT-2					AP-1	
8-006	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-007	LANDING	ETG	FP	CCB						A.C.	SCF/SPP-1			RFWP		GB-1	SEE DETAIL 1 (A-7.0)
8-008	LANDING	ETG	FP	CCB							SCF/SPP-1					GB-1	
8-009	CORRIDOR WAITING	ETG	FP	CCB						A.C.	SCF/SPP-1	RFWP				AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-010	LANDING	ETG	FP	CCB							SCF/SPP-1					GB-1	
8-011	WAITING	ETG	FP	CCB						A.C.	SCF/SPP-1		RFWP	RFWP		GB-1	SEE DETAIL 1 (A-7.0)
8-012	RECEPTION / WAITING	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-013	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-014	CONFERENCE ROOM	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-015	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
8-016	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
8-017	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
8-018	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-019	WORK AREA	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-020	MEDICAL DIRECTOR'S ASSISTANT	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-021	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-022	BATHROOM	ETS/CT-1		-----							CT-2					GB-4	
8-023	MEDICAL DIRECTOR'S OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-024	OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-025	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
8-026	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-027	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-028	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
8-029	OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-030	OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-031	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-032	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
8-033	CONFERENCE ROOM	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-034	WAITING / RECEPTION	ETM		CCB							SPP-1					AP-1	
8-035	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-036	SPARE OFFICE	ETM		CCB							SPP-1					AP-1	
8-037	STAFF LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-038	JANITOR	ETS		CCB							SCF/SPP-1					AP-1	
8-039	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-040	TOILET	ETS/CT-1		-----						A.C.	EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
8-041	TOILET	ETS/CT-1		-----						A.C.	EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
8-042	TOILET	ETS/CT-1		-----						A.C.	EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
8-043	TOILET	ETS/CT-1		-----						A.C.	EFT					AP-1/GB-4	SEE DETAIL 1 (A-7.0)
8-044	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-045	ELEVATOR LOBBY	ETM		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
8-046	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-047	STAIRS #1	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
8-048	ELECTRICAL	ETS		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
8-049	A/C	ETS		CCB						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
8-050	WORK AREA	ETM		CCB						A.C.	SCF					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-051	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-052	WORK AREA	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-053	STORAGE	ETS		CCB							SPP-1					AP-1	
8-054	STORAGE	ETS		CCB							SPP-1					AP-1	
8-055	CLERICAL SUPPORT	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-056	BATHROOM	ETS/CT-1		-----						A.C.	EFT					GB-4	SEE DETAIL 1 (A-7.0)
8-057	A/C	ETS		CCB							SCF					EXS	
8-058	BATHROOM	ETS/CT-1		-----						A.C.	EFT					GB-4	SEE DETAIL 1 (A-7.0)
8-059	ELECTRICAL	ETS		CCB							SCF					AP-1	
8-060	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-061	CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-062	ELEVATOR LOBBY	ETG		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
8-063	STAIRS #2	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
8-064	RECEPTION / WAITING	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-065	I.T. / TELECOM	ETS		CCB							SPP-1					AP-1	
8-066	EXECUTIVE CONFERENCE ROOM	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-067	OFFICE #1	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-068	ADMINS. OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
8-069	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-070	ADMINS. OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
8-071	ADMINISTRATOR'S OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-072	EXECUTIVE DIRECTOR'S ASSITANT	ETM		CCB							SCF/SPP-1					AP-1	
8-073	BATHROOM	ETM/CT-1		-----							EFT					GB-4	
8-074	ASEM EXECUTIVE DIRECTOR'S OFFICE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-075	EXECUTIVE LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-076	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-077	MEDICAL DIRECTOR	ETM		CCB							SCF/SPP-1					AP-1	
8-078	SUB-DIRECTOR NURSING	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-079	SUB-DIRECTOR NURSING	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
8-080	PUBLIC RELATIONS	ETM		CCB							SCF/SPP-1					AP-1	
8-081	CORRIDOR	ETM		CCB						A.C.	SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-082	OFFICE #1	ETM		CCB							SCF/SPP-1					AP-1	
8-083	CONFERENCE ROOM	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
8-084	WAITING / RECEPTION	ETM		CCB							SPP-1					AP-1	
8-085	JANITOR	ETS		CCB							SCF/SPP-1					AP-1	
8-086	STAFF LOUNGE	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)

SCHEDULE OF FINISHES

NINTH LEVEL

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
9-000	LANDING	ETG		CCB							SCF					GB-1	
9-001	LANDING	ETG		CCB							SCF					GB-1	
9-002	LOBBY	ETG		CCB						A.C.	SCF			RFWP		GB-1	SEE DETAIL 1 (A-7.0)
9-003	HALL	ETG		CCB						A.C.	SCF			RFWP		GB-1	SEE DETAIL 1 (A-7.0)
9-004	STAIRS #2	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
9-005	DISASTER CONTROL CENTER	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
9-006	PANTRY	ETM		CCB						A.C.	SCF/SPP-1					AP-1/GB-1	SEE DETAIL 1 (A-7.0)
9-007	M.O.C.	ETM		CCB							SCF/SPP-1					AP-1/GB-1	
9-008	OFFICE	ETM		CCB							SCF/SPP-1					AP-1	
9-009	RECEPTION	ETM		CCB							SCF/SPP-1					AP-1	
9-010	SERVICE CORRIDOR	ETM		CCB						A.C.	SCF/SPP-1					AP-1	SEE DETAIL 1 (A-7.0)
9-011	JANITOR	ETS		CCB							SCF/SPP-1					AP-1	
9-012	TOILET	ETS		-----							CT-2					AP-1	
9-013	TOILET	ETS		-----							CT-2					AP-1	
9-014	ELEVATOR LOBBY	ETG		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
9-015	UPPER STORAGE	PCF		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
9-016	STORAGE	PCF		CCB						A.C.	SCF					AP-1	SEE DETAIL 1 (A-7.0)
9-017	ELECTRICAL	PCF		CCB							SCF					AP-1	
9-018	MECHANICAL ROOM	PCF		CCB						A.C.	SCF					EXS	SEE DETAIL 2 (A-7.0)
9-019	SERVICE CORRIDOR	PCF		CCB	A.W.					A.C.	SCF					EXS	SEE DETAIL 2 & 6 (A-7.0)
9-020	MECHANICAL ROOM	PCF		CCB						A.C.	SCF					EXS	SEE DETAIL 2 (A-7.0)
9-021	RAMP & LANDING	PCF		-----						A.C.	SCF					EXS	SEE DETAIL 2 (A-7.0)
9-022	SERVICE ROOM	PCF		CCB							SCF					EXS	
9-023	STAIRS #1	PCB		-----						A.C.	SCF					EXS	SEE DETAIL 1 (A-7.0)
9-024	HELIPORT ELEVATOR LOBBY	ETM		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
9-025	SERVICE ROOM	PCF		CCB						A.C.	SCF					EXS	SEE DETAIL 2 (A-7.0)
9-026	ROOF	PCF		-----							SCF					-----	
9-027	ROOF	PCF		-----							SCF					-----	

SCHEDULE OF FINISHES

TENTH LEVEL

ROOM NO.	ROOM NAME	FLOOR	SPECIAL FLOOR	BASE	WAINSCOT	UPPER WALL GUARD	LOWER WALL GUARD	HAND RAIL	METAL CORNER GUARD	PLASTIC CORNER GUARD	WALLS	SPECIALTY WALL TREATMENT				CEILING TYPE	REMARKS
												NORTH	SOUTH	WEST	EAST		
10-000	ROOF	PCF		-----							SCF					EXS	
10-001	ELEVATOR LOBBY	ETM		CCB						A.C.	SCF					GB-1	SEE DETAIL 1 (A-7.0)
10-002	ROOF	PCF		-----							SCF					-----	
10-003	ROOF	PCF		-----							SCF					-----	
10-004	LANDING	PCF		-----							SCF					-----	
10-005	HOLDING TERRACE	PCF		-----							SCF					-----	
10-006	PANTRY	PCF		-----							SCF					-----	
10-007	LANDING	PCF		-----							SCF					-----	
10-008	ROOF	PCF		-----							SCF					-----	
10-009	ROOF	PCF		-----							SCF					-----	
10-010	ROOF	PCF		-----							SCF					-----	
10-011	ROOF	PCF		-----							SCF					-----	
10-012	ROOF	PCF		-----							SCF					-----	

LEGEND

N.W. - NORTH WALL
S.W. - SOUTH WALL
E.W. - EAST WALL
W.W. - WEST WALL
A.W. - ALL WALL
A.C. - ALL CORNERS

NOTES:
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THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS FOR USE SOLELY WITH RESPECT TO THIS PROJECT. THEY ARE NOT INTENDED TO BE SUITABLE FOR REUSE BY THE OWNER OR OTHERS ON EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. THEY ARE TO BE USED ONLY BY PERSONS OR ENTITIES WHO HAVE ENTERED INTO AN AGREEMENT WITH DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS. ANY UNAUTHORIZED USE, REPRODUCTION, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT THE PRIOR WRITTEN CONSENT OF DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS. THE OWNER'S USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS.

NO. | DATE | DESCRIPTIONS

DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
SCHEDULE OF FINISHES - EIGHT, NINE & TENTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER

A-7.10

DOOR SCHEDULE NOTES:

1. ALL METAL DOORS AND METAL FRAMES SHALL BE PRIMED & SHOP PAINTED.
2. ALL METALS SHALL BE GALVANIZED WITH PRIMER & 2 COATS OF SHERWIN WILLIAMS
3. ALL ALUMINUM FRAMES AND DOORS SHALL HAVE A NATURAL CLEAR ANODIZED FINISH.
4. ALL ALUMINUM FRAMES AND DOORS SHALL BE FLUSH GLASS MOUNT.
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR WINDOWS AND DOORS AND SHALL VERIFY FIELD DIMENSIONS AND ALERT THE ARCHITECT OF DISCREPANCIES BETWEEN EXISTING & PROPOSED CONDITION.
6. SEE ALL GENERAL FINISH NOTES & SUPPLEMENTARY FINISH NOTES ON FINISH SCHEDULE SHEET.
7. CONTRACTOR SHALL VERIFY FINAL CONSTRUCTED DOOR OPENING DIMENSIONS & SHALL ADJUST AS REQUIRED, BEFORE FABRICATION PROCEEDS, FOR THE INSTALLATION OF THE DOORS SPECIFIED HEREIN.
8. CONTRACTOR SHALL BRING PROMPTLY TO THE ATTENTION OF THE ARCHITECT, ANY DISCREPANCIES IN THE DOOR SCHEDULE BEFORE FABRICATION PROCEEDS AND INSTALLATION OF HARDWARE.

*THE FOLLOWING IS APPLICABLE TO DOORS NOTED UNDER THE "UTILITIES SERVICES TO BE PROVIDED" COLUMN:

1. DOORS NOTED UNDER THE "UTILITIES SERVICES TO BE PROVIDED" COLUMN IN THE DOOR SCHEDULE SHALL BE SUPPLIED & INSTALLED WITH KEY CARD READER CAPABILITY AND DOOR EXIT BUTTON, CONSISTING OF TWO 4" X 4" X 1 5/8" JUNCTION BOX (@ 4'-6" A.F.F.) WITH TWO 3/4"Ø CONDUIT UP TO 6" ABOVE SUSPENDED CEILING. IN ADDITION, THEY SHALL BE INSTALLED WITH TOP MOUNTED MAGNETIC LOCK CAPABILITY CONSISTING OF ONE 4" X 4" X 1 5/8" JUCTION BOX INSTALLED OVER THE DOOR FRAME (INSIDE THE GYPSUM BOARD PARTITION) WITH A 3/4"Ø CONDUIT UP TO 6" ABOVE SUSPENDED CEILING. UP TO 6" ABOVE SUSPENDED CEILING. PROVIDE ALL REQUIRED ELECTRICAL POWER SERVICE USING THE NEAREST ELECTRICAL CIRCUIT BRANCH.
2. ALL DOORS UNDER THE ELECTRIC STRIKE COLUMN SHALL BE OPERABLE FROM THE NEAREST RECEPTION, CONTROL STATION OR CASHIER AREAS UNLESS OTHERWISE NOTED IN THE SCHEDULE. PROVIDE ALL REQUIRED ELECTRICAL POWER SERVICE USING THE NEAREST ELECTRICAL CIRCUIT BRANCH.
3. ALL DOORS SHOWN TO HAVE KEY CARD READER ACCESS CONTROL CAPABILITY SHALL BE INSTALLED WITH ALL THE ROUGH-IN REQUIRED (CONDUITS, BOXES, JUNCTION BOXES, ETC.) FOR THE INSTALLATION OF THE DOOR MAGNETIC CONTACT, ELECTRIC STRIKE, CARD/KEYPAD READER AND EXIT PUSH BUTTON. A 120V DOUBLE ELECTRICAL RECEPTACLE SHALL PROVIDED IN THE PLENUM OVER THE DOOR FRAME HEADER.
4. ALL DOORS SHOWN TO HAVE KEY CARD READER ACCESS CONTROL CAPABILITY SHALL BE INSTALLED WITH ALL THE WIRING, HARDWARE AND SOFTWARE CAPABILITY REQUIRED FOR THE PROPER OPERATION OF THE ACCESS CONTROL SYSTEM. THE CONTRACTOR SHALL INCLUDE AS PART OF THE CONTRACT WORK SCOPE THE CONTRACTING OF THE OWNER. ACCESS CONTROL SYSTEM SUPPLIER, VENDOR & INSTALLER TO PROVIDE THE COMPLETED & OPERABLE ACCESS CONTROL SYSTEM.
5. THE FOLLOWINGS DOORS WILL SERVE AS EXITS WITH EMERGENCY EXIT HARDWARE THAT SHALL HAVE AUDIBLE ALARM ANNUNCIATION WITHOUT KEY CARD READER. PROVIDE ALL REQUIRED ELECTRICAL POWER SERVICE USING THE NEAREST ELECTRICAL CIRCUIT BRANCH:

ALUMINUM AND GLASS CODE COMPLIANCE NOTES:

1. ALL ALUMINUM & GLASS WINDOWS, SLIDING DOORS, OUTSIDE DOORS, FIXED GLASS PANELS AND WINDOW WALLS, MATERIAL AND INSTALLATION SHALL COMPLY WITH APPLICABLE REQUIREMENTS OF THE LATEST APPLICABLE PUERTO RICO BUILDING CODE INCLUDING RESISTANCE TO WITHSTAND THE IMPACT OF WINDBORNE MISSILES.
2. GENERAL CONTRACTOR SHALL SUBMIT TO THE OWNER, SHOP DRAWINGS AND STRUCTURAL COMPUTATIONS SIGNED AND SEALED BY LICENSED ENGINEER IN PUERTO RICO, SUPPORTING THE ABOVE INDICATED REQUIREMENTS.
3. ALL GLASS, EXCEPT OTHERWISE NOTED, SHALL BE 3/16" SAFETY LAMINATED GLASS. ALL GLASS UP TO 2'-6" A.F.F. SHALL BE 3/16" TEMPERED GLASS.

DOOR ACCESS CONTROL NOTES:

4. PROVIDE THE FOLLOWING UTILITY FACILITIES:
   a - 4" X 4" X 1-1/2" BOX WITH ONE GANG RAISED COVER FOR FUTURE DOOR CLOSER, INSTALL ABOVE DOOR FRAME. COORDINATE EXACT LOCATION W/ ARCHITECT
   b - 4" X 4" X 2-1/8" BOX WITH ONE GANG RAISED COVER FOR FUTURE DOOR ACCESS CONTROL INSTALL @ 48" AFF.

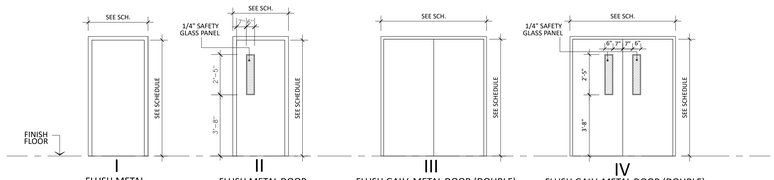
BUILDING ADMINISTRATION COMPLIANCE:

1- ALL WORK TO BE EXECUTED UNDER THIS CONTRACT SHALL BE DONE ONLY DURING THE WORKING HOURS APPROVED BY THE BUILDING ADMINISTRATOR.
2- ALL WORK EXECUTED UNDER THIS CONTRACT SHALL BE IN ACCORDANCE AND IN COMPLIANCE WITH THE BUILDING ADMINISTRATION REGULATIONS RELATED TO CONSTRUCTION.

WORK BY OWNER:

1- ALL CABLING, HARDWARE AND SOFTWARE RELATED TO THE VOICE COMMUNICATION SYSTEM, INFORMATION TECHNOLOGY SYSTEM, CLOSED CIRCUIT TV SYSTEM AND ELECTRONIC ACCESS CONTROL SYSTEM WILL BE SUPPLIED AND INSTALLED BY EACH OF THE SYSTEMS OWNER'S SUBCONTRACTORS.

DOOR TYPES

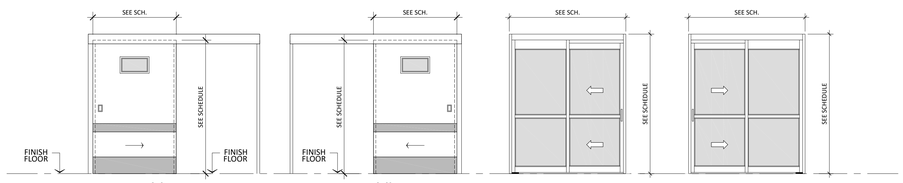


I — FLUSH METAL DOOR & FRAME PAINTED (HOLLOW CORE)

II — FLUSH METAL DOOR & FRAME PAINTED WITH 1/4" SAFETY GLASS PANEL (HOLLOW CORE)

III — FLUSH GALV. METAL DOOR (DOUBLE) & METAL FRAME PAINTED

IV — FLUSH GALV. METAL DOOR (DOUBLE) & METAL FRAME PAINTED (OPPOSITE ACTING - PIVOTING TYPE)) 1/4" WIRED GLASS VISION PANEL EACH.

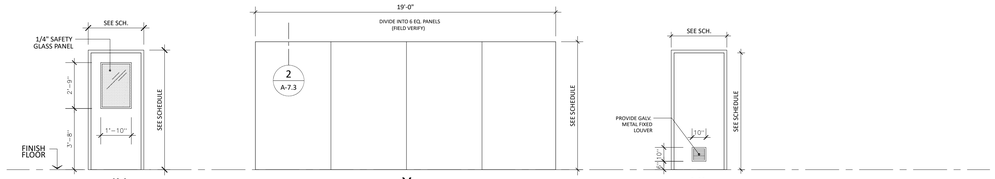


V — NABCO NAX HERMETIC DOOR GT9000 MODEL STAINLESS STEEL/GLASS OPERATING FACE SIDE VIEW

VI — NABCO NAX HERMETIC DOOR GT9000 MODEL STAINLESS STEEL/GLASS OPERATING FACE SIDE VIEW

VII — NABCO GT2100 SINGLE SLIDE - BREAKOUT SWING FULL OPEN TRACKLESS (OPERATION AS PER DOOR SCHEDULE)

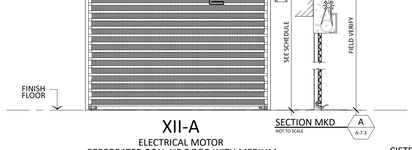
VIII — NABCO GT2100 SINGLE SLIDE - BREAKOUT SWING FULL OPEN TRACKLESS (OPERATION AS PER DOOR SCHEDULE)



IX — FLUSH METAL DOOR W/METAL FRAME PAINTED W/1/4" TEMP. GLASS

X — KWIK-WALL MODEL-2020 MULTI-DIRECTIONAL WITH INDIVIDUAL PANELS (42 STC TO 51 STC) / ACOUSTIC SEAL DOOR MULTI-DIRECTIONAL WITH INDIVIDUAL PANELS

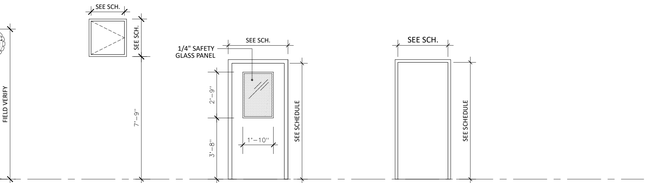
XI — FLUSH METAL DOOR & FRAME PAINTED WITH METAL FIXED LOUVER (HOLLOW CORE)



XII-A — ELECTRICAL MOTOR PERFORATED ROLL-UP DOOR WITH MEDIUM DUTY JACKSHAFT MOTOR 26 GAUGE GALV. STEEL WITH BAKED ON EPOXY PRIMER & POLYESTER TOP COAT

XII-B — ELECTRICAL MOTOR SOLID ROLL-UP DOOR WITH MEDIUM DUTY JACKSHAFT MOTOR 26 GAUGE GALV. STEEL WITH BAKED ON EPOXY PRIMER & POLYESTER TOP COAT

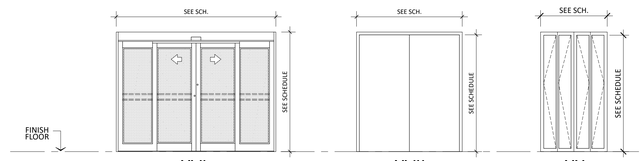
XII-C — ELECTRICAL MOTOR CHAIN LINK ROLL-UP DOOR WITH MEDIUM DUTY JACKSHAFT MOTOR 26 GAUGE GALV. STEEL WITH BAKED ON EPOXY PRIMER & POLYESTER TOP COAT



XIII — CISTERN ACCESS HATCH DOOR

XIV — FLUSH METAL DOOR & FRAME PAINTED (HOLLOW CORE) (OPPOSITE ACTING - PIVOTING TYPE)

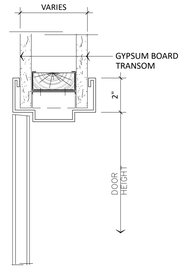
XV — FLUSH METAL DOOR & FRAME PAINTED LEAD SHIELDED DOOR & FRAME



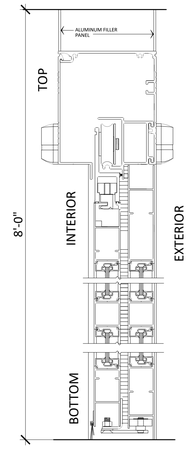
XVI — DOUBLE SLIDING DOOR GLASS & ALUMINUM SEE SPECS.

XVII — FLUSH GALV. METAL DOOR (DOUBLE) & METAL FRAME PAINTED (OPPOSITE ACTING - PIVOTING TYPE))

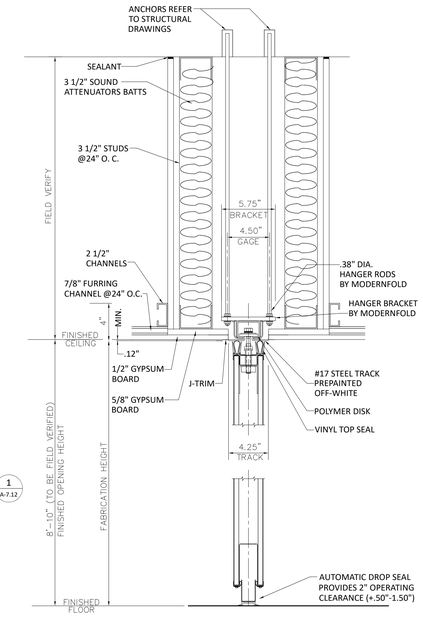
XX — DOUBLE FOLDING DOOR W/METAL FRAME PAINTED W/1/4" SAFETY



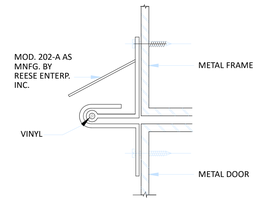
GYPSUM WALL TYPICAL METAL FRAME HEAD INSTALLATION DETAIL
NOT TO SCALE



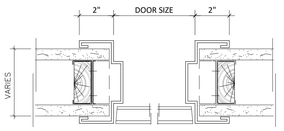
SLIDING DOOR DETAIL MKD. 1 A-7.12
NOT TO SCALE

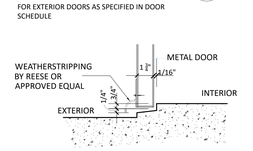


ACOUSTIC SEAL DOOR TYPICAL DETAIL - HEAD 2 A-7.12
NOT TO SCALE

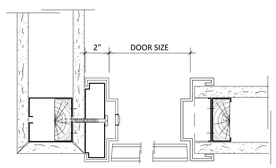


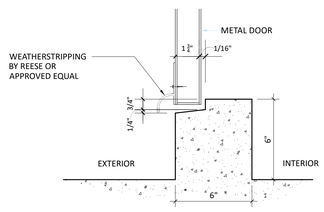
HEAD WEATHER STRIPPING A A-7.12
NOT TO SCALE
FOR EXTERIOR DOORS AS SPECIFIED IN DOOR SCHEDULE



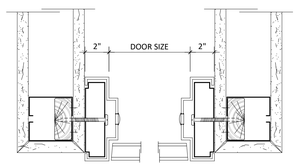


BOTTOM WEATHER STRIPPING B A-7.12
NOT TO SCALE

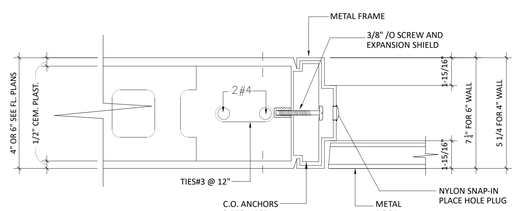




BOTTOM WEATHER STRIPPING C A-7.12
NOT TO SCALE



GYPSUM WALL TYPICAL METAL FRAME INSTALLATION DETAILS
NOT TO SCALE
*NOTE: REFER TO THESE DETAILS BEFORE PROCEEDING TO INSTALLING DOOR FRAMES & METAL DOORS.



TYPICAL METAL FRAME INSTALLATION DETAIL
(JAMB DETAIL)

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

DATE: JULY 2020
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

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NO.	DATE	DESCRIPTIONS

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
DOOR SCHEDULE - GENERAL NOTES, DOOR TYPES & DETAILS

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. OMIRE 1589 AVE. PONCE DE LEON, STE. 105 SAN JUAN PR 00926

DRAWING NUMBER
A-7.11

DOOR SCHEDULE - BASEMENT LEVEL

MKD.	DOORS TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UTILITIES SERVICES TO BE PROVIDED: UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	REMARKS
0-000	III	8'-4" x 8'-2"	(2) 4'-0" x 8'-0"	1-3/4"	METAL	2 HR.	D4		●	●	DOUBLE DOOR
0-001	XII-B	7'-6" x 8'-2"	FIELD ADJUSTED	-----	METAL		-----				COMMERCIAL ROLL-UP DOOR - HARDWARE BY MANUFACTURER WITH ELECTRICAL MOTOR OPERATION CAPABILITY
0-002	XII-B	7'-6" x 8'-2"	FIELD ADJUSTED	-----	METAL		-----				
0-003	XIII	2'-3" X 2'-3"	2'-0" X 2'-0"	-----	METAL		-----				CISTERN ACCESS HATCH DOOR WITH PADLOCK (BY MANUFACTURER)
0-004	XIII	2'-3" X 2'-3"	2'-0" X 2'-0"	-----	METAL		-----				CISTERN ACCESS HATCH DOOR WITH PADLOCK (BY MANUFACTURER)
0-005	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL		D1				DOUBLE DOOR & PROVIDE 1" UNDERCUT
0-006	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL		D1				DOUBLE DOOR & PROVIDE 1" UNDERCUT
0-007	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
0-008	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
0-009	XII-B	14'-0" X F.V.	FIELD ADJUSTED	-----	ALUMINUM		-----				COMMERCIAL ROLL-UP DOOR - HARDWARE BY MANUFACTURER WITH ELECTRICAL MOTOR OPERATION CAPABILITY
0-010	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
0-011	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
0-012	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
0-013	I	4'-4" X 87'-2"	4'-0" x 7'-0"	1-3/4"	METAL		1				
0-014	XII-A	7'-6" X 7'-2"	FIELD ADJUSTED	1-3/4"	METAL	2 HR.	-----				COMMERCIAL ROLL-UP DOOR - HARDWARE BY MANUFACTURER WITH ELECTRICAL MOTOR OPERATION CAPABILITY
0-015	XII-B	14'-0" X 7'-2"	FIELD ADJUSTED	1-3/4"	METAL	2 HR.	-----				
0-016	III	8'-4" X 7'-2"	(2) 4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
0-017	XII-B	14'-0" X 7'-2"	FIELD ADJUSTED	1-3/4"	METAL	2 HR.	-----				COMMERCIAL ROLL-UP DOOR - HARDWARE BY MANUFACTURER WITH ELECTRICAL MOTOR OPERATION CAPABILITY
0-018	III	8'-4" X 7'-2"	(2) 4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR & PROVIDE 1" UNDERCUT
0-019	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				DOUBLE DOOR & PROVIDE 1" UNDERCUT
0-020	XII-B	14'-0" X 7'-2"	FIELD ADJUSTED	1-3/4"	METAL	2 HR.	-----				COMMERCIAL ROLL-UP DOOR - HARDWARE BY MANUFACTURER WITH ELECTRICAL MOTOR OPERATION CAPABILITY
0-021	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
0-022	III	8'-4" X 7'-2"	(2) 4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR & PROVIDE 1" UNDERCUT
0-023	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL		D1				DOUBLE DOOR
0-024	XI	3'-4" X 7-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
0-025	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
0-026	I	3'-4" X 7-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
0-027	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
0-028	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	7		●	●	
0-029	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4				PROVIDE 1" UNDERCUT
0-030	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
0-031	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
0-032	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4		●	●	
0-033	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		2				
0-034	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		1				
0-035	XIV	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		14				TWO -WAY SWINGING DOOR
0-036	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
0-037	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
0-038	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL	30 MIN.	4				
0-039	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	7		●	●	
0-040	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
0-041	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
0-042	III	3'-5" X 7'-2"	3'-1" x 7'-0"	1-3/4"	METAL		DI				DOUBLE DOOR
0-043	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
0-044	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
0-045	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
0-046	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
0-047	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4		●	●	
0-048	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
0-049	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
0-050	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
0-051	III	3'-5" X 7'-2"	3'-1" x 7'-0"	1-3/4"	METAL		D1				DOUBLE DOOR
0-052	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
0-053	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
0-054	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
0-055	III	8'-4" X 7'-2"	(2) 4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR & PROVIDE 1" UNDERCUT
0-056	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		1				
0-057	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
0-058	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		1				
0-059	III	8'-4" X 7'-2"	(2) 4'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	D4		●	●	DOUBLE DOOR
0-060	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
0-061	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
0-062	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
0-063	XV	8'-0" X 7'-2"	FIELD ADJUSTED	1-3/4"	STAINLESS STEEL	30 MIN.	-----				HARDWARE BY MANUFACTURER
0-064	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
0-065	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
0-066	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
0-067	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10				
0-068	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
0-069	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
0-070	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
0-071	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				PROVIDE 1" UNDERCUT
0-072	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				PROVIDE 1" UNDERCUT
0-073	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
0-074	XVI	8'-0" X 7'-2"	FIELD ADJUSTED	1-3/4"	STAINLESS STEEL	30 MIN.	-----				HARDWARE BY MANUFACTURER
0-075	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6		●	●	

DOOR SCHEDULE - BASEMENT LEVEL CONTINUED

MKD.	DOORS TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UTILITIES SERVICES TO BE PROVIDED: UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	REMARKS
0-076	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
0-077	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
0-078	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
0-079	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
0-080	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
0-081	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1		●	●	DOUBLE DOOR
0-082	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4		●	●	
0-083	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
0-084	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
0-085	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7				
0-086	X	19'-4" X 7'-2"	-----	-----	-----		-----				ACOUSTIC SEAL FOLDING DOOR (FIELD VERIFY) HDW. BY MANU.
0-087	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
0-088	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
0-089	V	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
0-090	X	19'-4" X 7'-2"	-----	-----	-----		-----				ACOUSTIC SEAL FOLDING DOOR (FIELD VERIFY) HDW. BY MANU.
0-091	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
0-092	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		6				
0-093	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL		D5				DOUBLE DOOR
0-094	VIII	8'-0" X 8'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
0-095	I	3'-0" X 7'-2"	2'-8" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
0-096	I	3'-0" X 7'-2"	2'-8" x 7'-0"	1-3/4"	METAL		12				
0-097	I	3'-0" X 7'-2"	2'-8" x 7'-0"	1-3/4"	METAL		2				
0-098	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		6				
0-099	XI	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		1				
0-100	XI	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL	2 HR.	1				
0-101	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		4		●	●	
0-102	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	7		●	●	
0-103	II	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL	2 HR.	10				
0-104	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		4	●	●	●	
0-105	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		6				
0-106	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		3				
0-107	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		3				
0-108	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		3				
0-109	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		3				
0-110	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		3				
0-111	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		3				
0-112	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		3				
0-113	I	3'-4" X 7'-2"	3'-0" x 7-0"	1-3/4"	METAL		3				
0-114	XII-C	14'-0" X F.V.	FIELD ADJUSTED	-----	ALUMINUM		-----				COMMERCIAL ROLL-UP DOOR - HARDWARE BY MANUFACTURER WITH ELECTRICAL MOTOR OPERATION CAPABILITY
0-115	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		7				

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSES OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION OBJECTIVES. DESIGN INTENT, PERFORMANCE CRITERIA, AND TECHNICAL ASSESSMENTS ARE PRESENTED IN THESE DOCUMENTS. THESE DOCUMENTS ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, FABRICATION, OR CONSTRUCTION PURPOSES. THESE DOCUMENTS ARE PROVIDED AS A GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT. THE DESIGN-BUILD ENTITY SHALL BE SOLELY

DOOR SCHEDULE - FIRST LEVEL

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
1-000	III	6'-9" x 7'-2"	(2) 3'-2" x 7'-0"	1-3/4"	METAL		D4	●	●	●	DOUBLE DOOR
1-001	XVII	6'-9" x 7'-2"	(2) 3'-2" x 7'-0"	1-3/4"	METAL		D6	●	●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
1-002	III	6'-4" x 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL		D2		●	●	DOUBLE DOOR
1-003	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5		●	●	PROVIDE 1" UNDERCUT
1-004	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-005	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-006	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
1-007	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
1-008	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-009	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-010	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-011	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-012	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
1-013	IV	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	30 MIN.	D6		●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
1-014	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
1-015	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
1-016	IV	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL		D6				DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
1-017	VI	6'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-018	VI	6'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-019	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
1-020	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
1-021	IV	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	30 MIN.	D6		●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
1-022	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
1-023	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-024	IV	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL		D6		●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
1-025	VI	6'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-026	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				PROVIDE 1" UNDERCUT
1-027	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				PROVIDE 1" UNDERCUT
1-028	V	6'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-029	I	3'-10" X 8'-2"	3'-6" x 8'-0"	1-3/4"	METAL	30 MIN.	8				
1-030	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
1-031	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
1-032	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
1-033	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
1-034	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-035	V	6'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-036	I	3'-10" X 7'-2"	3'-6" x 7'-0"	1-3/4"	METAL		1				
1-037	II	4'-4" X 7'-2"	4'-0" x 87'-0"	1-3/4"	METAL	30 MIN.	10		●	●	
1-038	XVI	12'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-039	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
1-040	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
1-041	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		9		●	●	PROVIDE 1" UNDERCUT
1-042	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7				
1-043	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4		●	●	
1-044	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
1-045	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
1-046	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
1-047	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
1-048	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
1-049	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-050	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
1-051	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-052	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-053	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4	●	●	●	
1-054	XVI	12'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-055	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	4				PROVIDE 1" UNDERCUT
1-056	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	4	●	●	●	
1-057	I	3'-0" X 7'-2"	2'-8" x 7'-0"	1-3/4"	METAL		3				
1-058	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-059	III	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	30 MIN.	D3		●	●	DOUBLE DOOR
1-060	XI	3'-0" X 7'-2"	2'-8" x 7'-0"	1-3/4"	METAL	2 HR.	1				
1-061	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-062	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
1-063	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
1-064	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-065	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		2				
1-066	XV	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4				LEAD SHIELDED DOOR & FRAME
1-067	XV	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4				LEAD SHIELDED DOOR & FRAME
1-068	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
1-069	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
1-070	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-071	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
1-072	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				PROVIDE 1" UNDERCUT
1-073	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				PROVIDE 1" UNDERCUT
1-074	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-075	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				

DOOR SCHEDULE - FIRST LEVEL CONTINUED

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
1-076	VI	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-077	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-078	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-079	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
1-080	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-081	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
1-082	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-083	III	5'-0" X 7'-2"	(2) 2'-4" x 7'-0"	1-3/4"	METAL		D1				DOUBLE DOOR
1-084	V	6'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-085	V	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-086	IV	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	30 MIN.	D6		●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
1-087	VI	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-088	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
1-089	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-090	I	3'-0" X 7'-2"	2'-8" x 7'-0"	1-3/4"	METAL		12				
1-091	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-092	V	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-093	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-094	XI	3'-0" X 7'-2"	2'-8" x 7'-0"	1-3/4"	METAL	2 HR.	1				
1-095	III	8'-0" X 7'-2"	(2) 3'-10" x 8'-0"	1-3/4"	METAL	30 MIN.	D3	●	●	●	DOUBLE DOOR
1-096	I	3'-0" X 7'-2"	2'-8" x 7'-0"	1-3/4"	METAL		1				
1-097	I	3'-0" X 7'-2"	2'-8" x 7'-0"	1-3/4"	METAL		1				
1-098	I	3'-0" X 7'-2"	2'-8" x 7'-0"	1-3/4"	METAL		2				
1-099	VI	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-100	III	8'-10" X 7'-2"	(2) 4'-3" x 7'-0"	1-3/4"	METAL	30 MIN.	D3	●	●	●	DOUBLE DOOR
1-101	IV	8'-10" X 7'-2"	(2) 4'-3" x 7'-0"	1-3/4"	METAL	30 MIN.	D6		●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
1-102	III	8'-10" X 7'-2"	(2) 4'-3" x 7'-0"	1-3/4"	METAL		D3				DOUBLE DOOR
1-103	VI	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-104	V	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-105	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-106	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-107	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-108	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-109	V	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-110	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-111	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-112	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
1-113	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-114	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-115	VI	6'-3" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-116	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-117	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-118	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-119	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-120	IV	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL		D6		●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
1-121	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-122	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-123	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
1-124	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-125	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-126	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-127	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-128	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
1-129	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-130	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-131	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
1-132	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-133	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
1-134	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
1-135	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-136	III	5'-0" X 7'-2"	(2) 2'-4" x 7'-0"	1-3/4"	METAL		D1				DOUBLE DOOR
1-137	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
1-138	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	2				DOUBLE DOOR
1-139	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-140	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-141	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-142	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-143	XVII	8'-0" X 7'-2"	(2) 3'-10" x 8'-0"	1-3/4"	METAL	30 MIN.	D6				DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
1-144	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10				
1-145	II	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		8		●	●	
1-146	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	9		●	●	
1-147	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		1	●	●	●	
1-148	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		1				
1-149	XVI	12'-0" X 7-2"	FIELD ADJUSTED	-----	ALUMINUM		-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-150	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
1-151	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				

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DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
DOOR SCHEDULE - FIRST LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 100 SAN JUAN PR 00926

DRAWING NUMBER

A-7.13

DOOR SCHEDULE - FIRST LEVEL CONTINUED

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
1-152	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				PROVIDE 1" UNDERCUT
1-153	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
1-154	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				PROVIDE 1" UNDERCUT
1-155	I	3'-0" X 7'-2"	2'-8" x 7'-0"	1-3/4"	METAL		4				
1-156	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		7	●	●	●	
1-157	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4	●	●	●	
1-158	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4	●	●	●	
1-159	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4				
1-160	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4				
1-161	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-162	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
1-163	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
1-164	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
1-165	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
1-166	XIX	3'-10 x 6'-0"	3'-6" x 6'-0"	1-3/4"	METAL		-----				STEEL GATE SEE DOOR SCHEDULE IN SHEET AS-1.5
1-167	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-168	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4				
1-169	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4				
1-170	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
1-171	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
1-172	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
1-173	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-174	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-175	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
1-176	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
1-177	III	6'-4" X 8'-2"	(2) 3'-0" x 8'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
1-178	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
1-179	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	7		●	●	
1-180	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	7				
1-181	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	7		●	●	
1-182	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7				
1-183	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-184	VI	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-185	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-186	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-187	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-188	VI	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
1-189	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	6				
1-190	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		2				
1-191	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	
1-192	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
1-193	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4		●	●	
1-194	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4		●	●	
1-195	XVII	8'-0" X 7'-2"	(2) 4'-0" x '-0"	1-3/4"	METAL	2 HR.	D4		●	●	DOUBLE DOOR, OPPOSITE ACTING

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PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:

DOOR SCHEDULE - FIRST LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. GARIBE 1590 AVE. PONCE DE LEON, STE 705 SAN JUAN PR 00926

DRAWING NUMBER

A-7.14

DOOR SCHEDULE - SECOND LEVEL

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
2-000	XIX	3'-10 x 6'-0"	3'-6" x 6'-0"	1-3/4"	METAL		-----				STEEL GATE SEE DOOR SCHEDULE IN SHEET AS-1.5
2-001	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
2-002	II	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
2-003	II	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		7				
2-004	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL		D3				DOUBLE DOOR
2-005	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
2-006	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-007	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-008	XI	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
2-009	III	6'-0" X 7'-2"	(2) 2'-10" x 7'-0"	1-3/4"	METAL		D3				DOUBLE DOOR
2-010	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-011	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-012	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-013	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-014	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-015	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-016	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-017	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-018	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-019	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-020	II	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		7				
2-021	III	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	2 HR.	D3		●	●	DOUBLE DOOR
2-022	III	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	2 HR.	D3		●	●	DOUBLE DOOR
2-023	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
2-024	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-025	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7		●	●	PROVIDE 1" UNDERCUT
2-026	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-027	V	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-028	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-029	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
2-030	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-031	VI	6'-3" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-032	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-033	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-034	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-035	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
2-036	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-037	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-038	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
2-039	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-040	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
2-041	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-042	XVII	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	30 MIN.	D6		●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
2-043	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	
2-044	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
2-045	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
2-046	III	5'-0" X 7'-2"	(2) 2'-4" x 7'-0"	1-3/4"	METAL		D1				DOUBLE DOOR
2-047	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-048	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
2-049	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
2-050	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6		●	●	
2-051	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
2-052	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
2-053	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
2-054	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
2-055	IV	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	30 MIN.	D6	●	●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
2-056	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
2-057	I	3'-0" X 7'-2"	2'-8" x 7'-0"	1-3/4"	METAL		1				
2-058	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
2-059	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
2-060	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	
2-061	VI	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-062	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-063	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
2-064	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-065	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-066	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
2-067	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
2-068	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
2-069	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
2-070	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-071	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-072	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-073	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-074	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-075	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.

DOOR SCHEDULE - SECOND LEVEL CONTINUED

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
2-076	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-077	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-078	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-079	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-080	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-081	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-082	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-083	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-084	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-085	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-086	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
2-087	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		12				
2-088	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-089	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		12				
2-090	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
2-091	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL	30 MIN.	7		●	●	
2-092	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
2-093	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
2-094	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	4	●	●	●	
2-095	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
2-096	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
2-097	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
2-098	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
2-099	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
2-100	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

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DOOR SCHEDULE - THIRD LEVEL

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
3-000	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6		●	●	
3-001	III	6'-4" x 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	D3				DOUBLE DOOR, PROVIDE WEATHER PROOFING
3-002	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
3-003	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
3-004	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
3-005	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
3-006	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-007	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-008	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-009	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-010	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-011	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-012	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-013	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-014	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-015	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-016	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-017	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-018	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-019	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-020	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-021	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-022	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
3-023	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
3-024	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
3-025	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
3-026	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
3-027	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
3-028	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4	●	●	●	
3-029	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
3-030	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
3-031	XI	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
3-032	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6		●	●	
3-033	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
3-034	III	4'-8" X 7'-2"	(2) 2'-2" x 7'-0"	1-3/4"	METAL		D1				DOUBLE DOOR
3-035	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
3-036	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
3-037	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
3-038	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4		●	●	
3-039	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
3-040	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
3-041	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4	●	●	●	
3-042	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				
3-043	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
3-044	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4	●	●	●	
3-045	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
3-046	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	7		●	●	
3-047	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	4	●	●	●	
3-048	II	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	
3-049	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-050	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
3-051	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	4	●	●	●	
3-052	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	4	●	●	●	
3-053	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		2	●	●	●	
3-054	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
3-055	I	3'-10" X 7'-2"	3'-6" x 7'-0"	1-3/4"	METAL		4				
3-056	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
3-057	I	3'-10" X 7'-2"	3'-6" x 7'-0"	1-3/4"	METAL		4				
3-058	I	3'-10" X 7'-2"	3'-6" x 7'-0"	1-3/4"	METAL		4				
3-059	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
3-060	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		6				
3-061	I	3'-10" X 7'-2"	3'-6" x 7'-0"	1-3/4"	METAL		4				
3-062	I	3'-2" X 7'-2"	2'-10" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
3-063	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
3-064	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
3-065	XX	6'-0" X 7'-2"	(4) 1'-5" x 7'-0"	1-3/4"	METAL		-----				HARDWARE BY MANUFACTURER
3-066	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		6				
3-067	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
3-068	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
3-069	I	3'-2" X 7'-2"	2'-10" x 7'-0"	1-3/4"	METAL		1				
3-070	I	3'-2" X 7'-2"	2'-10" x 7'-0"	1-3/4"	METAL		1				
3-071	X	12'-8" X 7'-2"	-----	-----	-----		-----				ACOUSTIC SEAL FOLDING DOOR (FIELD VERIFY) HDW. BY MANU.
3-072	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
3-073	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		6				
3-074	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
3-075	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4				

DOOR SCHEDULE - THIRD LEVEL CONTINUED

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
3-076	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
3-077	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
3-078	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4				
3-079	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
3-080	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		4				
3-081	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	
3-082	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	4	●	●	●	
3-083	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
3-084	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	7		●	●	
3-085	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
3-086	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
3-087	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: JULY 2026

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

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NO.	DATE	DESCRIPTIONS

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
DOOR SCHEDULE - THIRD LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER

A-7.16

DOOR SCHEDULE - FOURTH LEVEL

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
4-000	I	3'-4" x 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
4-001	I	3'-4" x 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-002	I	3'-4" x 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-003	XI	3'-4" x 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		1				
4-004	II	3'-4" x 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL	2 HR.	10		●	●	
4-005	XVII	8'-0" x 8'-2"	(2) 3'-10" x 8'-0"	1-3/4"	METAL	30 MIN.	D6		●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
4-006	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-007	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-008	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-009	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-010	III	6'-4" X 8'-2"	(2) 3'-0" x 8'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
4-011	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
4-012	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-013	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-014	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-015	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-016	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
4-017	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-018	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-019	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-020	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-021	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-022	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-023	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-024	VI	6'-3" X 8'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
4-025	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-026	XI	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL	2 HR.	1				
4-027	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-028	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-029	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-030	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		6				
4-031	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		6				
4-032	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-033	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		7		●	●	
4-034	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		1				
4-035	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-036	V	8'-0" X 8'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
4-037	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-038	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
4-039	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-040	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		7		●	●	
4-041	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-042	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		4				
4-043	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		6				
4-044	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		1				
4-045	VI	8'-0" X 8'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
4-046	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-047	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-048	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-049	II	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL	2 HR.	10		●	●	
4-050	III	6'-4" X 8'-2"	(2) 3'-0" x 8'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
4-051	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		1				
4-052	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-053	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-054	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		1				
4-055	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		1				
4-056	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-057	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-058	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-059	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-060	IV	8'-0" X 8'-2"	(2) 3'-10" x 8'-0"	1-3/4"	METAL	30 MIN.	D6	●	●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
4-061	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
4-062	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-063	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-064	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-065	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-066	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-067	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				
4-068	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
4-069	IX	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		6				
4-070	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		1				
4-071	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		3				
4-072	IX	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		6		●	●	
4-073	IX	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		1				
4-074	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-075	III	5'-0" X 8'-2"	(2) 2'-4" x 8'-0"	1-3/4"	METAL		D1				DOUBLE DOOR

DOOR SCHEDULE - FOURTH LEVEL CONTINUED

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
4-076	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
4-077	VIII	8'-0" X 8'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
4-078	XI	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL	2 HR.	1				
4-079	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		2				
4-080	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		12				
4-081	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-082	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		12				
4-083	VII	8'-0" X 8'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
4-084	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
4-085	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL	30 MIN.	7		●	●	
4-086	IX	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		1				
4-087	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL	30 MIN.	4	●	●	●	
4-088	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		3				
4-089	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		3				
4-090	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		3				
4-091	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		3				
4-092	I	3'-4" X 8'-2"	3'-0" x 8'-0"	1-3/4"	METAL		3				
4-093	I	4'-4" X 8'-2"	4'-0" x 8'-0"	1-3/4"	METAL		11				

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSES OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION OBJECTIVES. DESIGN INTENT, PERFORMANCE CRITERIA, AND SPECIFIC ASPECTS OF THE DESIGN-BUILD ENTITY'S PROPOSAL ARE INCLUDED IN THESE DOCUMENTS. THESE DOCUMENTS ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION PURPOSES. THEY ARE INTENDED TO BE USED AS A REFERENCE AND GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY, AND ITS CONSULTANTS SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY AND ITS CONSULTANTS SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, AND ACCURACY OF ALL CONSTRUCTION DOCUMENTS, AND SHALL COMPLY WITH ALL APPLICABLE CODES, REGULATIONS, AND STANDARDS. THE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

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NO.	DATE	DESCRIPTIONS

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
DOOR SCHEDULE - FOURTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. CARIBE 1359 AVE. PONCE DE LEON, STE 103 SAN JUAN PR 00926

DRAWING NUMBER

A-7.17

DOOR SCHEDULE - FIFTH LEVEL

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
5-000	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
5-001	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-002	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-003	XI	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
5-004	II	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	
5-005	XVII	8'-0" X 87'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	30 MIN.	D6		●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
5-006	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-007	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-008	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-009	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-010	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
5-011	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
5-012	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-013	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-014	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-015	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-016	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
5-017	I	4'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		11				
5-018	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-019	I	4'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		11				
5-020	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-021	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-022	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-023	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-024	VI	6'-3" X 8'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
5-025	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-026	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
5-027	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-028	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-029	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-030	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
5-031	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
5-032	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-033	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
5-034	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
5-035	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-036	V	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
5-037	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-038	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
5-039	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-040	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
5-041	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-042	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
5-043	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
5-044	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
5-045	VI	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
5-046	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-047	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-048	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-049	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	
5-050	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
5-051	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
5-052	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-053	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-054	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
5-055	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
5-056	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-057	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-058	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-059	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-060	IV	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	30 MIN.	D6	●	●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
5-061	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
5-062	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-063	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-064	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-065	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-066	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-067	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
5-068	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
5-069	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
5-070	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
5-071	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
5-072	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6		●	●	
5-073	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
5-074	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-075	III	5'-0" X 7'-2"	(2) 2'-4" x 7'-0"	1-3/4"	METAL		D1				DOUBLE DOOR

DOOR SCHEDULE - FIFTH LEVEL CONTINUED

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
5-076	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
5-077	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
5-078	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
5-079	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
5-080	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		12				
5-081	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-082	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		12				
5-083	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
5-084	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
5-085	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	7		●	●	
5-086	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
5-087	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	4	●	●	●	
5-088	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
5-089	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
5-090	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
5-091	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
5-092	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
5-093	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
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PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
DOOR SCHEDULE - FIFTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 103 SAN JUAN PR 00909

DRAWING NUMBER

A-7.18

DOOR SCHEDULE - SIXTH LEVEL

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
6-000	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
6-001	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-002	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-003	XI	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
6-004	II	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	
6-005	XVII	8'-0" X 87'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	30 MIN.	D6		●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
6-006	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-007	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-008	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-009	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-010	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
6-011	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
6-012	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-013	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-014	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-015	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-016	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
6-017	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-018	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-019	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-020	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-021	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-022	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-023	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-024	VI	6'-3" X 8'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
6-025	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-026	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
6-027	I	4'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		11				
6-028	I	3'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-029	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-030	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
6-031	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
6-032	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-033	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
6-034	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
6-035	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-036	V	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
6-037	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-038	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
6-039	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-040	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
6-041	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-042	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
6-043	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
6-044	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
6-045	VI	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
6-046	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-047	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-048	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-049	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	
6-050	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
6-051	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
6-052	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-053	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-054	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
6-055	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
6-056	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-057	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-058	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-059	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-060	IV	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	30 MIN.	D6	●	●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
6-061	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
6-062	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-063	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-064	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-065	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-066	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-067	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
6-068	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
6-069	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
6-070	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
6-071	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
6-072	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6		●	●	
6-073	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
6-074	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-075	III	5'-0" X 7'-2"	(2) 2'-4" x 7'-0"	1-3/4"	METAL		D1				DOUBLE DOOR

DOOR SCHEDULE - SIXTH LEVEL CONTINUED

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
6-076	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
6-077	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
6-078	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
6-079	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
6-080	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		12				
6-081	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-082	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		12				
6-083	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
6-084	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
6-085	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	7		●	●	
6-086	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
6-087	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	4	●	●	●	
6-088	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
6-089	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
6-090	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
6-091	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
6-092	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
6-093	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

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NO. | DATE | DESCRIPTIONS

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
DOOR SCHEDULE - SIXTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 103 SAN JUAN PR 00926

DRAWING NUMBER
A-7.19

DOOR SCHEDULE - SEVENTH LEVEL

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
7-000	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
7-001	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-002	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-003	XI	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
7-004	II	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	
7-005	XVII	8'-0" X 87'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	30 MIN.	D6		●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
7-006	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-007	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-008	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-009	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-010	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
7-011	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
7-012	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-013	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-014	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-015	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-016	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
7-017	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-018	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-019	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		11				PROVIDE 1" UNDERCUT
7-020	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-021	VI	6'-3" X 8'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL		-----				
7-022	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-023	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-024	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-025	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-026	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
7-027	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-028	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-029	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-030	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-031	V	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
7-032	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
7-033	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
7-034	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
7-035	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-036	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
7-037	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-038	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
7-039	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-040	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-041	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
7-042	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
7-043	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
7-044	VI	8'-0" X 7'-2"	FIELD ADJUSTED	-----	STAINLESS STEEL	30 MIN.	-----		●	●	AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
7-045	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-046	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	
7-047	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
7-048	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-049	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
7-050	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
7-051	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-052	IV	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	30 MIN.	D6	●	●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
7-053	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-054	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-055	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
7-056	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
7-057	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
7-058	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6		●	●	
7-059	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
7-060	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-061	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-062	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
7-063	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
7-064	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-065	III	5'-0" X 7'-2"	(2) 2'-4" x 7'-0"	1-3/4"	METAL		D1				DOUBLE DOOR
7-066	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
7-067	VIII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
7-068	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
7-069	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
7-070	VII	8'-0" X 7'-2"	FIELD ADJUSTED	-----	ALUMINUM		-----				AUTOMATIC ELECTRIC SLIDING DOOR-HDW. BY MANU.
7-071	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	7		●	●	
7-072	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
7-073	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	4	●	●	●	
7-074	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
7-075	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				

DOOR SCHEDULE - SEVENTH LEVEL CONTINUED

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
7-076	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
7-077	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
7-078	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
7-079	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-080	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		12				
7-081	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		12				
7-082	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-083	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-084	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-085	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-086	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-087	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-088	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-089	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-090	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
7-091	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
7-092	I	4'-4" X 7'-2"	4'-0" x 7'-0"	1-3/4"	METAL		11				
7-093	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

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NO.	DATE	DESCRIPTIONS

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
DOOR SCHEDULE - SEVENTH LEVEL

DE LA TORRE - ESTEVEZ ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER
A-7.20

DOOR SCHEDULE - EIGHT LEVEL

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
8-000	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
8-001	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5		●	●	PROVIDE 1" UNDERCUT
8-002	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
8-003	XI	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
8-004	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
8-005	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4	●	●	●	
8-006	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
8-007	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-008	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
8-009	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-010	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-011	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-012	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-013	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
8-014	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
8-015	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2		●	●	
8-016	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
8-017	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-018	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-019	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-020	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-021	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
8-022	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-023	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-024	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
8-025	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	7		●	●	
8-026	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4	●	●	●	
8-027	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-028	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
8-029	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
8-030	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
8-031	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
8-032	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
8-033	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
8-034	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	2		●	●	
8-035	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
8-036	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
8-037	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
8-038	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
8-039	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
8-040	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4	●	●	●	
8-041	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-042	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2		●	●	
8-043	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-044	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-045	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	
8-046	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-047	III	6'-4" X 7'-2"	(2) 3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
8-048	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-049	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-050	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4		●	●	
8-051	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	30 MIN.	7		●	●	
8-052	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
8-053	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
8-054	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
8-055	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
8-056	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4				
8-057	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
8-058	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-059	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-060	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-061	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
8-062	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
8-063	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
8-064	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
8-065	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		7		●	●	
8-066	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
8-067	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4	●	●	●	
8-068	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
8-069	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	

DOOR SCHEDULE - NINTH LEVEL

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
9-000	II	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	10		●	●	
9-001	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		8		●	●	PROVIDE WEATHER STRIPPING
9-002	XVII	8'-0" x 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	30 MIN.	D6		●	●	DOUBLE DOOR, DOUBLE ACTING PIVOTING TYPE
9-003	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4		●	●	
9-004	I	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6		●	●	
9-005	IX	3'-4" x 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6				
9-006	IX	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		2				
9-007	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		6		●	●	
9-008	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				PROVIDE 1" UNDERCUT
9-009	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
9-010	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		5				PROVIDE 1" UNDERCUT
9-011	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		4	●	●	●	
9-012	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1		●	●	PROVIDE 1" UNDERCUT
9-013	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		3				
9-014	XI	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	1				
9-015	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		1				
9-016	III	8'-4" X 7'-2"	(2) 4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
9-017	III	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
9-018	III	8'-4" X 7'-2"	(2) 4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D1				DOUBLE DOOR
9-019	III	8'-4" X 7'-2"	(2) 4'-0" x 7'-0"	1-3/4"	METAL	2 HR.	D2		●	●	DOUBLE DOOR & PROVIDE WEATHER STRIPPING
9-020	I	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL		13				PROVIDE WEATHER STRIPPING
9-021	III	8'-4" X 7'-2"	(2) 4'-0" x 7'-0"	1-3/4"	METAL		D2				DOUBLE DOOR & PROVIDE WEATHER STRIPPING
9-022	III	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL		D2		●	●	DOUBLE DOOR & PROVIDE WEATHER STRIPPING
9-023	III	8'-0" X 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL		D2		●	●	DOUBLE DOOR & PROVIDE WEATHER STRIPPING
9-024	III	8'-4" X 7'-2"	(2) 4'-0" x 7'-0"	1-3/4"	METAL		D2				DOUBLE DOOR & PROVIDE WEATHER STRIPPING
9-025	II	3'-4" X 7'-2"	3'-0" x 7'-0"	1-3/4"	METAL	2 HR.	9		●	●	

DOOR SCHEDULE - TENTH LEVEL

MKD.	DOORS					UTILITIES SERVICES TO BE PROVIDED					REMARKS
	TYPE	MASONRY OPENING	DOOR SIZE	THICK	MATERIAL	UL LABEL	HDWR. SET	ELECTRIC STRIKE	KEY CARD READER	MAGNETIC LOCK	
10-000	III	8'-0" x 7'-2"	(2) 3'-10" x 7'-0"	1-3/4"	METAL		D2		●	●	DOUBLE DOOR & PROVIDE WEATHER STRIPPING

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

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NO. | DATE | DESCRIPTIONS

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
DOOR SCHEDULE - EIGTH, NINTH & TENTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 103 SAN JUAN PR 00909

DRAWING NUMBER

A-7.21

HARDWARE SCHEDULE:

HARDWARE SET 1
4 EA HINGE
1 EA STOREROOM LOCK
1 EA SURFACE CLOSER
1 EA DOOR STOP
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET 2
4 EA HINGE
1 EA PASSAGE SET
1 EA SURFACE CLOSER
1 EA DOOR STOP
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET 3
4 EA HINGE
1 EA ENTRANCE/OFFICE LOCK
1 EA DOOR STOP
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET 4
4 EA HINGE
1 EA ENTRANCE/OFFICE LOCK
1 EA SURFACE CLOSER
1 EA DOOR STOP
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET 5
4 EA HINGE
1 EA PRIVACY SET
1 EA SURFACE CLOSER
1 EA DOOR STOP
3 EA SILENCER, METAL DOOR

HARDWARE SET 6
4 EA HINGE
1 EA CLASSROOM LOCK
1 EA SURFACE CLOSER
1 EA DOOR STOP
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET 7 (PANIC INTERIOR)
4 EA HINGE
1 EA PANIC HARDWARE
1 EA RIM CYLINDER
2 EA SURFACE CLOSER
1 EA DOOR STOP
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET 8 (PANIC EXTERIOR)
4 EA HINGE
1 EA PANIC HARDWARE
1 EA RIM CYLINDER
2 EA SURFACE CLOSER
1 EA DOOR STOP
1 EA RAIN DRIP
1 EA THRESHOLD
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET 9 (FIRE EXTERIOR)
4 EA HINGE
1 EA FIRE EXIT HARDWARE
1 EA ALARM KIT
1 EA MORTISE CYLINDER
1 EA SURFACE CLOSER
1 EA DOOR STOP
1 SET SEALS
1 EA RAIN DRIP
1 EA THRESHOLD
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET 10 (FIRE INTERIOR)
4 EA HINGE
1 EA FIRE EXIT HARDWARE
1 EA ALARM KIT
1 EA MORTISE CYLINDER
1 EA SURFACE CLOSER
1 EA DOOR STOP
1 SET SEALS
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET 11
4 EA HINGE
1 EA HOSPITAL LATCH
1 EA SURFACE CLOSER
1 EA DOOR STOP
3 EA SILENCER, METAL DOOR

HARDWARE SET 12
4 EA HINGE
1 EA ROLLER LATCH
1 EA PUSH PLATES
1 EA PULL PLATES
1 EA SURFACE CLOSER
1 EA DOOR STOP
3 EA SILENCER, METAL DOOR

HARDWARE SET 13
4 EA HINGE
1 EA STOREROOM LOCK
1 EA SURFACE CLOSER
1 EA DOOR STOP
1 EA RAIN DRIP
1 EA THRESHOLD
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET D1
8 EA HINGE
2 EA FLUSH BOLTS
1 EA STOREROOM LOCK
2 EA DOOR STOP
2 EA SURFACE CLOSER
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET D2
8 EA HINGE
2 EA FLUSH BOLTS
1 EA STOREROOM LOCK
2 EA DOOR STOP
2 EA SURFACE CLOSER
2 EA RAIN DRIP
2 EA THRESHOLD
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET D3
8 EA HINGE
2 EA PANIC HARDWARE
1 EA RIM CYLINDER
2 EA SURFACE CLOSER
2 EA DOOR STOP
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET D4
8 EA HINGE
2 EA FIRE EXIT DEVICE
1 EA ALARM KIT
1 EA RIM CYLINDER
2 EA SURFACE CLOSER
2 EA DOOR STOP
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET D5
8 EA HINGE
1 EA CLASSROOM LOCK
2 EA DOOR STOP
2 EA SURFACE CLOSER
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

HARDWARE SET D6
8 EA HINGES (DOUBLE ACTING)
2 EA PANIC HARDWARE
1 EA RIM CYLINDER
2 EA SURFACE CLOSER
2 EA DOOR STOP
3 EA SILENCER, METAL DOOR
1 EA KEYING CHARGES
1 EA KEYING CHARGES
1 EA KEYING CHARGE

DOOR ACCESS CONTROL NOTES:

1. THE DOORS INDICATED UNDER THE COLUMNS HEADINGS "KEY CARD READER" AND "MAGNETIC LOCK" IN DOOR SCHEDULE TABLES (SHEETS A-7.13 TO A-7.22) SHALL BE INSTALLED WITH KEY CARD READER CAPABILITY AND DOOR EXIT BUTTON, CONSISTING OF TWO 4" X 4" X 1 5/8" JUNCTION BOX (@ 4'-6" A.F.F.) WITH TWO 3/4"Ø CONDUIT UP TO 6" ABOVE SUSPENDED CEILING. IN ADDITION, THEY SHALL BE INSTALLED WITH TOP MOUNTED MAGNETIC LOCK CAPABILITY CONSISTING OF ONE 4" X 4" X 1 5/8" JUCTION BOX INSTALLED OVER THE DOOR FRAME (INSIDE THE GYPSUM BOARD PARTITION) WITH A 3/4"Ø CONDUIT UP TO 6" ABOVE SUSPENDED CEILING. PROVIDE ALL REQUIRED ELECTRICAL POWER SERVICE USING THE NEAREST ELECTRICAL CIRCUIT BRANCH:

2. THE DOORS INDICATED UNDER THE COLUMN HEADINGS "ELECTRIC STRIKE" IN DOOR SCHEDULE TABLES (SHEETS A-7.13 TO A-7.22) SHALL BE OPERABLE FROM THE NEAREST RECEPTION, NURSE STATION, CONTROL OR CASHIER AREAS AS APPLICABLE. PROVIDE ALL REQUIRED ELECTRICAL POWER SERVICE AND CONNECTION USING THE NEAREST ELECTRICAL CIRCUIT BRANCH:

3. THE DOORS WITH HARDWARE SET D4, SET 9 AND SET 10 WILL SERVE AS EXITS WITH EMERGENCY EXIT HARDWARE THAT SHALL HAVE AN AUDIBLE ALARM ANNUNCIATION ONLY BYPASSED FOR USE WITH KEY CARD READER. PROVIDE ALL REQUIRED ELECTRICAL POWER SERVICE USING THE NEAREST ELECTRICAL CIRCUIT BRANCH:

4. ALL DOORS WITH THE CAPACITIES AND CHARACTERISTICS IN NOTES 1, 2, & 3 ABOVE, SHALL BE PROVIDED WITH THE FOLLOWING UTILITY FACILITIES:

   a - 4" X 4" X 1-1/2" BOX WITH ONE GANG RAISED COVER FOR FUTURE DOOR CLOSER, INSTALL ABOVE DOOR FRAME. COORDINATE EXACT LOCATION W/ ARCHITECT

   b - 4" X 4" X 2-1/8" BOX WITH ONE GANG RAISED COVER FOR FUTURE DOOR ACCESS CONTROL INSTALL @ 48" AFF.

HARDWARE SCHEDULE NOTES:

1. BALANCE OF HARDWARE BY ALUMINUM DOOR MANUFACTURER AND BY AUTOMATIC DOOR MANUFACTURER.
2. SEE DOOR SCHEDULE FOR DOORS INSTALLED WITH MAGNETIC LOCK, ELECTRIC STRIKE CAPABILITY & KEY CARD READER.
3. DOORS INSTALLED WITH KEY CARD READER, MAGNETIC LOCK & ELECTRIC STRIKE CAPABILITY SHALL BE INTERFACED WITH THE LIFESAFETY & ALARM SYSTEM AS REQUIRED FOR PROPER COMPLIANCE WITH EMERGENCY EXIT ACCESSES.
4. ONLY APPROVED FIRE EXIT HARDWARE SHALL BE USED ON FIRE PROTECTION-RATED DOOR ASSEMBLIES. NEW PANIC HARDWARE AND NEW FIRE EXIT HARDWARE SHALL COMPLY WITH ANSI/UL 305, STANDARD FOR SAFETY PANIC HARDWARE, AND ANSI/BHMA A156.3, EXIT DEVICES.
5. ALL EMERGENCY & PANIC EXIT HARDWARE GROUPS SHALL INCLUDE AN INTEGRATED TRIM WITH LOCK, LATCH & LEVER OPERATION CAPABILITY.
6. VERIFY SWING OPERATION OF SINGLE AND DOUBLE DOORS AS SHOWN IN THE FLOOR PLANS

GENERAL NOTES (DOOR FINISH HARDWARE SCHEDULE)

HEALTHCARE / HOSPITAL FACILITY

1. ALL DOOR HARDWARE SHALL COMPLY WITH THE LATEST ADOPTED EDITIONS OF THE INTERNATIONAL BUILDING CODE (IBC), NFPA 101 LIFE SAFETY CODE, NFPA 80 FIRE DOORS, NFPA 105 SMOKE DOOR ASSEMBLIES, AND ICC A117.1 ACCESSIBILITY REQUIREMENTS, AS WELL AS ALL APPLICABLE STATE AND LOCAL CODES. HARDWARE ON FIRE-RATED AND SMOKE-RATED OPENINGS SHALL BE LISTED AND LABELED FOR THE INTENDED USE.

2. UNLESS OTHERWISE NOTED, ALL HARDWARE SHALL MEET ANSI/BHMA GRADE 1 STANDARDS. HARDWARE SHALL CONFORM TO THE PERFORMANCE REQUIREMENTS DEFINED BY ANSI/BHMA A156 SERIES STANDARDS.

3. ALL DOOR HARDWARE SHALL BE PROVIDED THROUGH A SINGLE QUALIFIED HARDWARE SUPPLIER EXPERIENCED IN HEALTHCARE AND INSTITUTIONAL PROJECTS. SUPPLIER SHALL PROVIDE A COMPLETE HARDWARE SCHEDULE, TEMPLATES, AND INSTALLATION INSTRUCTIONS FOR ALL OPENINGS.

4. HARDWARE SETS SHOWN IN THE SCHEDULE REPRESENT THE MINIMUM HARDWARE REQUIRED FOR EACH OPENING.CONTRACTOR SHALL PROVIDE ALL ADDITIONAL FASTENERS, BRACKETS, ACCESSORIES, MOUNTING PLATES, AND MISCELLANEOUS ITEMS REQUIRED FOR A COMPLETE INSTALLATION.

5. DOORS AND FRAMES SHALL BE FACTORY PREPARED FOR ALL HARDWARE ITEMS USING MANUFACTURER TEMPLATES. FIELD MODIFICATION OF DOORS, FRAMES, OR HARDWARE IS NOT PERMITTED WITHOUT APPROVAL FROM THE ARCHITECT.

6. ELECTRIFIED LOCKS, STRIKES, POWER TRANSFERS, DELAYED EGRESS DEVICES, CARD READERS, DOOR POSITION SWITCHES, AND MONITORING DEVICES SHALL BE COORDINATED WITH THE ELECTRICAL, SECURITY, AND ACCESS CONTROL SYSTEMS. CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL DRAWINGS FOR:

   • POWER REQUIREMENTS
   • LOW VOLTAGE WIRING
   • CONDUIT ROUTING
   • JUNCTION BOX LOCATIONS
   • ACCESS CONTROL HEAD-END EQUIPMENT

7. WHERE DOORS ARE PART OF THE BUILDING SECURITY OR ACCESS CONTROL SYSTEM:

   • HARDWARE SHALL BE COMPATIBLE WITH THE OWNER'S ACCESS CONTROL PLATFORM
   • ALL ELECTRIFIED HARDWARE SHALL BE MONITORED WHERE REQUIRED
   • FAIL-SAFE OR FAIL-SECURE OPERATION SHALL BE PROVIDED AS INDICATED ON THE ELECTRICAL/SECURITY DRAWINGS
   • HARDWARE SHALL ALLOW FREE EGRESS AT ALL TIMES IN ACCORDANCE WITH LIFE SAFETY CODES

8. HARDWARE INSTALLED ON FIRE-RATED OR SMOKE-RATED OPENINGS SHALL BE LISTED FOR USE ON LABELED ASSEMBLIES. REQUIREMENTS INCLUDE:

   • POSITIVE LATCHING ON FIRE DOORS
   • SELF-CLOSING DEVICES WHERE REQUIRED
   • NO FIELD MODIFICATIONS TO RATED ASSEMBLIES
   • HARDWARE MOUNTING THAT DOES NOT COMPROMISE THE RATING

9. DOORS SERVING AS SMOKE BARRIER OPENINGS SHALL COMPLY WITH SMOKE DOOR REQUIREMENTS INCLUDING:

   • SELF-CLOSING OR AUTOMATIC-CLOSING DEVICES
   • POSITIVE LATCHING WHERE REQUIRED
   • GASKETING WHERE SPECIFIED
   • COORDINATION WITH SMOKE DETECTION AND FIRE ALARM SYSTEMS

10. HARDWARE USED IN PATIENT CARE AREAS SHALL BE SELECTED FOR EASE OF CLEANING AND INFECTION CONTROL. WHERE REQUIRED:

    • ANTIMICROBIAL HARDWARE FINISHES MAY BE USED
    • HARDWARE SURFACES SHALL MINIMIZE CREVICES AND DIRT TRAPS
    • LEVER HANDLES SHALL BE SMOOTH AND EASY TO DISINFECT

11. DOOR CLOSERS SHALL BE ADJUSTABLE, HEAVY-DUTY INSTITUTIONAL GRADE, WITH ADJUSTABLE CLOSING AND LATCHING SPEEDS. CLOSERS SHALL BE COORDINATED WITH:

    • DOOR WIDTH AND WEIGHT
    • ACCESSIBILITY OPENING FORCE REQUIREMENTS
    • SMOKE AND FIRE DOOR REQUIREMENTS

12. ALL HARDWARE SHALL COMPLY WITH ADA AND ICC A117.1 ACCESSIBILITY REQUIREMENTS. LEVER HARDWARE SHALL:

    • OPERATE WITHOUT TIGHT GRASPING OR TWISTING
    • BE MOUNTED BETWEEN 34 AND 48 INCHES ABOVE FINISHED FLOOR

13. ALL LOCK CYLINDERS SHALL BE PROVIDED UNDER A MASTER KEY SYSTEM AS DIRECTED BY THE OWNER. HARDWARE SUPPLIER SHALL SUBMIT:

    • PRELIMINARY KEYING SCHEDULE
    • CYLINDER SCHEDULE
    • KEY HIERARCHY

    FOR OWNER APPROVAL PRIOR TO FABRICATION.

14. HARDWARE FINISHES SHALL CONFORM TO ANSI/BHMA FINISH STANDARDS. FINISH SHALL BE CONSISTENT THROUGHOUT THE PROJECT UNLESS OTHERWISE NOTED IN THE SCHEDULE.

15. PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL SUBMIT A COMPLETE DOOR HARDWARE SUBMITTAL PACKAGE INCLUDING:

    • HARDWARE SCHEDULE
    • PRODUCT DATA SHEETS
    • CUT SHEETS
    • TEMPLATES
    • ELECTRIFIED HARDWARE WIRING DIAGRAMS
    • KEYING SCHEDULE

    SUBMITTALS SHALL BE REVIEWED BY THE ARCHITECT PRIOR TO ORDERING.

16. HARDWARE SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS AND TEMPLATES. INSTALLATION SHALL BE PERFORMED BY EXPERIENCED INSTALLERS FAMILIAR WITH INSTITUTIONAL DOOR HARDWARE.

17. ALL ELECTRIFIED HARDWARE, ACCESS CONTROL DEVICES, DELAYED EGRESS LOCKS, AND AUTOMATIC OPERATORS SHALL BE TESTED AND COMMISSIONED PRIOR TO OWNER ACCEPTANCE. CONTRACTOR SHALL COORDINATE TESTING WITH:

    • SECURITY SYSTEMS CONTRACTOR
    • FIRE ALARM CONTRACTOR
    • OWNER'S FACILITIES STAFF

18. PROVIDE MANUFACTURER'S STANDARD WARRANTIES FOR ALL HARDWARE COMPONENTS. WARRANTY PERIOD SHALL BEGIN UPON SUBSTANTIAL COMPLETION.

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING AND ARE NOT INTENDED FOR CONSTRUCTION, PERMITTING, OR IMPLEMENTATION. THEY DO NOT CONSTITUTE FINAL CONSTRUCTION DOCUMENTS AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, PROCUREMENT, OR CONSTRUCTION. THEY ARE PROVIDED SOLELY TO COMMUNICATE DESIGN GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY, IN COLLABORATION WITH ITS CONSULTANTS AND CONTRACTORS, SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, AND CODE COMPLIANCE OF ALL CONSTRUCTION DOCUMENTS, SHOP DRAWINGS, AND TECHNICAL INFORMATION CONTAINED HEREIN, AND SHALL NOT RELY ON THESE DOCUMENTS AS A BASIS FOR CONSTRUCTION. ANY REUSE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. THEY ARE PROPRIETARY AND CONFIDENTIAL AND ARE PROVIDED TO THE CLIENT SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES AUTHORIZED BY THE ARCHITECT. UNAUTHORIZED REPRODUCTION, DISTRIBUTION, MODIFICATION, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT THE ARCHITECT'S PRIOR WRITTEN CONSENT. ANY UNAUTHORIZED USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT.

NO.	DATE	DESCRIPTIONS

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
HARDWARE SCHEDULE

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. SANTA CRUZ 1590 AVE. PONCE DE LEON, STE 102 SAN JUAN PR 00925

DRAWING NUMBER

A-7.22

IN ADDITION TO THE REQUIREMENTS IN THIS SECTION, HARDWARE SPECIFIED IN HARDWARE SCHEDULE SHALL COMPLY WITH THE N.F.P.A. 101 & THE A.D.A. STANDARDS FOR ACCESSIBLE DESIGN.

KEYING

ALL CYLINDERS SHALL BE KEYED INTO GRAND MASTER KEY SYSTEM. PROVIDE REMOVABLE CORE CYLINDERS
THAT ARE REMOVABLE ONLY WITH A SPECIAL KEY OR TOOL WITHOUT DISASSEMBLY OF KNOB OR LOCKSET
CYLINDERS SHALL BE 7 PIN TYPE. KEYING INFORMATION SHALL BE FURNISHED AT A LATER DATE BY THE
RESIDENT ENGINEER.

CONTINUOUS HINGES

A. ANSI/BHMA A156.26

//GRADE 1-150// //GRADE 1-300// //GRADE 1-600//.

(1) LISTED UNDER CATEGORY N IN BHMA'S "CERTIFIED PRODUCT DIRECTORY."

B. GENERAL

MINIMUM 0.120-INCH- (3.0-MM-) THICK, HINGE LEAVES WITH MINIMUM OVERALL WIDTH OF 4 INCHES
(102 MM); FABRICATED TO FULL HEIGHT OF DOOR AND FRAME AND TO TEMPLATE SCREW LOCATIONS; WITH COMPONENTS FINISHED AFTER MILLING AND DRILLING ARE COMPLETE:

(1) FIRE PINS

STEEL PINS TO HOLD LABELED FIRE DOORS IN PLACE IF REQUIRED BY TESTED LISTING.

C. CONTINUOUS, BARREL-TYPE HINGES

HINGE WITH KNUCKLES FORMED AROUND A PIN THAT EXTENDS ENTIRE LENGTH OF HINGE.

(1) BASE METAL FOR EXTERIOR HINGES

STAINLESS STEEL.

(2) BASE METAL FOR INTERIOR HINGES

//STAINLESS STEEL// //STEEL// //ALUMINUM//.

(3) BASE METAL FOR HINGES FOR FIRE-RATED ASSEMBLIES

//STAINLESS STEEL// //STEEL//.

(4) MANUFACTURERS

HAGER COMPANIES.
MARKAR ARCHITECTURAL PRODUCTS, INC.; A SUBSIDIARY OF ADAMS RITE MANUFACTURING CO.
MCKINNEY PRODUCTS COMPANY; AN ASSA ABLOY GROUP COMPANY.
STANLEY COMMERCIAL HARDWARE; DIVISION. OF THE STANLEY WORKS
ZERO INTERNATIONAL

CONTINUOUS, GEAR-TYPE HINGES

EXTRUDED-ALUMINUM, PINLESS, GEARED HINGE LEAVES; JOINED BY A CONTINUOUS EXTRUDED-ALUMINUM CHANNEL CAP; WITH CONCEALED, SELF-LUBRICATING THRUST BEARINGS.

(1) MANUFACTURERS

BOMMER INDUSTRIES, INC.
HAGER COMPANIES.
MCKINNEY PRODUCTS COMPANY; AN ASSA ABLOY GROUP COMPANY.
PEMKO MANUFACTURING CO.
SELECT PRODUCTS LIMITED.STANLEY COMMERCIAL HARDWARE, DIVISION OF THE STANLEY WORKS
ZERO INTERNATIONAL.

DOOR CLOSING DEVICES

CLOSING DEVICES SHALL BE PRODUCTS OF ONE MANUFACTURER FOR EACH TYPE REQUIRED.
THE CLOSER SHALL HAVE 50 PERCENT ADJUSTABLE CLOSING FORCE OVER MINIMUM VALUE FOR THAT CLOSER AND HAVE ADJUSTABLE HYDRAULIC BACK CHECK EFFECTIVE BETWEEN 60 DEGREES AND 85 DEGREES OF DOOR OPENING.
WHERE SPECIFIED, CLOSER SHALL HAVE HOLD-OPEN FEATURE.
SIZE REQUIREMENTS: SIZE CLOSERS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS OR
PROVIDE MULTI-SIZE CLOSERS, SIZES 1 THROUGH 6.
FURNISH HEAVY DUTY ARM STOPS AT EXTERIOR DOORS OR AS INDICATED IN THE HARDWARE SETS.
MANUFACTURERS:
STANLEY COMMERCIAL HARDWARE; INDIANAPOLIS, IN
LCN; LCN CLOSERS, PRINCETON, IL
SARGENT; NEW HAVEN, CN

DOOR STOPS

A. CONFORM TO ANSI A156.16.
B. PROVIDE DOOR STOPS WHEREVER AN OPENED DOOR OR ANY ITEM OF HARDWARE THEREON WOULD STRIKE A WALL, COLUMN, EQUIPMENT OR OTHER PARTS OF BUILDING CONSTRUCTION. FOR CONCRETE, MASONRY OR QUARRY TILE CONSTRUCTION, USE LEAD EXPANSION SHIELDS FOR MOUNTING DOOR STOPS.
C. WHERE CYLINDRICAL LOCKS WITH TURN PIECES OR PUSHBUTTONS OCCUR, EQUIP WALL BUMPERS
(RUBBER PADS HAVING CONCAVE FACE) TO RECEIVE TURN PIECE OR BUTTON.
D. SUBSTITUTE FLOOR STOPS AS APPROPRIATE, WHEN WALL BUMPERS WOULD NOT PROVIDE AN EFFECTIVE DOOR STOP.
E. WHERE DRYWALL PARTITIONS OCCUR, USE FLOOR STOPS.
F. PROVIDE STOP TYPE L02011 OR L02181, AS APPLICABLE FOR EXTERIOR DOORS.
G. OMIT STOPS WHERE FLOOR MOUNTED DOOR HOLDERS ARE REQUIRED AND WHERE AUTOMATIC OPERATED DOORS OCCUR.
H. PROVIDE APPROPRIATE ROLLER BUMPER FOR EACH SET OF DOORS (EXCEPT WHERE CLOSET DOORS OCCUR) WHERE TWO DOORS WOULD INTERFERE WITH EACH OTHER IN SWINGING.
I. PROVIDE APPROPRIATE DOOR MOUNTED STOP ON DOORS IN INDIVIDUAL TOILETS WHERE FLOOR OR WALL MOUNTED STOPS CANNOT BE USED.
J. PROVIDE OVERHEAD SURFACE APPLIED STOP TYPE C02541, ANSI A156.8 ON PATIENT TOILET DOORS
IN BEDROOMS WHERE TOILET DOOR COULD COME IN CONTACT WITH THE BEDROOM DOOR.
K. PROVIDE DOOR STOPS ON DOORS WHERE COMBINATION CLOSER MAGNETIC HOLDERS ARE SPECIFIED.

LOCKS AND LATCHES

A. CONFORM TO ANSI A156.2. LOCKS AND LATCHES FOR DOORS 45 MM (1-3/4 INCH) THICK OR OVER
SHALL HAVE BEVELED FRONTS. LOCK CYLINDERS SHALL HAVE NOT LESS THAN SEVEN PINS. PATENTED
CYLINDERS FOR ALL LOCKSETS SHALL BE REMOVABLE CORE TYPE. CYLINDERS SHALL BE FURNISHED WITH
CONSTRUCTION REMOVABLE CORES AND CONSTRUCTION MASTER KEYS. CYLINDER SHALL BE REMOVABLE BY SPECIAL KEY OR TOOL. CONSTRUCT ALL CORES SO THAT THEY WILL BE INTERCHANGEABLE INTO THE CORE HOUSINGS OF ALL MORTISE LOCKS, RIM LOCKS, CYLINDRICAL LOCKS, AND ANY OTHER TYPE LOCKS INCLUDED IN THE GREAT GRAND MASTER KEY SYSTEM. DISASSEMBLY OF LEVER OR LOCKSET SHALL NOT BE REQUIRED TO REMOVE CORE FROM LOCKSET. ALL LOCKSETS OR LATCHES ON DOUBLE DOORS WITH FIRE LABEL SHALL HAVE LATCH BOLT WITH 19 MM (3/4 INCH) THROW. PROVIDE TEMPORARY KEYING DEVICE OR CONSTRUCTION CORE TO ALLOW OPENING AND CLOSING DURING CONSTRUCTION AND PRIOR TO THE INSTALLATION OF FINAL CORES.
B. IN ADDITION TO ABOVE REQUIREMENTS, LOCKS AND LATCHES SHALL COMPLY WITH FOLLOWING
REQUIREMENTS:
1. CYLINDRICAL LOCK AND LATCH SETS: LEVERS SHALL MEET ADA (AMERICANS WITH DISABILITIES ACT)
REQUIREMENTS. CYLINDRICAL LOCKSETS TO BE CERTIFIED TO ANSI/BHMA A156.2 OPERATIONAL GRADE 1,
SECURITY GRADE 1 SERIES 4000. WHERE TWO TURN PIECES ARE SPECIFIED FOR LOCK F76, TURN PIECE ON
INSIDE KNOB SHALL LOCK AND UNLOCK INSIDE KNOB, AND TURN PIECE ON OUTSIDE KNOB SHALL UNLOCK
OUTSIDE KNOB WHEN INSIDE KNOB IS IN THE LOCKED POSITION. (THIS FUNCTION IS INTENDED TO ALLOW
EMERGENCY ENTRY INTO THESE ROOMS WITHOUT AN EMERGENCY KEY OR ANY SPECIAL TOOL.)
2. MORTISE LOCK AND LATCH SETS: CERTIFIED TO ANSI/BHMA A156.13. MORTISE LOCKSETS SHALL BE
SERIES 1000, OPERATIONAL GRADE 1 SECURITY GRADE 2. LEVERS TO BE STAINLESS STEEL BASE MATERIAL.
LOCKS AND LATCHSETS SHALL BE FURNISHED WITH 4 7/8" STRIKES CONFORMING TO ANSI A115.1 AND
FURNISHED WITH WROUGHT STRIKE BOXES. FURNISH ARMORED FRONTS FOR ALL MORTISE LOCKS.
3. AUXILIARY LOCKS SHALL BE AS SPECIFIED UNDER HARDWARE SETS AND CONFORM TO ANSI A156.5.
MANUFACTURERS:
BEST ACCESS SYSTEMS; A DIVISION OF THE STANLEY WORKS
SCHLAGE; AN INGERSOLL RAND COMPANY
SARGENT; AN ASSA ABLOY GROUP COMPANY

RFID ELECTRONIC LOCKS

A. ANSI/BHMA A156.13, GRADE 1
B. CONSTRUCTION: HEAVY DUTY CYLINDRICAL ELECTRONIC LOCKSET WITH CLUTCH MECHANISM AND BUILT-IN CONTACTLESS RFID READER CONFORMING TO ANSI/BHMA A156.13, GRADE 1. LEVER HANDLES AND
OPERATING COMPONENTS IN COMPLIANCE WITH THE UFAS AND THE ADA ACCESSIBILITY GUIDELINES.
C. SPECIAL FEATURES: CONCEALED KEY OVERRIDE, KEYED-ALIKE, MASTER KEYED, RECORDABLE, BEST
SMALL IC ADAPTER.

D. MANUFACTURERS:
1. SAFLOK
2. STANLEY/ BEST ACCESS SYSTEMS

ELECTROMAGNETIC LOCKS

A. ANSI/BHMA A156.23

ELECTRICALLY POWERED, OF STRENGTH AND CONFIGURATION INDICATED; WITH ELECTROMAGNET ATTACHED TO FRAME AND ARMATURE PLATE ATTACHED TO DOOR. LISTED UNDER CATEGORY E IN BHMA'S "CERTIFIED PRODUCT DIRECTORY."

(1) TYPE

FULL EXTERIOR OR FULL INTERIOR, AS REQUIRED BY APPLICATION INDICATED.

(2) STRENGTH RANKING

//1500 LBF (6672 N)// //1000 LBF (4448 N)// //500 LBF (2224 N)//.

(3) INDUCTIVE KICKBACK PEAK

(4) RESIDUAL MAGNETISM

NOT MORE THAN //4 LBF (18 N)// //0 LBF (0 N)// TO SEPARATE DOOR FROM MAGNET.

B. DELAYED-EGRESS LOCKS

BHMA A156.24.// LISTED UNDER CATEGORY G IN BHMA'S "CERTIFIED PRODUCT DIRECTORY". //

(1) MEANS OF EGRESS DOORS

LOCK RELEASES WITHIN 15 SECONDS AFTER APPLYING A FORCE NOT MORE THAN 15 LBF (67 N) FOR NOT
MORE THAN 3 SECONDS, AS REQUIRED BY NFPA 101.

(2) SECURITY GRADE

ACTIVATED FROM SECURE SIDE OF DOOR BY INITIATING DEVICE.

(3) MOVEMENT GRADE

ACTIVATED BY DOOR MOVEMENT AS INITIATING DEVICE.

C. MANUFACTURERS

DOOR CONTROLS INTERNATIONAL.
DOORGUARD SYSTEMS, INC.
DORTRONICS SYSTEMS, INC.
DYNALOCK CORP.
LOCKNETICS; AN INGERSOLL-RAND COMPANY.
RUTHERFORD CONTROLS INT'L. CORP.
SARGENT MANUFACTURING COMPANY; AN ASSA ABLOY GROUP COMPANY.
SECURITRON MAGNALOCK CORPORATION; AN ASSA ABLOY GROUP COMPANY.
SECURITY DOOR CONTROLS.

CARD READERS

PROVIDE AND INSTALL CARD READERS WHERE INDICATED. CARD READERS TO BE REQUIRED AT ALL EXTERIOR DOORS AND AT DEPARTMENTAL SUITE ENTRY DOORS. INTEGRATE CARD READERS WITH OTHER SPECIFIED SYSTEMS AND SYSTEMS THAT ARE IN PLACE.

ELECTRIC STRIKES

A. ANSI/ BHMA A156.31 GRADE 1.
B. GENERAL: USE FAIL-SECURE ELECTRIC STRIKES WITH FIRE-RATED DEVICES.
C. MANUFACTURERS:
1. ADAMS RITE MANUFACTURING CO.
2. FOLGER ADAM SECURITY INC.; AN ASSA ABLOY GROUP COMPANY.
3. HES, INC.; AN ASSA ABLOY GROUP COMPANY.
4. LOCKNETICS; AN INGERSOLL-RAND COMPANY.
5. VON DUPRIN; AN INGERSOLL RAND COMPANY

ARMOR PLATES, COMBINATION KICK-MOP PLATES AND DOOR EDGING

A. CONFORM TO ANSI STANDARD A156.6.
B. PROVIDE PROTECTIVE PLATES AND DOOR EDGING AS SPECIFIED BELOW:
1. KICK-MOP PLATES AND ARMOR PLATES PLASTIC OR METAL, TYPE J100 SERIES, COLOR AS REQUIRED.
2. PROVIDE KICK-MOP PLATES FOR BOTH SIDES OF EACH DOOR, EXCEPT WHERE NOTED AS NOT REQUIRED.
KICK-MOP PLATES SHALL BE 125 MM (5 INCHES) HIGH. ON PUSH SIDE OF DOORS WHERE JAMB STOP
EXTENDS TO FLOOR, MAKE COMBINATION KICK-MOP PLATES 38 MM (1-1/2 INCHES) LESS THAN WIDTH OF DOOR, EXCEPT PAIRS OF METAL DOORS WHICH SHALL HAVE PLATES 25 MM (1 INCH) LESS THAN WIDTH OF
EACH DOOR. EXTEND ALL OTHER COMBINATION KICK-MOP PLATES TO WITHIN 6 MM (1/4 INCH) OF EACH
EDGE OF DOORS. KICK MOP PLATES SHALL BUTT ASTRAGALS. FOR JAMB STOP REQUIREMENTS, SEE
SPECIFICATION SECTIONS PERTAINING TO DOOR FRAMES.
3. KICK-MOP PLATES ARE NOT REQUIRED ON FOLLOWING DOOR SIDES:
A) ARMOR PLATE SIDE OF DOORS;
B) EXTERIOR SIDE OF EXTERIOR DOORS;
C) CLOSET SIDE OF CLOSET DOORS;
D) STORAGE SIDE OF DOORS TO OR FROM STORAGE SPACES; AND
E) BOTH SIDES OF ALUMINUM ENTRANCE DOORS.
4. ARMOR PLATES FOR DOORS ARE LISTED UNDER "HARDWARE SETS". ARMOR PLATES SHALL BE 875 MM
(35 INCHES) HIGH AND 38 MM (1-1/2 INCHES) LESS THAN WIDTH OF DOORS, EXCEPT ON PAIRS OF METAL
DOORS. PLATES ON PAIRS OF METAL DOORS SHALL BE 25 MM (1 INCH) LESS THAN WIDTH OF EACH DOOR.
WHERE TOP OF INTERMEDIATE RAIL OF DOOR IS LESS THAN 875 MM (35 INCHES) FROM DOOR BOTTOM,
EXTEND ARMOR PLATES TO WITHIN 13 MM (1/2 INCH) OF TOP RAIL. ON DOORS EQUIPPED WITH PANIC
DEVICES EXTEND ARMOR PLATES TO WITHIN 13 MM (1/2 INCH) OF PANIC BOLT CROSS BAR.
5. WHERE LOUVER OR GRILLE OCCURS IN LOWER PORTION OF DOORS, SUBSTITUTE STRETCHER PLATE AND KICKMOP PLATE IN PLACE OF ARMOR PLATE. SIZE OF STRETCHER PLATE AND KICK-MOP PLATE SHALL BE 125 MM (5 INCHES) HIGH.

EXIT DEVICES

A. CERTIFIED TO ANSI STANDARD A156.3. EXIT DEVICES SHALL BE GRADE 1; TYPE AND FUNCTION ARE
SPECIFIED IN HARDWARE SETS. PROVIDE FLUSH WITH FINISHED FLOOR STRIKES FOR VERTICAL ROD EXIT DEVICES IN INTERIOR OF BUILDING. TRIM SHALL HAVE LEVER HANDLES SIMILAR TO LOCKSETS, UNLESS OTHERWISE SPECIFIED.
B. EXIT DEVICES FOR FIRE DOORS SHALL COMPLY WITH UNDERWRITERS LABORATORIES, INC., REQUIREMENTS FOR FIRE EXIT HARDWARE. SUBMIT PROOF OF COMPLIANCE.

WEATHERSTRIPS (FOR EXTERIOR DOORS)

CONFORM TO ANSI A156.22. AIR LEAKAGE SHALL NOT TO EXCEED 0.50 CFM PER FOOT OF CRACK LENGTH
(0.000774M3/S/M).

MISCELLANEOUS HARDHWAARE

A. CYLINDERS FOR VARIOUS PARTITIONS AND DOORS: KEY CYLINDERS SAME AS ENTRANCE DOORS OF AREA
IN WHICH PARTITIONS AND DOOR OCCUR. PROVIDE CYLINDERS TO OPERATE LOCKING DEVICES WHERE
SPECIFIED FOR FOLLOWING PARTITIONS AND DOORS:
1. FOLDING DOORS AND PARTITIONS.
2. SLIDE-UP DOORS.
3. DAY GATE ON VAULT DOOR.
B. MUTES: CONFORM TO ANSI A156.16. PROVIDE DOOR MUTES OR DOOR SILENCERS TYPE L03011, OF
WHITE OR LIGHT GRAY COLOR, ON EACH STEEL DOOR FRAME, EXCEPT LEAD-LINED FRAMES AND FRAMES FOR SOUND-RESISTANT, LIGHTPROOF AND ELECTROMAGNETICALLY SHIELDED DOORS. FURNISH 3 MUTES FOR SINGLE DOORS AND 2 MUTES FOR EACH PAIR OF DOORS, EXCEPT DOUBLE-ACTING DOORS. PROVIDE 4 MUTES OR SILENCERS FOR FRAMES FOR EACH DUTCH TYPE DOOR. PROVIDE 2 MUTES FOR EACH EDGE OF SLIDING DOOR WHICH WOULD CONTACT DOOR FRAME.

PADLOCKS FOR VARIOUS DOORS, GATES AND HATCHES

A. ASTM E883, SIZE 50 MM (2 INCH) WIDE CHAIN; FURNISH EXTENDED SHACKLES AS REQUIRED BY JOB
CONDITIONS. PROVIDE PADLOCKS, WITH KEY CYLINDERS, FOR EACH DOOR IN FOLLOWING AREAS AS NOTED.
B. KEY PADLOCKS AS FOLLOWS:
1. CHAIN LINK FENCE GATES FOR ELECTRICAL SUBSTATION AND OTHER FENCED BUILDINGS OR AREAS: ENGINEER'S SET, EXCEPT AS OTHERWISE SPECIFIED.
2. CHAIN LINK FENCE GATES FOR OXYGEN STORAGE: MAINTENANCE SUPPLY SET.
3. ROOF ACCESS AND SCUTTLES: ENGINEER'S SET.

SOUNDPROOFING GASKETING

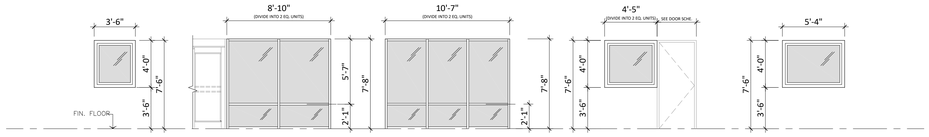
1. ADJUSTABLE DOORSTOPS AT HEAD AND JAMBS AND AN AUTOMATIC DOOR BOTTOM PER SET, TWO AUTO DOOR BOTTOMS AT PAIRS. BOTH EXTRUDED ALUMINUM, CLEAR ANODIZED, SURFACE APPLIED WITH SPONGE SILICON SEALS BETWEEN PLUNGER AND HOUSING. FURNISH DOOR BOTTOMS WITH PLUNGER AND ADJUSTABLE OPERATING ROD AND SPONGE SILICON RUBBER GASKET AND STAINLESS STEEL ACTUATING SPRING. DOORSTOPS MITERED AT CORNERS. FURNISH TYPE AND FUNCTION DESIGNATION AS SPECIFIED IN THE HARDWARE SETS.

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS. THEY ARE NOT COMPLETE FOR CONSTRUCTION OBJECTIVES. DESIGN, UTILITY, PERFORMANCE CRITERIA, AND TECHNICAL ASSESSMENTS ARE NOT FINALIZED. THESE DOCUMENTS ARE NOT TO BE USED FOR BIDDING, FABRICATION, OR CONSTRUCTION PURPOSES. THEY ARE INTENDED TO PROVIDE GENERAL DESIGN GUIDANCE FOR THE DESIGN-BUILD ENTITY. THE SELECTED DESIGN-BUILD ENTITY IS SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE

EXTERIOR WINDOW TYPES



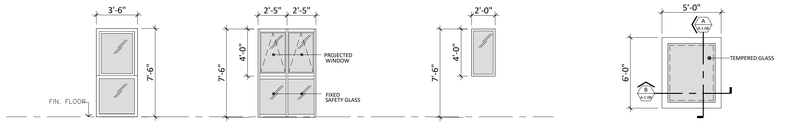
WINDOW MKD. A
FIXED ALUMINUM & I.G.U.S. GLASS
NATURAL ANODIZED ALUMINUM
(SEE COMPLIANCE NOTES HEREIN)

WINDOW MKD. C
FIXED ALUMINUM & I.G.U.S. GLASS
NATURAL ANODIZED ALUMINUM
(SEE COMPLIANCE NOTES HEREIN)

WINDOW MKD. D
FIXED ALUMINUM & I.G.U.S. GLASS
NATURAL ANODIZED ALUMINUM
(SEE COMPLIANCE NOTES HEREIN)

WINDOW MKD. E
FIXED ALUMINUM & I.G.U.S. GLASS
NATURAL ANODIZED ALUMINUM
(SEE COMPLIANCE NOTES HEREIN)

WINDOW MKD. F
FIXED ALUMINUM & I.G.U.S. GLASS
NATURAL ANODIZED ALUMINUM
(SEE COMPLIANCE NOTES HEREIN)



WINDOW MKD. G
FIXED ALUMINUM & I.G.U.S. GLASS
NATURAL ANODIZED ALUMINUM
(SEE COMPLIANCE NOTES HEREIN)

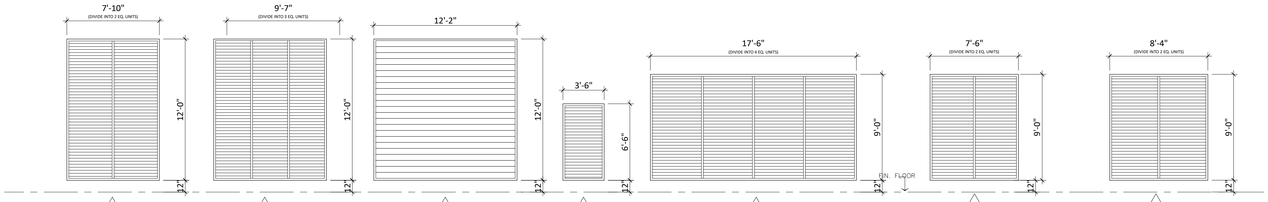
WINDOW MKD. H
FIXED ALUMINUM & I.G.U.S. GLASS
NATURAL ANODIZED ALUMINUM
(2 OPERABLE LOCKABLE PROJECTED WINDOW PANELS)
(MAXIMUM CLEAR OPENING 6")
(SEE COMPLIANCE NOTES HEREIN)

WINDOW MKD. I
FIXED ALUMINUM & I.G.U.S. GLASS
NATURAL ANODIZED ALUMINUM
(SEE COMPLIANCE NOTES HEREIN)

TYPICAL SKYLIGHT J
FIXED ALUMINUM & I.G.U.S. GLASS
NATURAL ANODIZED ALUMINUM
(HORIZONTAL 5% SLOPING INSTALLATION)
(SEE COMPLIANCE NOTES HEREIN)

LOUVERS TYPES

ALL FIXED LOUVERS SHALL BE INVERTED "V" GALV. METAL PRIMER & PAINTED AND PROVIDED WITH REMOVABLE INSECT SCREEN.



1 INVERTED 'V' GALVANIZED METAL FIXED LOUVERS PAINTED

2 INVERTED 'V' GALVANIZED METAL FIXED LOUVERS PAINTED

3 GENERATOR OPERABLE GRAVITY LOUVERS
(AS REQUIRED FOR THE SIZE, CAPACITY AND EXHAUST REQUIREMENTS OF THE 3 GENERATORS SPECIFIED FOR THE PROJECT)
(SEE RELATED ELECTRICAL DWGS.)

4 INVERTED 'V' GALVANIZED METAL FIXED LOUVERS PAINTED

5 INVERTED 'V' GALVANIZED METAL FIXED LOUVERS PAINTED

6 INVERTED 'V' GALVANIZED METAL FIXED LOUVERS PAINTED

7 INVERTED 'V' GALVANIZED METAL FIXED LOUVERS PAINTED

ALUMINUM TO STEEL WINDOW INSTALLATION NOTES

ALUMINUM FRAME TO STRUCTURAL STEEL SUPPORT COMPLIANCE CONSTRUCTION NOTES)

GENERAL REQUIREMENTS

1. ALL ALUMINUM-FRAMED WINDOWS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE APPROVED SHOP DRAWINGS, MANUFACTURER'S WRITTEN INSTRUCTIONS, AND APPLICABLE CODES.
2. INSTALLATION SHALL COMPLY WITH ASTM E2112 FOR EXTERIOR WINDOW INSTALLATION AND PERIMETER SEALING.
3. PROVIDE COMPLETE SYSTEM INCLUDING FRAMES, ANCHORS, ISOLATION MATERIALS, FLASHINGS, SEALANTS, AND ACCESSORIES REQUIRED FOR A FULLY WEATHER-TIGHT AND STRUCTURALLY SOUND INSTALLATION.
4. COORDINATE WITH STRUCTURAL AND CIVIL DRAWINGS FOR EXACT LOCATION AND DIMENSIONS OF STEEL SUPPORT MEMBERS.

MATERIAL COMPATIBILITY AND SEPARATION

1. DIRECT CONTACT BETWEEN ALUMINUM AND STRUCTURAL STEEL MEMBERS IS STRICTLY PROHIBITED.
2. PROVIDE CONTINUOUS NON-CONDUCTIVE ISOLATION BETWEEN ALUMINUM FRAMES AND STEEL SUPPORTS USING ONE OF THE FOLLOWING:
   a. EPDM OR NEOPRENE STRIPS, MINIMUM 1/8" THICK
   b. HIGH-DENSITY PVC OR NYLON ISOLATION SHIMS
   c. MANUFACTURER-APPROVED THERMAL ISOLATION PADS
3. ISOLATION MATERIAL SHALL BE CONTINUOUS ALONG HEAD, JAMB, AND SILL CONDITIONS.
4. ALL ISOLATION MATERIALS SHALL BE UV-RESISTANT, NON-ABSORBENT, AND COMPATIBLE WITH ADJACENT SEALANTS AND FINISHES.

CORROSION PROTECTION

1. ALL STRUCTURAL STEEL IN CONTACT WITH WINDOW SYSTEM SHALL BE:
   a. HOT-DIP GALVANIZED, OR
   b. COATED WITH ZINC-RICH PRIMER AND FIELD-APPLIED EPOXY COATING
2. APPLY BITUMINOUS OR DIELECTRIC BARRIER COATING AT ALL INTERFACES WITH ISOLATION MATERIALS WHEN REQUIRED.
3. FASTENERS SHALL BE STAINLESS STEEL (TYPE 304 MINIMUM; TYPE 316 IN COASTAL OR HIGH-CORROSION ENVIRONMENTS).
4. DISSIMILAR METAL CONTACT BETWEEN FASTENERS, FRAMES, AND STRUCTURAL MEMBERS SHALL BE ISOLATED WITH NON-METALLIC WASHERS OR SLEEVES.

CLEANING AND PROTECTION

1. REMOVE PROTECTIVE FILMS AND CLEAN ALL EXPOSED SURFACES AFTER INSTALLATION.
2. PROTECT INSTALLED WINDOW SYSTEM FROM DAMAGE BY SUBSEQUENT TRADES.
3. REPAIR OR REPLACE DAMAGED COMPONENTS PRIOR TO PROJECT CLOSEOUT.

ANCHORAGE AND FASTENING

1. ANCHOR ALUMINUM WINDOW FRAMES TO STRUCTURAL STEEL USING MANUFACTURER-APPROVED CLIPS, BRACKETS, OR DIRECT FASTENERS.
2. PROVIDE SLOTTED HOLES OR ADJUSTABLE ANCHORS TO ALLOW FOR DIFFERENTIAL MOVEMENT BETWEEN STEEL AND ALUMINUM.
3. MAINTAIN A MINIMUM INSTALLATION CLEARANCE OF 1/4" TO 3/8" BETWEEN FRAME AND STRUCTURE.
4. MAXIMUM FASTENER SPACING SHALL NOT EXCEED 24" ON CENTER UNLESS OTHERWISE APPROVED BY ENGINEER OR MANUFACTURER.
5. DO NOT WELD ALUMINUM COMPONENTS TO STEEL STRUCTURE.

THERMAL ISOLATION

1. PROVIDE CONTINUOUS THERMAL BREAK BETWEEN EXTERIOR STEEL STRUCTURE AND ALUMINUM FRAME WHERE WINDOW IS PART OF THE BUILDING ENVELOPE.
2. THERMAL BREAK MATERIAL SHALL BE POLYAMIDE, HDPE, OR MANUFACTURER-APPROVED EQUIVALENT.
3. DETAIL INSTALLATION TO MINIMIZE THERMAL BRIDGING AND PREVENT INTERIOR CONDENSATION.

AIR AND WATER TIGHTNESS

1. PROVIDE CONTINUOUS PERIMETER SEALANT JOINT BETWEEN WINDOW FRAME AND ADJACENT CONSTRUCTION.
2. SEALANT SHALL COMPLY WITH ASTM C920 , TYPE S OR M, GRADE NS, CLASS 25 MINIMUM.
3. INSTALL CLOSED-CELL BACKER ROD TO CONTROL SEALANT DEPTH AND PROFILE.
4. PROVIDE MINIMUM 3/8" WIDE SEALANT JOINT UNLESS OTHERWISE NOTED.
5. INSTALL SELF-ADHERED FLASHING MEMBRANE OR METAL FLASHING AT SILLS AND HEADS AS REQUIRED TO DIRECT WATER TO EXTERIOR.
6. ENSURE ALL FRAME WEEP HOLES REMAIN OPEN AND FUNCTIONAL AFTER INSTALLATION.

TOLERANCES AND ADJUSTMENT

1. VERIFY OPENING DIMENSIONS PRIOR TO FABRICATION AND INSTALLATION.
2. ADJUST ANCHORS AND SHIMS TO ACHIEVE PROPER ALIGNMENT WITHOUT INDUCING STRESS IN FRAME OR GLASS.
3. DO NOT FORCE COMPONENTS INTO POSITION.

GLAZING AND FRAME INSTALLATION

1. INSTALL GLASS AND GASKETS IN ACCORDANCE WITH ASTM E1300 AND MANUFACTURER REQUIREMENTS.
2. PROVIDE SETTING BLOCKS, EDGE BLOCKS, AND GLAZING GASKETS AS REQUIRED FOR PROPER LOAD TRANSFER AND GLASS SUPPORT.
3. ENSURE FRAME IS PLUMB, LEVEL, AND SQUARE WITHIN TOLERANCES OF ±1/16" IN 10'-0".

QUALITY CONTROL AND INSPECTION

1. INSPECT ALL ISOLATION MATERIALS PRIOR TO INSTALLATION TO ENSURE CONTINUITY AND PROPER PLACEMENT.
2. VERIFY THAT NO DIRECT CONTACT EXISTS BETWEEN ALUMINUM AND STEEL AFTER INSTALLATION.
3. PERFORM FIELD WATER TESTING IF REQUIRED BY PROJECT SPECIFICATIONS OR OWNER.

SUPLEMENTARY COMPLIANCE NOTES

1. ALL ALUMINUM-FRAMED WINDOWS SHALL BE INSTALLED IN ACCORDANCE WITH APPROVED SHOP DRAWINGS AND ASTM E2112.
2. DIRECT CONTACT BETWEEN ALUMINUM AND STRUCTURAL STEEL IS PROHIBITED. PROVIDE CONTINUOUS EPDM OR NEOPRENE ISOLATION (MIN. 1/8").
3. STRUCTURAL STEEL SHALL BE GALVANIZED OR COATED WITH ZINC-RICH PRIMER AND EPOXY FINISH.
4. USE STAINLESS STEEL FASTENERS (TYPE 304/316) WITH NON-METALLIC ISOLATION WASHERS.
5. PROVIDE SLOTTED ANCHORS TO ALLOW DIFFERENTIAL MOVEMENT.
6. MAINTAIN 1/4"-3/8" PERIMETER INSTALLATION GAP.
7. PROVIDE CONTINUOUS THERMAL BREAK (HDPE OR POLYAMIDE).
8. INSTALL BACKER ROD AND ASTM C920 SEALANT (MIN. 3/8" JOINT).
9. PROVIDE FLASHING AT HEAD AND SILL.
10. ENSURE FRAME IS PLUMB, LEVEL, AND SQUARE.
11. VERIFY NO DIRECT METAL CONTACT AFTER INSTALLATION.
12. CLEAN AND PROTECT SYSTEM AFTER INSTALLATION.

ALUMINUM AND GLASS CODE COMPLIANCE

1- ALL EXTERIOR ALUMINUM & GLASS WINDOW CONFIGURATIONWITH A U-VALUE = 1.2 W/M²·K AND A SOLAR HEAT GAIN COEFFICIENT (SHGC) = 0.33 COMPOSED OF THE FOLLOWING ASSEMBLY CONFIGURATION:
   A. OUTER-LITE (ARCTIC BLUE) - 6MM (1/4")
   B. INNER-LITE (CLEAR OR LOW-E) : 6MM (1/4")
   C. INTERMEDIATE CAVITY : 16MM (5/8") AIR OR ARGON

2- ALL WINDOWS ALUMINUM MEMBERS SHALL HAVE A SILVER/NATURAL CLEAR ANODIZED FINISH

3- ALL EXTERIOR ALUMINUM & GLASS WINDOWS, SLIDING DOORS, FIXED GLASS PANELS AND WINDOW WALLS, MATERIALS AND INSTALLATION SHALL COMPLY WITH APPLICABLE WIND RESISTANCE REQUIREMENTS OF THE LATEST PUERTO RICO BUILDING CODE INCLUDING RESISTANCE TO WITHSTAND THE IMPACT OF AIRBORNE MISSILES.

4- GENERAL CONTRACTOR SHALL SUBMIT TO THE OWNER, SHOP DRAWINGS AND STRUCTURAL COMPUTATIONS SIGNED AND SEALED BY LICENSED ENGINEER IN PUERTO RICO, SUPPORTING COMPLIANCE WITH THE ABOVE INDICATED REQUIREMENTS.

5- ALL FINAL MASONRY OPENINGS DIMENSIONS FOR WINDOWS & DOORS SHALL BE VERIFIED AT JOB SITE PRIOR TO FABRICATION.

6- ALL DIMENSIONS SHALL BE FIELD VERIFIED BY CONTRACTOR PRIOR TO MANUFACTURING OF WINDOWS & DOORS.

7. MAXIMUM PROJECTED WINDOW CLEAR OPENING SHALL BE 6".

INSULATING GLASS UNITS (IGUS) COMPLIANCE NOTES

A. PROVIDE FACTORY-FABRICATED, HERMETICALLY SEALED INSULATING GLASS UNITS (IGUS) COMPLYING WITH ASTM E2190 AND CONSISTING OF TINTED AND COATED GLAZING CONFIGURED TO ACHIEVE THE SPECIFIED THERMAL AND SOLAR PERFORMANCE.

GLASS CONFIGURATION:

1. OUTER LITE: 6 MM (1/4") THICK HEAT-STRENGTHENED OR FULLY TEMPERED GLASS.
2. COATING: SOLAR CONTROL LOW-EMISSIVITY (LOW-E) COATING APPLIED TO THE #2 SURFACE (INNER FACE OF THE OUTER LITE).
3. CAVITY: NOMINAL 16 MM (5/8") SEALED AIR SPACE WITH ARGON GAS FILL (MINIMUM 90% CONCENTRATION). PROVIDE WARM-EDGE SPACER SYSTEM WITH DESICCANT COMPLYING WITH ASTM E2190.
4. INNER LITE: 6 MM (1/4") THICK CLEAR FLOAT GLASS, HEAT-STRENGTHENED OR TEMPERED AS REQUIRED BY CODE.

REQUIREMENTS:

1. THERMAL TRANSMITTANCE (U-VALUE): MAXIMUM 1.2 W/M²·K (0.21 BTU/HR·FT²·°F), CENTER-OF-GLASS, IN ACCORDANCE WITH NFRC 100.
2. SOLAR HEAT GAIN COEFFICIENT (SHGC): MAXIMUM 0.33, IN ACCORDANCE WITH NFRC 200.
3. VISIBLE LIGHT TRANSMITTANCE (VLT): AS SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD DATA.

FABRICATION REQUIREMENTS:

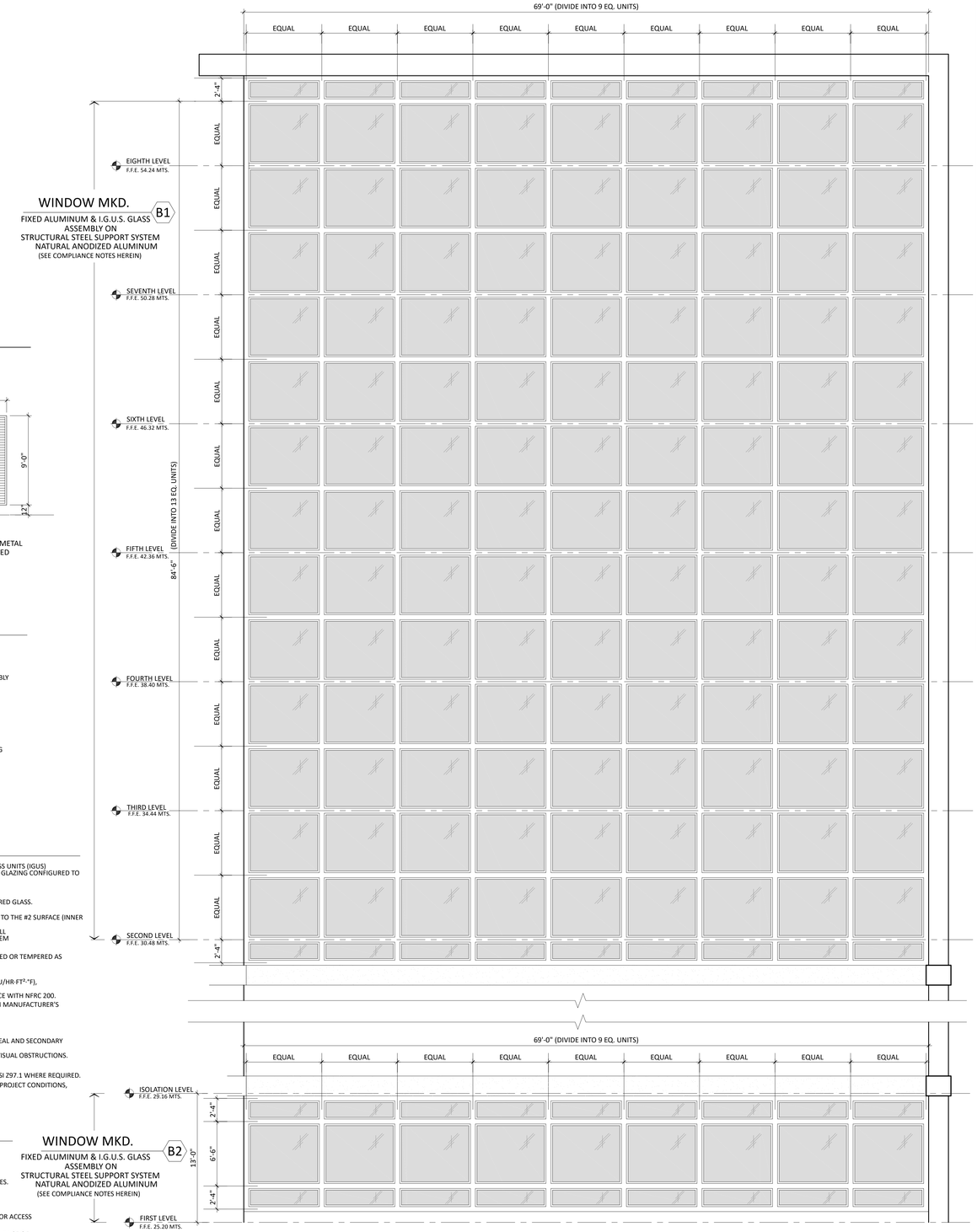
1. NOMINAL IGU THICKNESS: APPROXIMATELY 28 MM (1-1/8").
2. PROVIDE DUAL-SEAL EDGE SYSTEM WITH PRIMARY POLYISOBUTYLENE SEAL AND SECONDARY STRUCTURAL SILICONE OR POLYSULFIDE SEAL.
3. FABRICATE UNITS TRUE, FLAT, AND FREE OF DEFECTS, DISTORTION, OR VISUAL OBSTRUCTIONS.

SAFETY AND CODE COMPLIANCE:

1. PROVIDE SAFETY GLAZING COMPLYING WITH CPSC 16 CFR 1201 AND ANSI Z97.1 WHERE REQUIRED.
2. PROVIDE TEMPERED OR LAMINATED GLASS AS REQUIRED BY CODE AND PROJECT CONDITIONS, INCLUDING IMPACT-RESISTANT GLAZING WHERE APPLICABLE.

EXTERIOR WINDOW CURTAIN WALL

(ALUMINUM FRAME & INSULATED GLASS UNITS (I.G.U.S.) TO STRUCTURAL STEEL SYSTEM SUPPORT



WINDOW MKD. B1
FIXED ALUMINUM & I.G.U.S. GLASS
ASSEMBLY ON
STRUCTURAL STEEL SUPPORT SYSTEM
NATURAL ANODIZED ALUMINUM
(SEE COMPLIANCE NOTES HEREIN)

WINDOW MKD. B2
FIXED ALUMINUM & I.G.U.S. GLASS
ASSEMBLY ON
STRUCTURAL STEEL SUPPORT SYSTEM
NATURAL ANODIZED ALUMINUM
(SEE COMPLIANCE NOTES HEREIN)

EXTERIOR GALVANIZED METAL "INVERTED V" LOUVERS COMPLIANCE AND INSTALLATION NOTES

GENERAL REQUIREMENTS

1. PROVIDE EXTERIOR FIXED, STATIONARY, INVERTED "V" (CHEVRON-TYPE) METAL LOUVERS FOR VENTILATION OF ELECTROMECHANICAL ROOMS AS INDICATED ON DRAWINGS.
2. LOUVER SYSTEM SHALL BE DESIGNED TO PROVIDE CONTINUOUS NATURAL VENTILATION WHILE PREVENTING RAIN PENETRATION AND DEBRIS INTRUSION.
3. INSTALLATION SHALL COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND APPLICABLE STANDARDS INCLUDING AMCA 500-L (AIR PERFORMANCE, WATER PENETRATION, AND WIND-DRIVEN RAIN).
4. COORDINATE LOUVER LOCATIONS, SIZES, AND FREE AREA REQUIREMENTS WITH MECHANICAL AND ELECTRICAL ENGINEERING DRAWINGS.

MATERIALS AND FABRICATION

1. LOUVERS SHALL BE FABRICATED FROM:
   a. GALVANIZED STEEL (G90 MINIMUM), OR
   b. GALVANIZED STEEL WITH FACTORY-APPLIED HIGH-PERFORMANCE COATING
2. BLADE CONFIGURATION SHALL BE INVERTED "V" PROFILE TO PROMOTE WATER SHEDDING AND MAXIMIZE AIRFLOW.
3. FRAME DEPTH, BLADE SPACING, AND ANGLES SHALL BE ENGINEERED TO MEET SPECIFIED FREE AREA AND PRESSURE DROP REQUIREMENTS.
4. PROVIDE REINFORCED FRAMES AND INTERMEDIATE MULLIONS WHERE REQUIRED FOR WIND LOAD RESISTANCE PER PROJECT STRUCTURAL CRITERIA.

CORROSION PROTECTION AND FINISHES

1. ALL STEEL COMPONENTS SHALL BE HOT-DIP GALVANIZED OR FACTORY-COATED AFTER FABRICATION.
2. PROVIDE FACTORY-APPLIED FINISH COATING SYSTEM (MINIMUM):
   a. PRIMER + POLYESTER OR PVDF (FLUOROPOLYMER) FINISH (AAMA 2604/2605 EQUIVALENT)
3. ALL FIELD CUTS, DRILLED HOLES, AND DAMAGED AREAS SHALL BE TOUCHED-UP WITH ZINC-RICH COATING.
4. FASTENERS AND ACCESSORIES SHALL BE STAINLESS STEEL (TYPE 304 MIN.; TYPE 316 FOR COASTAL EXPOSURE).

AIRFLOW AND PERFORMANCE

1. LOUVERS SHALL BE SIZED TO PROVIDE REQUIRED FREE AREA FOR VENTILATION ELECTROMECHANICAL EQUIPMENT.
2. MAXIMUM ALLOWABLE PRESSURE DROP SHALL BE COORDINATED WITH MECHANICAL ENGINEER.
3. LOUVERS SHALL BE TESTED OR RATED IN ACCORDANCE WITH AMCA 500-L.
4. MINIMIZE TURBULENCE AND AIRFLOW OBSTRUCTION CAUSED BY SCREENS OR SUPPORT MEMBERS.

WATER PENETRATION CONTROL

1. LOUVER DESIGN SHALL LIMIT WATER PENETRATION UNDER WIND-DRIVEN RAIN CONDITIONS.
2. PROVIDE INTEGRAL DRAINAGE CHANNELS OR SILL FLASHING TO DIRECT WATER TO EXTERIOR.
3. INSTALL CONTINUOUS FLASHING AT HEAD AND SILL OF OPENINGS.
4. SEAL ALL PERIMETER JOINTS WITH SEALANT COMPLYING WITH ASTM C920.

THERMAL AND ENVIRONMENTAL CONSIDERATIONS

1. PROVIDE THERMAL BREAKS WHERE LOUVERS ARE INSTALLED IN CONDITIONED ENVELOPE WALLS.
2. DETAIL INSTALLATION TO PREVENT CONDENSATION DRIP INTO INTERIOR SPACES OR EQUIPMENT.
3. COORDINATE WITH BUILDING ENVELOPE CONSULTANT FOR CONTINUITY OF AIR AND WATER BARRIERS.

TOLERANCES AND INSTALLATION

1. INSTALL LOUVERS PLUMB, LEVEL, AND SQUARE WITHIN ±1/8" IN 10'-0".
2. VERIFY OPENING DIMENSIONS PRIOR TO FABRICATION.
3. DO NOT DISTORT FRAME DURING INSTALLATION.
4. ENSURE PROPER ALIGNMENT OF BLADES FOR UNIFORM APPEARANCE.

INSECT SCREEN ASSEMBLY

1. PROVIDE INTERIOR-MOUNTED INSECT SCREEN SYSTEM AT ALL LOUVERS.
2. SCREEN MATERIAL SHALL BE:
   a. STAINLESS STEEL MESH, OR
   b. ALUMINUM MESH WITH CORROSION-RESISTANT COATING
3. SCREEN FRAME SHALL BE REMOVABLE AND SECURELY FASTENED FOR MAINTENANCE ACCESS.
4. SCREEN MESH SIZE SHALL PREVENT INSECT ENTRY WHILE MAINTAINING ADEQUATE AIRFLOW (TYP. 1/16"-1/8").
5. PROVIDE ADEQUATE OFFSET BETWEEN LOUVER AND SCREEN TO PREVENT AIRFLOW RESTRICTION.

ATTACHMENT AND SUPPORT

1. ANCHOR LOUVER FRAMES TO STRUCTURAL OPENINGS (CONCRETE OR STEEL) MANUFACTURER-APPROVED ANCHORS.
2. PROVIDE ISOLATION BETWEEN DISSIMILAR MATERIALS (STEEL FRAME TO CONCRETE OR STRUCTURAL STEEL) USING NON-CONDUCTIVE SHIMS OR GASKETS.
3. FASTENER SPACING SHALL BE AS REQUIRED TO RESIST DESIGN WIND LOADS (NOT TO EXCEED 24" O.C. UNLESS ENGINEERED OTHERWISE).
4. PROVIDE CONTINUOUS PERIMETER SUPPORT AND SHIMMING TO ENSURE FRAME IS PLUMB, LEVEL, AND TRUE.

QUALITY CONTROL AND TESTING

1. INSPECT ALL COMPONENTS PRIOR TO INSTALLATION FOR DAMAGE OR DEFECTS.
2. VERIFY SCREEN INSTALLATION DOES NOT OBSTRUCT REQUIRED AIRFLOW.
3. PERFORM FIELD INSPECTION FOR WATER TIGHTNESS AND INSTALLATION QUALITY AS REQUIRED.

CLEANING AND PROTECTION

1. CLEAN ALL EXPOSED SURFACES AFTER INSTALLATION.
2. REMOVE DEBRIS FROM LOUVER BLADES AND SCREENS.
3. PROTECT INSTALLED LOUVERS FROM DAMAGE BY OTHER TRADES.

MAINTENANCE ACCESS

1. PROVIDE REMOVABLE OR HINGED PANELS WHERE REQUIRED FOR ACCESS TO SCREENS AND CLEANING.
2. ENSURE SAFE ACCESS FOR PERIODIC INSPECTION AND MAINTENANCE OF ELECTROMECHANICAL VENTILATION OPENINGS.

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

DATE: AUGUST 13, 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

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NO.	DATE	DESCRIPTIONS

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
EXTERIOR WINDOW & LOUVER TYPES

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER

A-7.24

GENERAL NOTES – PRELIMINARY BUILT-IN CABINETRY AND CASEWORK PLANS
DESIGN-BUILD RFP / BRIDGING DOCUMENTS

GENERAL NOTES

1. THESE BUILT-IN CABINETRY AND CASEWORK PLAN DRAWINGS HAVE BEEN PREPARED AS PRELIMINARY, CONCEPTUAL, AND RECOMMENDED ARCHITECTURAL DESIGN DEVELOPMENT DOCUMENTS FOR USE AS PART OF THE DESIGN-BUILD REQUEST FOR PROPOSAL (“RFP”) BRIDGING DOCUMENTS ONLY.
2. THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE OWNER’S AND BRIDGING ARCHITECT’S GENERAL DESIGN INTENT REGARDING THE PRELIMINARY LOCATION, GENERAL CONFIGURATION, AND FUNCTIONAL DISTRIBUTION OF BUILT-IN CABINETRY, COUNTERTOPS, WORK SURFACES, NURSE STATIONS, CLINICAL WORKSTATIONS, PATIENT ROOM CASEWORK, PATIENT OBSERVATION AND TREATMENT AREA CASEWORK, PRE-OP AND POST-OP SERVICE CASEWORK, PATIENT STABILIZATION AREA CASEWORK, AND OTHER FIXED ARCHITECTURAL MILLWORK OR CASEWORK ELEMENTS.
3. THESE DRAWINGS SHALL NOT BE CONSTRUED AS FINAL CASEWORK CONSTRUCTION DOCUMENTS, FINAL MILLWORK SHOP DRAWINGS, FINAL EQUIPMENT COORDINATION DRAWINGS, FINAL INTERIOR ELEVATIONS, FINAL SECTIONS, FINAL DETAILS, FINAL MATERIAL SELECTIONS, FINAL FINISH SCHEDULES, OR FINAL FABRICATION DOCUMENTS.
4. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR DEVELOPING THE FINAL, COORDINATED, COMPREHENSIVE, CODE-COMPLIANT, PERMIT-READY, FABRICATION-READY, AND BUILDABLE DESIGN OF ALL BUILT-IN CABINETRY, COUNTERTOPS, WORK SURFACES, NURSE STATIONS, CLINICAL CASEWORK, AND RELATED ARCHITECTURAL INTERIOR ELEMENTS REQUIRED FOR THE COMPLETE PROJECT.
5. THE DESIGN-BUILD ENTITY SHALL COORDINATE THE FINAL CASEWORK DESIGN WITH THE FINAL ARCHITECTURAL FLOOR PLANS, ROOM DATA, ROOM FINISH SCHEDULES, EQUIPMENT PLANS, MEDICAL EQUIPMENT REQUIREMENTS, STRUCTURAL CONDITIONS, MEP/FP SYSTEMS, PLUMBING FIXTURES, MEDICAL GAS OUTLETS, ELECTRICAL DEVICES, DATA OUTLETS, NURSE CALL DEVICES, LIGHTING, FIRE PROTECTION, SECURITY, ACCESS CONTROL, TECHNOLOGY, AND ALL OTHER PROJECT DISCIPLINES.
6. THE DESIGN-BUILD ENTITY SHALL CONSULT WITH THE OWNER, ASEM, USER GROUPS, CLINICAL REPRESENTATIVES, FACILITY OPERATIONS PERSONNEL, INFECTION CONTROL REPRESENTATIVES, AND OTHER PARTIES IDENTIFIED BY THE OWNER TO CONFIRM THAT THE FINAL BUILT-IN CABINETRY AND CASEWORK DESIGN PROPERLY SERVES THE FUNCTIONAL, OPERATIONAL, CLINICAL, MAINTENANCE, SAFETY, AND DURABILITY NEEDS OF EACH SPACE.
7. THE DESIGN-BUILD ENTITY SHALL VERIFY THE REQUIRED FUNCTION OF EACH CASEWORK LOCATION AND SHALL ADAPT THE FINAL DESIGN TO THE SPECIFIC USE OF THE ROOM OR AREA IN WHICH IT IS LOCATED, INCLUDING BUT NOT LIMITED TO PATIENT CARE, CLINICAL SUPPORT, STAFF WORK, MEDICATION PREPARATION, CLEAN SUPPLY, SOILED HOLDING, EQUIPMENT STORAGE, DOCUMENTATION, RECEPTION, OBSERVATION, TREATMENT, STABILIZATION, PRE-OPERATIVE CARE, POST-OPERATIVE CARE, AND GENERAL HOSPITAL OPERATIONS.
8. THE DESIGN-BUILD ENTITY SHALL NOT RELY EXCLUSIVELY ON THE PRELIMINARY CASEWORK LOCATIONS, DIMENSIONS, CONFIGURATIONS, SYMBOLS, OR GRAPHIC REPRESENTATIONS SHOWN ON THESE DRAWINGS FOR FINAL DESIGN, PROCUREMENT, FABRICATION, INSTALLATION, OR CONSTRUCTION.
9. ALL BUILT-IN CABINETRY, COUNTERTOPS, WORK SURFACES, SINK LOCATIONS, KNEE SPACES, STORAGE ELEMENTS, OPEN SHELVING, WALL CABINETS, BASE CABINETS, TALL CABINETS, NURSE STATION COMPONENTS, AND SPECIALTY CASEWORK ELEMENTS SHOWN ON THESE DRAWINGS SHALL BE FIELD VERIFIED, DIMENSIONALLY COORDINATED, AND ADJUSTED BY THE DESIGN-BUILD ENTITY AS REQUIRED TO MEET FINAL ROOM LAYOUTS, FINAL EQUIPMENT REQUIREMENTS, FINAL BUILDING CONDITIONS, AND FINAL USER REQUIREMENTS.
10. THE DESIGN-BUILD ENTITY SHALL DEVELOP FINAL INTERIOR ELEVATIONS, SECTIONS, ENLARGED PLANS, CONSTRUCTION DETAILS, CASEWORK DETAILS, COUNTERTOP DETAILS, SUPPORT DETAILS, ANCHORAGE DETAILS, EDGE DETAILS, JOINT DETAILS, BACKSPLASH DETAILS, SINK DETAILS, ACCESS PANEL DETAILS, AND ALL OTHER DETAILING NECESSARY TO PROPERLY FABRICATE AND CONSTRUCT THE WORK.
11. THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR SELECTING, SPECIFYING, AND COORDINATING ALL FINAL CASEWORK MATERIALS, SUBSTRATES, HARDWARE, FINISHES, COUNTERTOP MATERIALS, SOLID SURFACES, LAMINATES, CABINET LINERS, BASES, SPLASHES, SEALANTS, EDGE PROFILES, FASTENERS, SUPPORTS, AND ACCESSORIES IN ACCORDANCE WITH THE PROJECT REQUIREMENTS, OWNER STANDARDS, HOSPITAL USE, INFECTION CONTROL REQUIREMENTS, DURABILITY REQUIREMENTS, AND APPLICABLE CODES.
12. ALL FINAL CASEWORK MATERIALS AND FINISHES SHALL BE APPROPRIATE FOR THE INTENDED HEALTHCARE ENVIRONMENT AND SHALL BE SELECTED TO SUPPORT CLEANABILITY, DURABILITY, MOISTURE RESISTANCE, IMPACT RESISTANCE, CHEMICAL RESISTANCE, STAIN RESISTANCE, INFECTION CONTROL, MAINTENANCE, AND LONG-TERM PERFORMANCE.
13. THE DESIGN-BUILD ENTITY SHALL COORDINATE ALL CASEWORK WITH REQUIRED PLUMBING FIXTURES, SINKS, FAUCETS, DRAINS, TRAPS, WATER SUPPLIES, BACKFLOW PREVENTION, EMERGENCY FIXTURES, HANDWASHING REQUIREMENTS, MEDICAL GAS OUTLETS, WASTE RECEPTACLES, SHARPS CONTAINERS, SOAP DISPENSERS, PAPER TOWEL DISPENSERS, GLOVE BOX HOLDERS, AND OTHER CLINICAL OR SUPPORT ACCESSORIES.
14. THE DESIGN-BUILD ENTITY SHALL COORDINATE ALL CASEWORK WITH ELECTRICAL, DATA, COMMUNICATIONS, NURSE CALL, LOW-VOLTAGE, SECURITY, MONITORING, EQUIPMENT POWER, UNDER-COUNTER POWER, COUNTERTOP DEVICES, WALL-MOUNTED DEVICES, AND ANY REQUIRED TECHNOLOGY INFRASTRUCTURE.
15. THE DESIGN-BUILD ENTITY SHALL VERIFY THAT FINAL NURSE STATIONS, STAFF WORK AREAS, RECEPTION COUNTERS, CLINICAL WORKSTATIONS, AND PATIENT CARE CASEWORK ARE COORDINATED WITH SIGHTLINES, STAFF WORKFLOW, PATIENT OBSERVATION, EQUIPMENT ACCESS, DOCUMENTATION NEEDS, PRIVACY REQUIREMENTS, SECURITY REQUIREMENTS, ACCESSIBILITY REQUIREMENTS, AND OPERATIONAL EFFICIENCY.
16. THE DESIGN-BUILD ENTITY SHALL COORDINATE FINAL CASEWORK IN PATIENT ROOMS, TREATMENT ROOMS, OBSERVATION AREAS, STABILIZATION AREAS, PRE-OP AREAS, POST-OP AREAS, AND OTHER PATIENT CARE AREAS WITH BEDS, STRETCHERS, RECLINERS, EXAM TABLES, MEDICAL EQUIPMENT, HEADWALLS, BOOMS, MONITORS, CLEARANCES, STAFF ACCESS, PATIENT ACCESS, AND REQUIRED CLINICAL WORKFLOW.
17. THE DESIGN-BUILD ENTITY SHALL VERIFY THAT FINAL CASEWORK LAYOUTS DO NOT OBSTRUCT REQUIRED CLEARANCES, EGRESS PATHS, DOOR SWINGS, ACCESSIBLE ROUTES, WHEELCHAIR MANEUVERING SPACES, STRETCHER MOVEMENT, EQUIPMENT MOVEMENT, MEDICAL GAS ACCESS, FIRE PROTECTION DEVICES, LIFE-SAFETY DEVICES, ACCESS PANELS, OR MAINTENANCE ACCESS.
18. THE DESIGN-BUILD ENTITY SHALL COORDINATE FINAL COUNTER HEIGHTS, WORK SURFACE HEIGHTS, KNEE AND TOE CLEARANCES, REACH RANGES, ACCESSIBLE SINKS, ACCESSIBLE WORKSTATIONS, AND OTHER RELATED DIMENSIONS WITH APPLICABLE ACCESSIBILITY REQUIREMENTS AND THE FUNCTIONAL REQUIREMENTS OF EACH SPACE.
19. THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR COORDINATING ALL BUILT-IN CABINETRY AND CASEWORK WITH WALL CONSTRUCTION, PARTITIONS, BLOCKING, BACKING, STRUCTURAL SUPPORTS, EQUIPMENT SUPPORTS, FIRE-RATED ASSEMBLIES, ACOUSTICAL REQUIREMENTS, FLOOR FINISHES, WALL FINISHES, CEILING SYSTEMS, AND FINAL ROOM FINISHES.
20. THE DESIGN-BUILD ENTITY SHALL PROVIDE ADEQUATE BLOCKING, BACKING, ANCHORAGE, SUPPORT, REINFORCEMENT, AND STRUCTURAL COORDINATION FOR ALL WALL-MOUNTED CABINETS, COUNTERTOPS, SHELVES, EQUIPMENT, ACCESSORIES, NURSE STATION COMPONENTS, AND SPECIALTY CASEWORK ITEMS.
21. THE DESIGN-BUILD ENTITY SHALL COORDINATE FINAL CASEWORK WITH REQUIRED CLEANING PROTOCOLS, INFECTION CONTROL RISK ASSESSMENT REQUIREMENTS, CLINICAL SAFETY REQUIREMENTS, JOINT SEALING REQUIREMENTS, AND THE ELIMINATION OR CONTROL OF GAPS, CREVICES, SHARP EDGES, DUST-COLLECTING SURFACES, AND UNSEALED MOISTURE-SENSITIVE CONDITIONS.
22. THE DESIGN-BUILD ENTITY SHALL DEVELOP FINAL CASEWORK DETAILS THAT PROPERLY ADDRESS MATERIAL TRANSITIONS, COUNTERTOP SPLASHES, WALL INTERFACES, FLOOR INTERFACES, BASE CONDITIONS, END PANELS, FILLER PANELS, EXPOSED EDGES, SCRIBE CONDITIONS, SEALANT JOINTS, ACCESS PANELS, REMOVABLE PANELS, AND COORDINATION WITH ADJACENT CONSTRUCTION.
23. THE DESIGN-BUILD ENTITY SHALL COORDINATE ALL FINAL CASEWORK WITH OWNER-FURNISHED EQUIPMENT, CONTRACTOR-FURNISHED EQUIPMENT, MEDICAL EQUIPMENT, LABORATORY EQUIPMENT, IT EQUIPMENT, OFFICE EQUIPMENT, STORAGE SYSTEMS, MOBILE CARTS, REFRIGERATORS, WARMERS, PRINTERS, MONITORS, AND OTHER DEVICES OR EQUIPMENT REQUIRED FOR EACH SPACE.
24. THE DESIGN-BUILD ENTITY SHALL VERIFY FINAL CASEWORK QUANTITIES, SIZES, CONFIGURATIONS, STORAGE CAPACITIES, DOOR AND DRAWER ARRANGEMENTS, SHELVING REQUIREMENTS, LOCKING REQUIREMENTS, HARDWARE REQUIREMENTS, AND SPECIALTY ACCESSORY REQUIREMENTS WITH THE OWNER AND USER GROUPS PRIOR TO FINAL PROCUREMENT AND FABRICATION.
25. THE DESIGN-BUILD ENTITY SHALL PREPARE AND COORDINATE FINAL CASEWORK SCHEDULES, MATERIAL SCHEDULES, FINISH SCHEDULES, HARDWARE SCHEDULES, COUNTERTOP SCHEDULES, SINK SCHEDULES, ACCESSORY SCHEDULES, AND RELATED DOCUMENTATION REQUIRED FOR FINAL DESIGN, PERMITTING, PROCUREMENT, FABRICATION, INSTALLATION, AND QUALITY CONTROL.
26. THE DESIGN-BUILD ENTITY SHALL REQUIRE FABRICATOR SHOP DRAWINGS, PRODUCT DATA, MATERIAL SAMPLES, FINISH SAMPLES, MOCKUPS, AND OTHER SUBMITTALS AS NECESSARY TO CONFIRM COMPLIANCE WITH THE FINAL DESIGN INTENT, OWNER REQUIREMENTS, QUALITY STANDARDS, AND HEALTHCARE PERFORMANCE REQUIREMENTS.
27. THE DESIGN-BUILD ENTITY SHALL COORDINATE THE FINAL CASEWORK DESIGN WITH CONSTRUCTION PHASING, DELIVERY ACCESS, INSTALLATION SEQUENCING, PROTECTION OF FINISHED WORK, QUALITY CONTROL INSPECTIONS, PUNCH LIST REQUIREMENTS, AND FINAL OWNER ACCEPTANCE.
28. ANY DISCREPANCIES BETWEEN THESE PRELIMINARY BUILT-IN CABINETRY AND CASEWORK PLAN DRAWINGS, THE FINAL ARCHITECTURAL FLOOR PLANS, FINAL EQUIPMENT PLANS, FINAL ENGINEERING DOCUMENTS, OWNER REQUIREMENTS, USER GROUP REQUIREMENTS, FIELD CONDITIONS, APPLICABLE CODES, OR REGULATORY REQUIREMENTS SHALL BE IDENTIFIED, COORDINATED, AND RESOLVED BY THE DESIGN-BUILD ENTITY PRIOR TO FABRICATION OR INSTALLATION.
29. EXISTING OR PROPOSED CONDITIONS NOT SHOWN, INCOMPLETELY SHOWN, OR SHOWN DIFFERENTLY ON THESE PRELIMINARY DRAWINGS SHALL NOT RELIEVE THE DESIGN-BUILD ENTITY FROM ITS RESPONSIBILITY TO PREPARE COMPLETE, COORDINATED, CODE-COMPLIANT, BUILDABLE, AND FULLY DETAILED FINAL CASEWORK DOCUMENTS.
30. THE INCLUSION OF THESE PRELIMINARY BUILT-IN CABINETRY AND CASEWORK PLAN DRAWINGS IN THE RFP BRIDGING DOCUMENTS DOES NOT TRANSFER TO THE OWNER OR BRIDGING ARCHITECT THE DESIGN-BUILD ENTITY’S RESPONSIBILITY FOR FINAL CASEWORK DESIGN, FINAL DETAILING, FINAL MATERIAL SELECTIONS, FINAL USER COORDINATION, FINAL ENGINEERING COORDINATION, FINAL FABRICATION COORDINATION, OR PROPER CONSTRUCTION AND INSTALLATION OF THE WORK.
31. THE DESIGN-BUILD ENTITY SHALL ASSUME FULL RESPONSIBILITY FOR TRANSFORMING THE PRELIMINARY BUILT-IN CABINETRY AND CASEWORK DESIGN INTENT SHOWN ON THESE DRAWINGS INTO A FINAL, COORDINATED, COMPREHENSIVE, CODE-COMPLIANT, FUNCTIONALLY APPROPRIATE, FABRICATION-READY, AND BUILDABLE CASEWORK DESIGN FOR THE PUERTO RICO TRAUMA HOSPITAL PROJECT.

GENERAL NOTES – PRELIMINARY FURNITURE, FIXTURES, AND EQUIPMENT (FF&E) PLANS
DESIGN-BUILD RFP / BRIDGING DOCUMENTS

GENERAL NOTES

1. THESE FURNITURE, FIXTURES, AND EQUIPMENT (“FF&E”) PLAN DRAWINGS HAVE BEEN PREPARED AS PRELIMINARY, CONCEPTUAL, AND RECOMMENDED ARCHITECTURAL DESIGN DEVELOPMENT DOCUMENTS FOR USE AS PART OF THE DESIGN-BUILD REQUEST FOR PROPOSAL (“RFP”) BRIDGING DOCUMENTS ONLY.
2. THESE DRAWINGS ARE INTENDED TO COMMUNICATE THE OWNER’S AND BRIDGING ARCHITECT’S GENERAL DESIGN INTENT REGARDING THE PRELIMINARY LOCATION, GENERAL ARRANGEMENT, FUNCTIONAL DISTRIBUTION, AND SPACE PLANNING COORDINATION OF RECOMMENDED FURNITURE, FIXTURES, MEDICAL EQUIPMENT, CLINICAL EQUIPMENT, ADMINISTRATIVE EQUIPMENT, SUPPORT EQUIPMENT, LOOSE FURNISHINGS, AND RELATED ITEMS REQUIRED FOR THE PROPOSED HOSPITAL OPERATIONS.
3. THESE DRAWINGS SHALL NOT BE CONSTRUED AS FINAL FF&E PROCUREMENT DOCUMENTS, FINAL MEDICAL EQUIPMENT PLANS, FINAL EQUIPMENT COORDINATION DRAWINGS, FINAL OWNER-FURNISHED EQUIPMENT DOCUMENTS, FINAL CONTRACTOR-FURNISHED EQUIPMENT DOCUMENTS, FINAL SHOP DRAWINGS, FINAL INSTALLATION DOCUMENTS, OR FINAL CONSTRUCTION DOCUMENTS.
4. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR DEVELOPING THE FINAL, COORDINATED, COMPREHENSIVE, CODE-COMPLIANT, PERMIT-READY, PROCUREMENT-READY, INSTALLATION-READY, AND BUILDABLE FF&E DESIGN AND COORDINATION DOCUMENTS REQUIRED FOR THE COMPLETE PROJECT.
5. THE DESIGN-BUILD ENTITY SHALL COORDINATE THE FINAL FF&E DESIGN WITH THE FINAL ARCHITECTURAL FLOOR PLANS, ROOM DATA, ROOM FINISH SCHEDULES, BUILT-IN CABINETRY AND CASEWORK PLANS, MEDICAL EQUIPMENT REQUIREMENTS, STRUCTURAL CONDITIONS, MEP/FP SYSTEMS, PLUMBING FIXTURES, MEDICAL GAS OUTLETS, ELECTRICAL DEVICES, DATA OUTLETS, NURSE CALL DEVICES, LIGHTING, FIRE PROTECTION, SECURITY, ACCESS CONTROL, INFORMATION TECHNOLOGY, TELECOMMUNICATIONS, WAYFINDING, AND ALL OTHER PROJECT DISCIPLINES.
6. THE DESIGN-BUILD ENTITY SHALL CONSULT WITH THE OWNER, ASEM, USER GROUPS, CLINICAL REPRESENTATIVES, FACILITY OPERATIONS PERSONNEL, BIOMEDICAL EQUIPMENT REPRESENTATIVES, INFORMATION TECHNOLOGY REPRESENTATIVES, INFECTION CONTROL REPRESENTATIVES, AND OTHER PARTIES IDENTIFIED BY THE OWNER TO CONFIRM THAT THE FINAL FF&E SELECTION, LAYOUT, AND COORDINATION PROPERLY SERVE THE FUNCTIONAL, OPERATIONAL, CLINICAL, MAINTENANCE, SAFETY, TECHNOLOGY, AND DURABILITY NEEDS OF EACH SPACE.
7. THE DESIGN-BUILD ENTITY SHALL VERIFY THE REQUIRED FUNCTION OF EACH FF&E ITEM AND SHALL ADAPT THE FINAL DESIGN TO THE SPECIFIC USE OF THE ROOM OR AREA IN WHICH THE ITEM IS LOCATED, INCLUDING BUT NOT LIMITED TO PATIENT CARE, TRAUMA CARE, OBSERVATION, TREATMENT, STABILIZATION, PRE-OPERATIVE CARE, POST-OPERATIVE CARE, CLINICAL SUPPORT, STAFF WORK, ADMINISTRATION, PUBLIC WAITING, FAMILY CONSULTATION, CLEAN SUPPLY, SOILED HOLDING, EQUIPMENT STORAGE, MEDICATION SUPPORT, DIAGNOSTIC SUPPORT, AND GENERAL HOSPITAL OPERATIONS.
8. THE DESIGN-BUILD ENTITY SHALL NOT RELY EXCLUSIVELY ON THE PRELIMINARY FF&E LOCATIONS, SYMBOLS, TAGS, DIMENSIONS, CONFIGURATIONS, OR GRAPHIC REPRESENTATIONS SHOWN ON THESE DRAWINGS FOR FINAL DESIGN, PROCUREMENT, INSTALLATION, OR CONSTRUCTION.
9. ALL FF&E ITEMS SHOWN ON THESE DRAWINGS SHALL BE FIELD VERIFIED, DIMENSIONALLY COORDINATED, AND ADJUSTED BY THE DESIGN-BUILD ENTITY AS REQUIRED TO MEET FINAL ROOM LAYOUTS, FINAL EQUIPMENT REQUIREMENTS, FINAL USER REQUIREMENTS, FINAL BUILDING CONDITIONS, FINAL UTILITY LOCATIONS, AND FINAL CONSTRUCTION DOCUMENTS.
10. THE DESIGN-BUILD ENTITY SHALL DEVELOP FINAL FF&E PLANS, EQUIPMENT PLANS, FURNITURE PLANS, FIXTURE PLANS, ENLARGED ROOM PLANS, EQUIPMENT COORDINATION DETAILS, INSTALLATION DETAILS, BLOCKING AND ANCHORAGE DETAILS, UTILITY CONNECTION DETAILS, CLEARANCE DIAGRAMS, AND OTHER DOCUMENTS.
11. THE DESIGN-BUILD ENTITY SHALL BE RESPONSIBLE FOR COORDINATING FINAL FF&E LOCATIONS WITH REQUIRED CLEARANCES, EGRESS PATHS, DOOR SWINGS, ACCESSIBLE ROUTES, WHEELCHAIR MANEUVERING SPACES, STRETCHER MOVEMENT, BED MOVEMENT, EQUIPMENT MOVEMENT, STAFF WORK AREAS, PATIENT ACCESS, SERVICE ACCESS, MAINTENANCE ACCESS, AND EMERGENCY RESPONSE REQUIREMENTS.
12. THE DESIGN-BUILD ENTITY SHALL VERIFY THAT FINAL FF&E LAYOUTS DO NOT OBSTRUCT REQUIRED EXITS, EXIT ACCESS, CORRIDOR WIDTHS, LIFE-SAFETY DEVICES, FIRE PROTECTION DEVICES, FIRE EXTINGUISHERS, MEDICAL GAS OUTLETS, ELECTRICAL PANELS, ACCESS PANELS, VALVES, CONTROLS, DOOR CLEARANCES, WINDOWS, VISION PANELS, OR OTHER REQUIRED OPERATIONAL OR MAINTENANCE FEATURES.
13. THE DESIGN-BUILD ENTITY SHALL COORDINATE FINAL FF&E ITEMS WITH ALL REQUIRED UTILITY SERVICES, INCLUDING BUT NOT LIMITED TO NORMAL POWER, EMERGENCY POWER, CRITICAL BRANCH POWER, EQUIPMENT BRANCH POWER, DATA, TELECOMMUNICATIONS, WIRELESS NETWORK REQUIREMENTS, NURSE CALL, LOW-VOLTAGE SYSTEMS, SECURITY, ACCESS CONTROL, MEDICAL GAS, VACUUM, COMPRESSED AIR, PLUMBING, DRAINAGE, VENTILATION, EXHAUST, AND OTHER BUILDING SYSTEM CONNECTIONS.
14. THE DESIGN-BUILD ENTITY SHALL COORDINATE ALL FINAL MEDICAL EQUIPMENT, CLINICAL EQUIPMENT, MONITORS, BEDS, STRETCHERS, EXAM TABLES, RECLINERS, CARTS, WARMERS, REFRIGERATORS, MEDICATION EQUIPMENT, DIAGNOSTIC EQUIPMENT, AND OTHER SPECIALTY EQUIPMENT WITH THE FINAL ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, MEDICAL GAS, FIRE PROTECTION, TECHNOLOGY, AND SECURITY DESIGN.
15. THE DESIGN-BUILD ENTITY SHALL VERIFY THAT ALL FINAL PATIENT CARE FF&E ITEMS ARE COORDINATED WITH PATIENT SAFETY, STAFF WORKFLOW, CLINICAL PROCEDURES, PATIENT OBSERVATION, PRIVACY REQUIREMENTS, EQUIPMENT ACCESS, INFECTION CONTROL REQUIREMENTS, CLEANING PROTOCOLS, AND THE FUNCTIONAL NEEDS OF A LEVEL I TRAUMA HOSPITAL ENVIRONMENT.
16. THE DESIGN-BUILD ENTITY SHALL COORDINATE FINAL FF&E LAYOUTS IN PATIENT ROOMS, TREATMENT ROOMS, OBSERVATION AREAS, STABILIZATION AREAS, PRE-OP AREAS, POST-OP AREAS, TRAUMA CARE AREAS, NURSE STATIONS, SUPPORT AREAS, AND PUBLIC AREAS WITH BEDS, STRETCHERS, RECLINERS, CHAIRS, WORKSTATIONS, MOBILE CARTS, CLINICAL EQUIPMENT, HEADWALLS, BOOMS, MONITORS, CLEARANCES, STAFF ACCESS, AND PATIENT ACCESS.
17. THE DESIGN-BUILD ENTITY SHALL VERIFY THAT ALL FINAL FF&E ITEMS ARE SUITABLE FOR THE INTENDED HEALTHCARE ENVIRONMENT AND SHALL SELECT OR COORDINATE ITEMS TO SUPPORT CLEANABILITY, DURABILITY, IMPACT RESISTANCE, CHEMICAL RESISTANCE, MOISTURE RESISTANCE, STAIN RESISTANCE, INFECTION CONTROL, MAINTENANCE, SAFETY, ERGONOMICS, AND LONG-TERM PERFORMANCE.
18. THE DESIGN-BUILD ENTITY SHALL COORDINATE FINAL FURNITURE AND FIXTURE SELECTIONS WITH THE OWNER’S STANDARDS, USER GROUP REQUIREMENTS, INTERIOR DESIGN INTENT, FINISH PALETTE, ROOM FUNCTION, MAINTENANCE CRITERIA, REPLACEMENT REQUIREMENTS, WARRANTY REQUIREMENTS, AND THE OPERATIONAL NEEDS OF A HOSPITAL CAMPUS ENVIRONMENT.
19. THE DESIGN-BUILD ENTITY SHALL VERIFY FINAL QUANTITIES, TYPES, SIZES, CAPACITIES, CONFIGURATIONS, PERFORMANCE REQUIREMENTS, ACCESSORY REQUIREMENTS, UTILITY REQUIREMENTS, MOUNTING REQUIREMENTS, AND INSTALLATION REQUIREMENTS OF ALL FF&E ITEMS WITH THE OWNER AND USER GROUPS PRIOR TO FINAL PROCUREMENT.
20. THE DESIGN-BUILD ENTITY SHALL PREPARE AND COORDINATE FINAL FF&E SCHEDULES, MEDICAL EQUIPMENT SCHEDULES, FURNITURE SCHEDULES, FIXTURE SCHEDULES, ACCESSORY SCHEDULES, UTILITY REQUIREMENT MATRICES, RESPONSIBILITY MATRICES, PROCUREMENT MATRICES, INSTALLATION MATRICES, AND RELATED DOCUMENTATION REQUIRED FOR FINAL DESIGN, PERMITTING, PROCUREMENT, INSTALLATION, COMMISSIONING, AND OWNER ACCEPTANCE.
21. THE DESIGN-BUILD ENTITY SHALL CLEARLY IDENTIFY AND COORDINATE RESPONSIBILITY FOR EACH FF&E ITEM, INCLUDING WHETHER THE ITEM IS OWNER-FURNISHED OWNER-INSTALLED, OWNER-FURNISHED CONTRACTOR-INSTALLED, CONTRACTOR-FURNISHED CONTRACTOR-INSTALLED, CONTRACTOR-FURNISHED OWNER-INSTALLED, OR OTHERWISE ASSIGNED BY THE FINAL CONTRACT DOCUMENTS.
22. THE DESIGN-BUILD ENTITY SHALL COORDINATE FINAL FF&E REQUIREMENTS WITH PROCUREMENT LEAD TIMES, DELIVERY ACCESS, STORAGE REQUIREMENTS, INSTALLATION SEQUENCING, PROTECTION OF FINISHED WORK, TEMPORARY CONDITIONS, PHASING, START-UP, TESTING, COMMISSIONING, TRAINING, AND FINAL TURNOVER REQUIREMENTS.
23. THE DESIGN-BUILD ENTITY SHALL PROVIDE ADEQUATE BLOCKING, BACKING, ANCHORAGE, SUPPORT, SEISMIC OR WIND-RELATED RESTRAINTS WHERE APPLICABLE, STRUCTURAL COORDINATION, AND INSTALLATION COORDINATION FOR ALL WALL-MOUNTED, CEILING-MOUNTED, FLOOR-MOUNTED, COUNTER-MOUNTED, AND EQUIPMENT-MOUNTED FF&E ITEMS.
24. THE DESIGN-BUILD ENTITY SHALL COORDINATE FINAL FF&E ITEMS WITH WALL CONSTRUCTION, PARTITIONS, FLOOR FINISHES, WALL FINISHES, CEILING SYSTEMS, CASEWORK, MILLWORK, DOORS, HARDWARE, WINDOWS, SIGNAGE, LIGHTING, DIFFUSERS, SPRINKLERS, SMOKE DETECTORS, SPEAKERS, CAMERAS, ACCESS CONTROL DEVICES, AND ALL OTHER ADJACENT BUILDING COMPONENTS.
25. THE DESIGN-BUILD ENTITY SHALL VERIFY THAT ALL FINAL FF&E ITEMS COMPLY WITH APPLICABLE ACCESSIBILITY REQUIREMENTS, INCLUDING CLEAR FLOOR SPACES, REACH RANGES, KNEE AND TOE CLEARANCES, OPERABLE PARTS, ACCESSIBLE WORKSTATIONS, ACCESSIBLE PATIENT AREAS, PUBLIC USE AREAS, STAFF SUPPORT AREAS, AND REQUIRED ACCESSIBLE ROUTES.
26. THE DESIGN-BUILD ENTITY SHALL COORDINATE FINAL FF&E REQUIREMENTS WITH APPLICABLE HEALTHCARE CODES, LIFE-SAFETY REQUIREMENTS, INFECTION CONTROL REQUIREMENTS, FIRE-SAFETY REQUIREMENTS, ELECTRICAL SAFETY REQUIREMENTS, MEDICAL EQUIPMENT SAFETY REQUIREMENTS, AND AUTHORITIES HAVING JURISDICTION.
27. THE DESIGN-BUILD ENTITY SHALL REQUIRE MANUFACTURER PRODUCT DATA, TECHNICAL DATA, DIMENSIONAL DATA, UTILITY REQUIREMENTS, INSTALLATION INSTRUCTIONS, FINISH SAMPLES, MOCKUPS, SHOP DRAWINGS, CERTIFICATIONS, WARRANTIES, MAINTENANCE REQUIREMENTS, AND OTHER SUBMITTALS AS NECESSARY TO CONFIRM COMPLIANCE WITH THE FINAL DESIGN INTENT, OWNER REQUIREMENTS, QUALITY STANDARDS, AND HEALTHCARE PERFORMANCE REQUIREMENTS.
28. THE DESIGN-BUILD ENTITY SHALL COORDINATE FINAL FF&E ITEMS WITH INFORMATION TECHNOLOGY, BIOMEDICAL ENGINEERING, FACILITY MAINTENANCE, CLINICAL OPERATIONS, SECURITY, HOUSEKEEPING, ENVIRONMENTAL SERVICES, SUPPLY CHAIN, AND OTHER OWNER-DETERMINED STAKEHOLDERS PRIOR TO FINAL PROCUREMENT AND INSTALLATION.
29. ANY DISCREPANCIES BETWEEN THESE PRELIMINARY FF&E PLAN DRAWINGS, THE FINAL ARCHITECTURAL FLOOR PLANS, FINAL CASEWORK PLANS, FINAL EQUIPMENT PLANS, FINAL ENGINEERING DOCUMENTS, OWNER REQUIREMENTS, USER GROUP REQUIREMENTS, FIELD CONDITIONS, APPLICABLE CODES, OR REGULATORY REQUIREMENTS SHALL BE IDENTIFIED, COORDINATED, AND RESOLVED BY THE DESIGN-BUILD ENTITY PRIOR TO PROCUREMENT, FABRICATION, INSTALLATION, OR CONSTRUCTION.
30. EXISTING OR PROPOSED CONDITIONS NOT SHOWN, INCOMPLETELY SHOWN, OR SHOWN DIFFERENTLY ON THESE PRELIMINARY DRAWINGS SHALL NOT RELIEVE THE DESIGN-BUILD ENTITY FROM ITS RESPONSIBILITY TO PREPARE COMPLETE, COORDINATED, CODE-COMPLIANT, FUNCTIONALLY APPROPRIATE, PROCUREMENT-READY, INSTALLATION-READY, AND BUILDABLE FINAL FF&E DOCUMENTS.
31. THE INCLUSION OF THESE PRELIMINARY FF&E PLAN DRAWINGS IN THE RFP BRIDGING DOCUMENTS DOES NOT TRANSFER TO THE OWNER OR BRIDGING ARCHITECT THE DESIGN-BUILD ENTITY’S RESPONSIBILITY FOR FINAL FF&E DESIGN, FINAL EQUIPMENT COORDINATION, FINAL USER COORDINATION, FINAL UTILITY COORDINATION, FINAL PROCUREMENT COORDINATION, FINAL INSTALLATION COORDINATION, FINAL CODE COMPLIANCE, OR PROPER INSTALLATION AND OPERATIONAL READINESS OF THE WORK.
32. THE DESIGN-BUILD ENTITY SHALL ASSUME FULL RESPONSIBILITY FOR TRANSFORMING THE PRELIMINARY FF&E DESIGN INTENT SHOWN ON THESE DRAWINGS INTO A FINAL, COORDINATED, COMPREHENSIVE, CODE-COMPLIANT, FUNCTIONALLY APPROPRIATE, OWNER-VALIDATED, PROCUREMENT-READY, INSTALLATION-READY, AND FULLY DOCUMENTED FF&E DESIGN FOR THE PUERTO RICO TRAUMA HOSPITAL PROJECT.

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS.
  NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT INTENDED FOR CONSTRUCTION. THEY ARE NOT SUITABLE FOR PERMITTING, BIDDING, FABRICATION, PROCUREMENT, OR CONSTRUCTION PURPOSES. THESE DOCUMENTS ARE PROVIDED TO GUIDE THE DESIGN-BUILD ENTITY IN THE SELECTED DESIGN-BUILD ENTITY'S PREPARATION OF THEIR OWN CONSTRUCTION DOCUMENTS. THE DESIGN-BUILD ENTITY IS SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, AND CODE COMPLIANCE OF ALL CONSTRUCTION DOCUMENTS, SHOP DRAWINGS, AND OTHER SUBMITTALS PREPARED BY OR ON BEHALF OF THE DESIGN-BUILD ENTITY. ANY USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS FOR THE PUERTO RICO TRAUMA HOSPITAL PROJECT. THEY ARE NOT TO BE USED SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND WE USED ONLY BY PERS



LEGEND:

- SUGGESTED PRELIMINARY BUILT-IN CABINETRY AND CASEWORK UNITS
- SUGGESTED PRELIMINARY FURNITURE FIXTURES AND EQUIPMENT (F.F.E.)

CABINETRY & FURNITURES BASEMENT LEVEL

SCALE: 3/32"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF OBTAINING PROPOSALS FOR DESIGN-BUILD SERVICES FOR THE PROJECT DESCRIBED HEREIN. THEY ARE NOT COMPLETE CONSTRUCTION DOCUMENTS AND SHALL NOT BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION. THEY CONTAIN PERFORMANCE CRITERIA AND CONCEPTUAL GUIDANCE FOR THE DESIGN-BUILD ENTITY. THE SELECTED DESIGN-BUILD ENTITY IS SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ENGINEERING, PROCUREMENT, AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT. THE DESIGN-BUILD ENTITY SHALL PREPARE ALL PERMIT AND CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH APPLICABLE CODES, STANDARDS, AND REGULATIONS, AND SHALL BE SOLELY RESPONSIBLE FOR THEIR ACCURACY AND COMPLIANCE. THE DESIGN-BUILD ENTITY SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND ITS CONSULTANTS FROM ANY CLAIMS, LOSSES, OR DAMAGES ARISING FROM THE USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES. STRICTLY PROHIBITED.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS FOR THE PUERTO RICO TRAUMA HOSPITAL PROJECT. THEY ARE INTENDED FOR USE SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES AUTHORIZED BY THE ARCHITECTS. ALL COMMON LAW, STATUTORY AND OTHER RESERVED RIGHTS, INCLUDING COPYRIGHT, ARE RESERVED. UNAUTHORIZED USE, REPRODUCTION, DISCLOSURE, MODIFICATION, RELIANCE, OR REUSE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT THE PRIOR WRITTEN CONSENT OF THE ARCHITECTS. ANY UNAUTHORIZED USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECTS.

NO. | DATE | DESCRIPTIONS

PROJECT: PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE: CABINETRY & FURNITURES - BASEMENT LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00926

DRAWING NUMBER

A-9.1

LEGEND:

- SUGGESTED PRELIMINARY BUILT-IN CABINETRY AND CASEWORK UNITS
- SUGGESTED PRELIMINARY FURNITURE FIXTURES AND EQUIPMENT (F.F.E.)

CABINETRY & FURNITURES FIRST LEVEL

SCALE: 3/32"= 1'-0"

NOTES:

- DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSES OF DESIGN-BUILD BRIDGING DOCUMENTS AND ARE NOT COMPLETE FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION PURPOSES. THEY ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, PROJECT-SPECIFIC PROCUREMENT, OR CONSTRUCTION. THEY ARE INTENDED ONLY TO PROVIDE GUIDANCE FOR THE DESIGN-BUILD ENTITY THE SELECTED DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, AND CONSTRUCTABILITY OF ALL DESIGN AND CONSTRUCTION DOCUMENTS. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR THE DEVELOPMENT, COORDINATION, COMPLETENESS, ACCURACY, AND CONSTRUCTABILITY OF ALL DESIGN AND CONSTRUCTION DOCUMENTS REQUIRED FOR THE PROJECT, INCLUDING THOSE PREPARED BY ITS CONSULTANTS. THE DESIGN-BUILD ENTITY SHALL BE SOLELY RESPONSIBLE FOR ALL INFORMATION CONTAINED HEREIN, AND SHALL NOT RELY ON THESE DOCUMENTS AS A BASIS FOR BIDDING, PERMITTING, OR CONSTRUCTION. ANY USE OF THESE DOCUMENTS FOR CONSTRUCTION PURPOSES IS STRICTLY PROHIBITED.

THESE DOCUMENTS ARE INSTRUMENTS OF SERVICE PREPARED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. THEY ARE PROPRIETARY AND CONFIDENTIAL AND ARE PROVIDED SOLELY FOR USE IN CONNECTION WITH THIS PROJECT AND MAY BE USED ONLY BY PERSONS OR ENTITIES AUTHORIZED BY THE ARCHITECT. UNAUTHORIZED REPRODUCTION, DISTRIBUTION, DISCLOSURE, MODIFICATION, RELIANCE, OR RESALE OF THESE DOCUMENTS, IN WHOLE OR IN PART, IS PROHIBITED WITHOUT THE ARCHITECT'S PRIOR WRITTEN CONSENT. ANY UNAUTHORIZED USE OF THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO THE ARCHITECT.

NO. | DATE | DESCRIPTIONS

PROJECT: PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE: CABINETRY & FURNITURES - FIRST LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. CARIBE 1590 AVE. PONCE DE LEON, STE 150 SAN JUAN PR 00926

DRAWING NUMBER

A-9.2

LEGEND:

- SUGGESTED PRELIMINARY BUILT-IN CABINETRY AND CASEWORK UNITS
- SUGGESTED PRELIMINARY FURNITURE FIXTURES AND EQUIPMENT (F.F.E.)

CABINETRY & FURNITURES SECOND LEVEL

SCALE: 3/32"= 1'-0"

NOTES:

- DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

DATE: JULY 2026
DRAWN BY:
APPROVED BY:
SCALE: AS SHOWN

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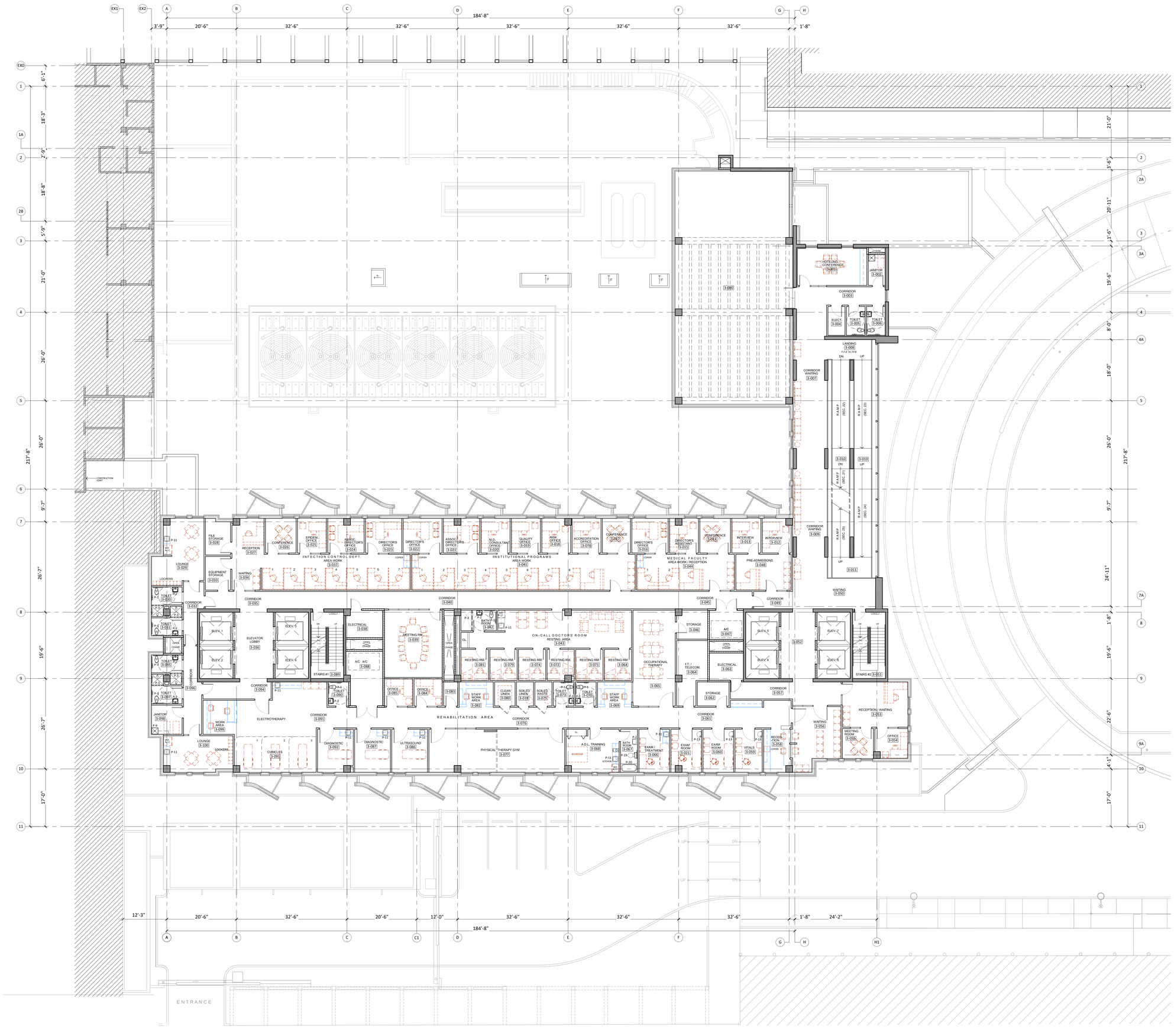
PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
CABINETRY & FURNITURES - SECOND LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
CARIBE: 1590 AVE.PONCE DE LEON, STE 105 SAN JUAN PR 00909

DRAWING NUMBER

A-9.3



LEGEND:

- SUGGESTED PRELIMINARY BUILT-IN CABINETRY AND CASEWORK UNITS
- SUGGESTED PRELIMINARY FURNITURE FIXTURES AND EQUIPMENT (F.F.E.)

CABINETRY & FURNITURES THIRD LEVEL

SCALE: 3/32"= 1'-0"

NOTES:

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DATE: JULY 2026

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APROVED BY:

SCALE: AS SHOWN

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NO. | DATE | DESCRIPTIONS

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PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

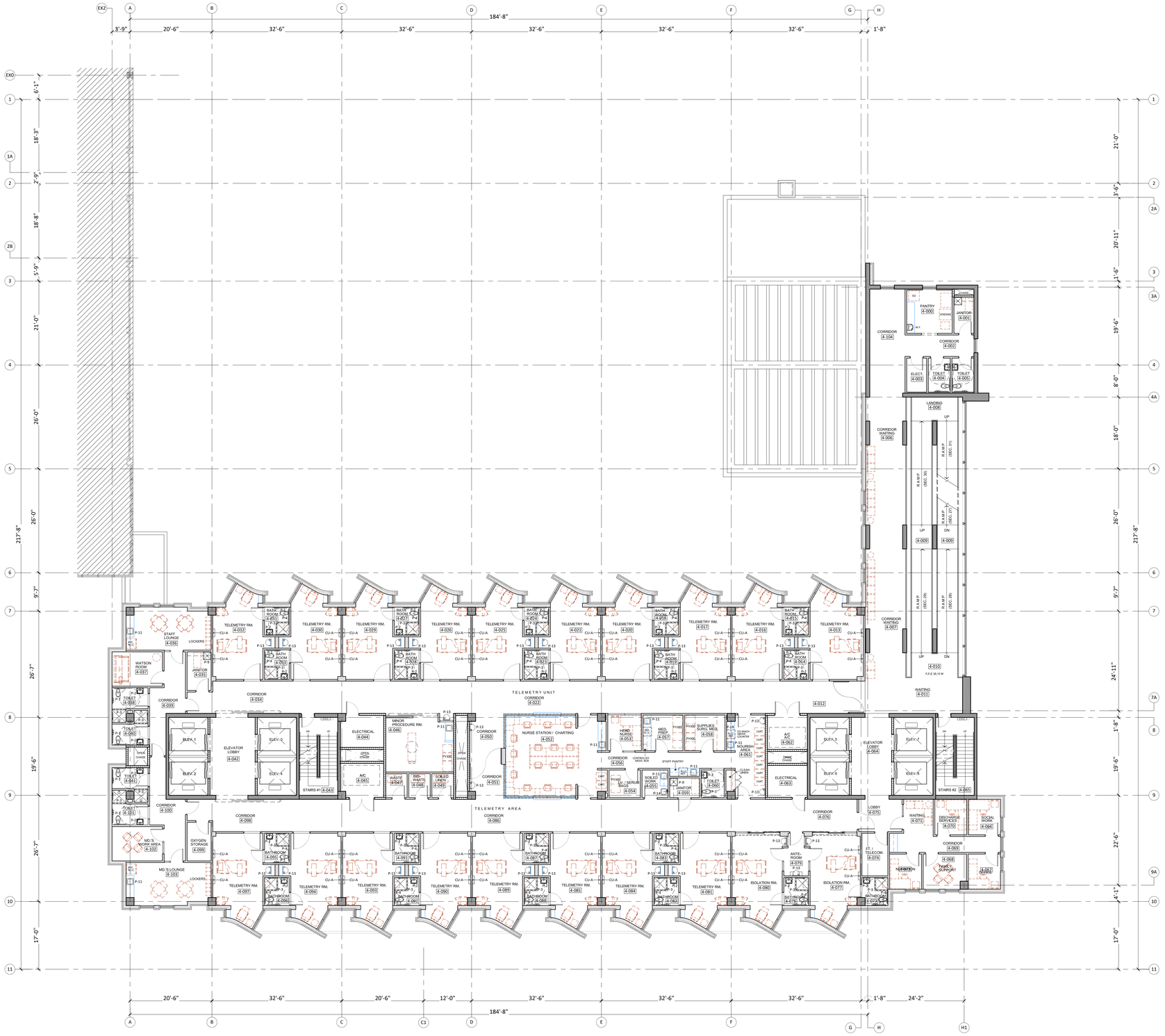
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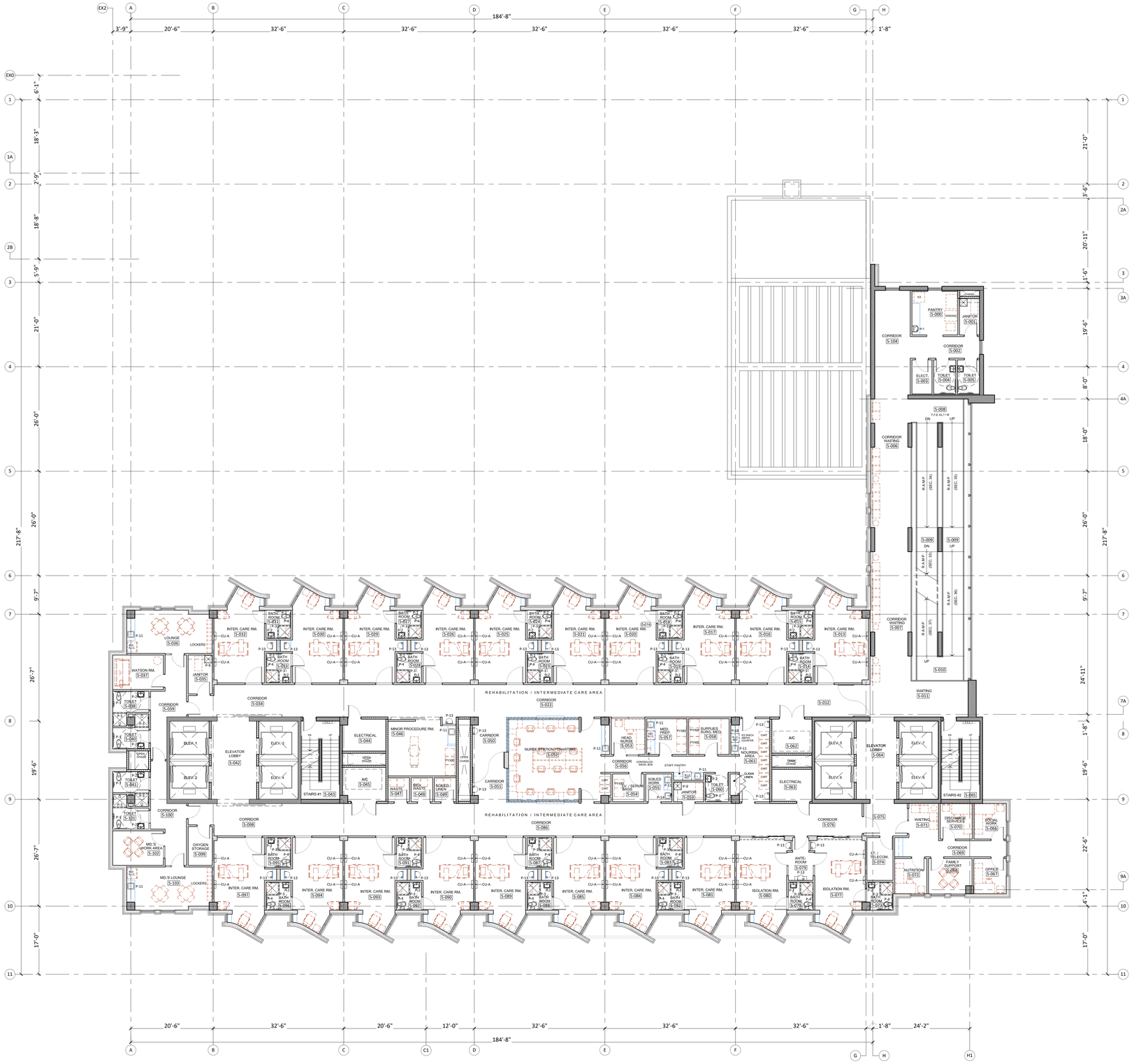
CABINETRY & FURNITURES - THIRD LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. CARIBE 1569 PONCE DE LEON, STE. 105 SAN JUAN PR 00926

DRAWING NUMBER

A-9.4


EX2 A B C D E F G H
3'-9" 20'-6" 32'-6" 32'-6" 32'-6" 32'-6" 32'-6" 32'-6" 1'-8"
184'-8"
EX0 1 1A 2 2B 3 4 5 6 7 8 9 10 11
6'-1" 18'-3" 2'-9" 18'-8" 5'-9" 21'-0" 26'-0" 26'-0" 9'-7" 26'-7" 19'-6" 26'-7" 17'-0"
1 2 2A 3 3A 4 4A 5 6 7 7A 8 9 9A 10 11
21'-0" 3'-6" 20'-11" 1'-6" 19'-6" 8'-0" 18'-0" 26'-0" 9'-7" 24'-11" 1'-8" 19'-6" 22'-6" 4'-1" 17'-0"
20'-6" 32'-6" 20'-6" 12'-0" 32'-6" 32'-6" 32'-6" 1'-8" 24'-2"
184'-8"
A B C C1 D E F G H H1
PANTRY 4-000
JANITOR 4-001
CORRIDOR 4-002
CORRIDOR 4-104
ELECT. 4-003
TOILET 4-004
TOILET 4-005
LANDING 4-006
CORRIDOR WAITING 4-006
RAMP (SEC.31)
RAMP (SEC.30)
RAMP (SEC.27)
RAMP (SEC.28)
UP
DN
4-000
4-009
4-055
CORRIDOR WAITING 4-007
WAITING 4-011
TELEMETRY UNIT
CORRIDOR 4-022
NURSE STATION / CHARTING 4-052
TELEMETRY AREA
CORRIDOR 4-086
CORRIDOR 4-098
CORRIDOR 4-100
CORRIDOR 4-039
CORRIDOR 4-034
CORRIDOR 4-050
CORRIDOR 4-051
CORRIDOR 4-056
CORRIDOR 4-076
ELEVATOR LOBBY 4-042
ELEVATOR LOBBY 4-064
STAIRS #1 4-043
STAIRS #2 4-065
ELEV. 1
ELEV. 2
ELEV. 3
ELEV. 4
ELEV. 5
ELEV. 6
ELEV. 7
ELEV. 8
STAFF LOUNGE 4-036
LOCKERS
JANITOR 4-035
WATSON ROOM 4-037
TOILET 4-038
TOILET 4-040
TOILET 4-041
TOILET 4-101
MD'S WORK AREA 4-102
MD'S LOUNGE 4-103
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OXYGEN STORAGE 4-099
TELEMETRY RM. 4-032
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ISOLATION RM. 4-080
ISOLATION RM. 4-077
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BATH ROOM 4-024
BATH ROOM 4-018
BATH ROOM 4-015
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BATHROOM 4-091
BATHROOM 4-087
BATHROOM 4-083
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BATHROOM 4-078
BATHROOM 4-073
ELECTRICAL 4-044
MINOR PROCEDURE RM. 4-046
A/C 4-045
WASTE 4-047
BIO-WASTE 4-048
SOILED LINEN 4-049
A/C 4-062
ELECTRICAL 4-063
MED. PREP. 4-057
SUPPLY/ SURG. MED. 4-058
SOILED WORK 4-055
CLEAN LINEN 4-059
TOILET 4-060
NOURISH. AREA 4-061
E.I. / TELECOM. 4-074
ANTE-ROOM 4-079
WAITING 4-071
DISCHARGE SERVICES 4-070
SOCIAL WORK 4-066
FAMILY SUPPORT 4-069
CORRIDOR 4-069
4-067
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4-072
4-054
4-053



LEGEND:

- SUGGESTED PRELIMINARY BUILT-IN CABINETRY AND CASEWORK UNITS
- SUGGESTED PRELIMINARY FURNITURE FIXTURES AND EQUIPMENT (F.F.E.)

CABINETRY & FURNITURES FIFTH LEVEL

SCALE: 3/32"= 1'-0"

NOTES:

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NO.	DATE	DESCRIPTIONS

DATE: JULY 2026

DRAWN BY:

APPROVED BY:

SCALE: AS SHOWN

PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:

CABINETRY & FURNITURES - FIFTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS PLANNERS
URB. CARIBE 1504 AVE.PONCE DE LEON, STE 1105 SAN JUAN PR 00909

DRAWING NUMBER

A-9.6

LEGEND:

SUGGESTED PRELIMINARY BUILT-IN CABINETRY AND CASEWORK UNITS

SUGGESTED PRELIMINARY FURNITURE FIXTURES AND EQUIPMENT (F.F.E.)

CABINETRY & FURNITURES
SIXTH LEVEL

SCALE: 3/32"= 1'-0"

NOTES:
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  NOT FOR CONSTRUCTION.

DATE: JULY 2026

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PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:

CABINETRY & FURNITURES - SIXTH LEVEL

DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. LOMBARDI 1590 AVE. PONCE DE LEON, STE 100 SAN JUAN PR 00926

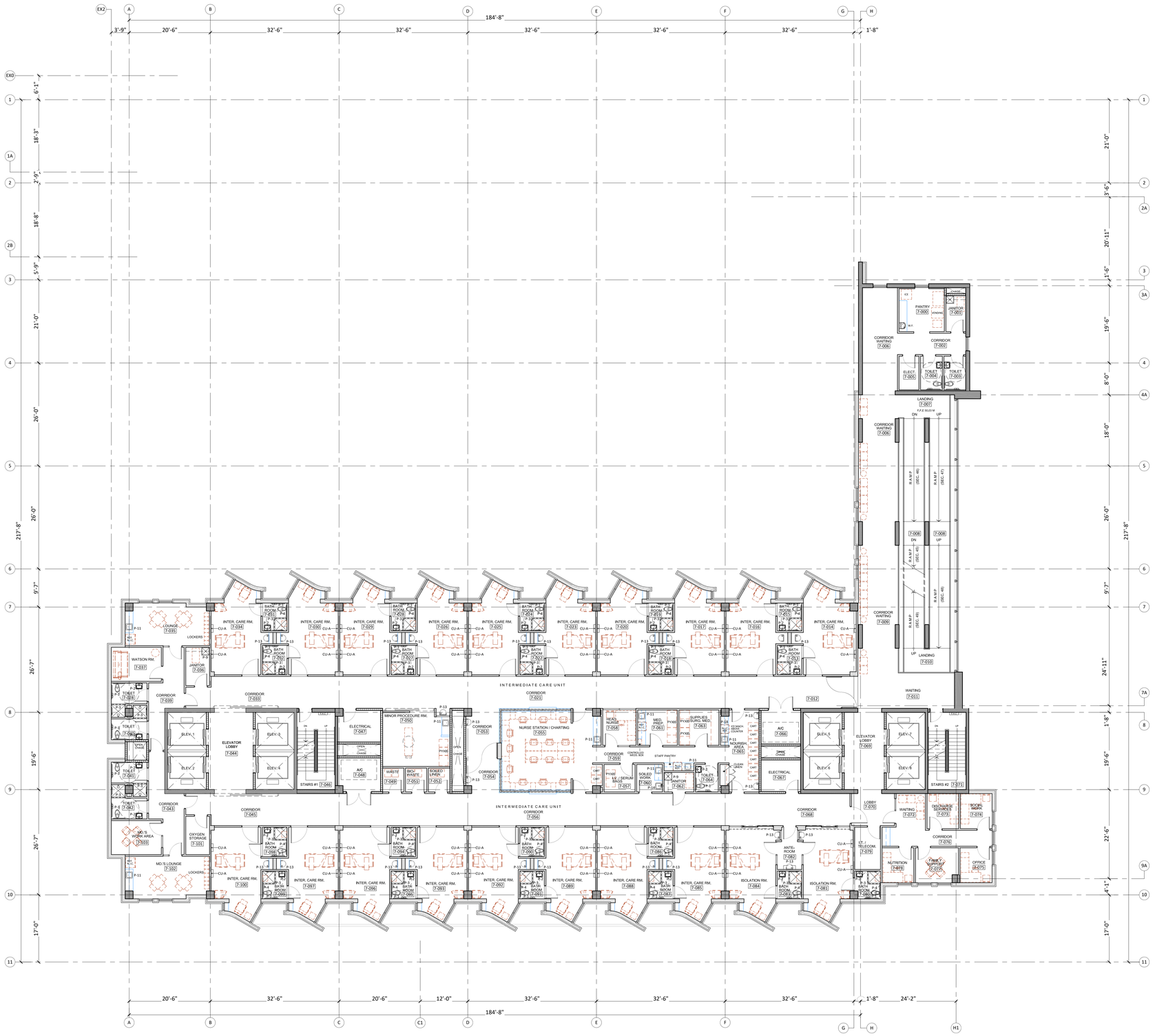
DRAWING NUMBER

A-9.7

LEGEND:

SUGGESTED PRELIMINARY BUILT-IN CABINETRY AND CASEWORK UNITS

SUGGESTED PRELIMINARY FURNITURE FIXTURES AND EQUIPMENT (F.F.E.)



CABINETRY & FURNITURES SEVENTH LEVEL

SCALE: 3/32"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

DATE: JULY 2026

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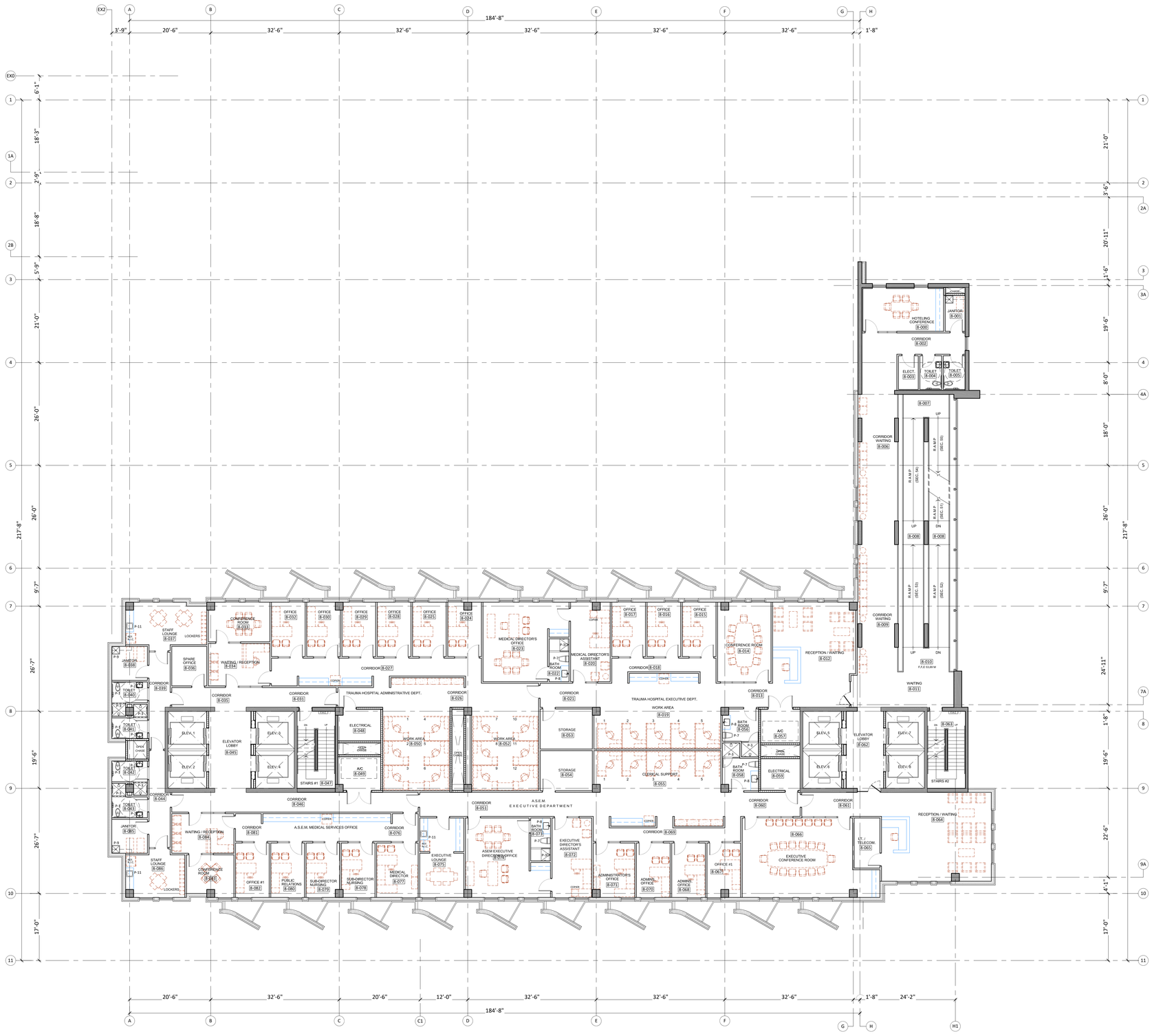
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LEGEND:

SUGGESTED PRELIMINARY BUILT-IN CABINETRY AND CASEWORK UNITS

SUGGESTED PRELIMINARY FURNITURE FIXTURES AND EQUIPMENT (F.F.E.)



CABINETRY & FURNITURES EIGHTH LEVEL

SCALE: 3/32"= 1'-0"

NOTES:
- DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

DATE : JULY 2020
DRAWN BY:
APROVED BY:
SCALE: AS SHOWN

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NO. | DATE | DESCRIPTIONS

PROJECT:
PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:
CABINETRY & FURNITURES - EIGHTH LEVEL

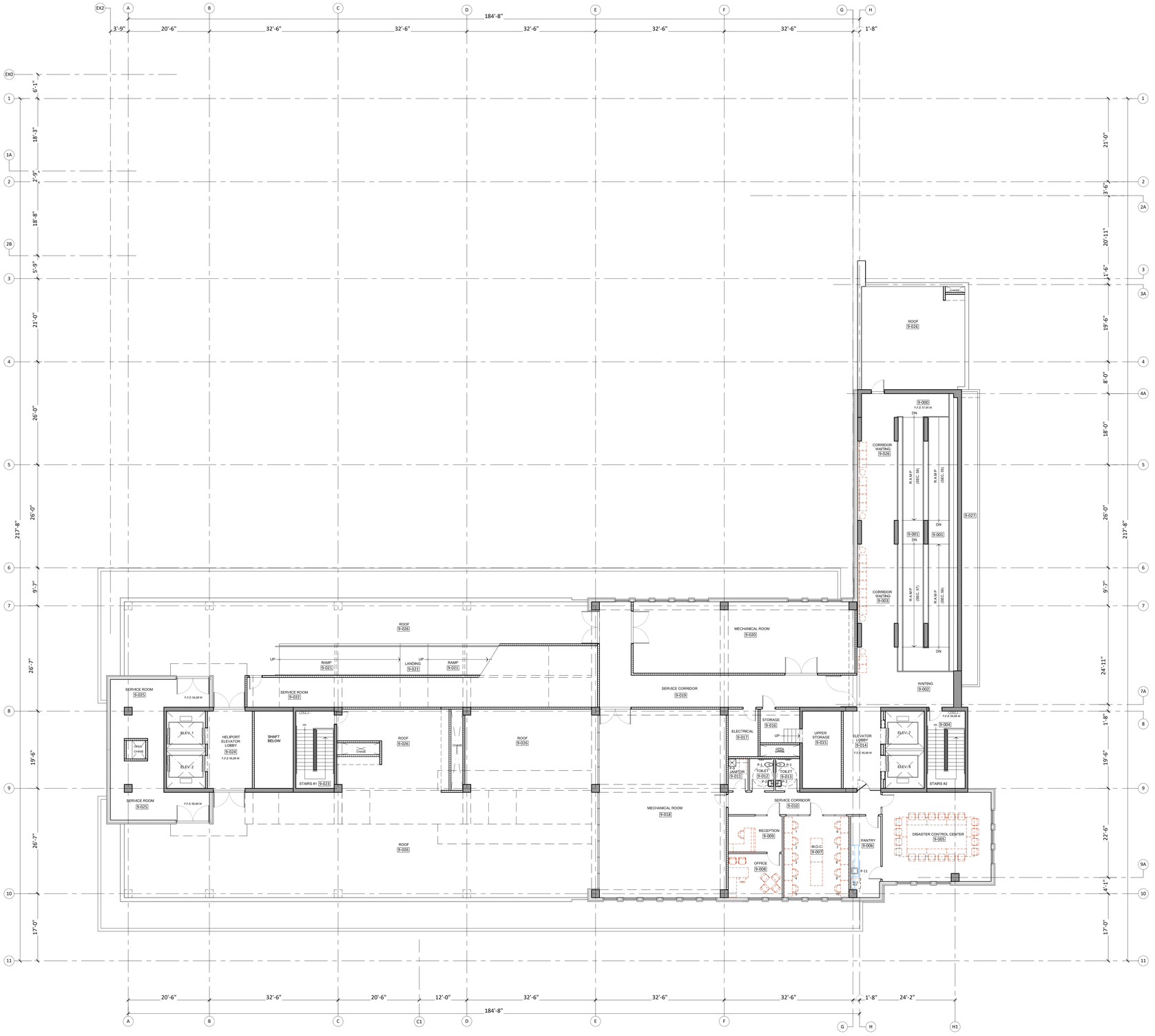
DE LA TORRE - ESTEVEZ
ARCHITECTS
PLANNERS
URB. CARIBE 1580 AVE. PONCE DE LEON, STE 705 SAN JUAN PR 00926

DRAWING NUMBER

A-9.9

LEGEND:

- SUGGESTED PRELIMINARY BUILT-IN CABINETRY AND CASEWORK UNITS
- SUGGESTED PRELIMINARY FURNITURE FIXTURES AND EQUIPMENT (F.F.E.)



CABINETRY & FURNITURES NINTH LEVEL

SCALE: 3/32"= 1'-0"

NOTES:

- DESIGN-BUILD BRIDGING DOCUMENTS. NOT FOR CONSTRUCTION.

THESE DOCUMENTS HAVE BEEN PREPARED SOLELY FOR THE PURPOSE OF EFFECTIVELY AND PROPERLY COMMUNICATING THE ARCHITECTURAL DESIGN OBJECTIVES, DESIGN INTENT, PERFORMANCE CRITERIA, AND TECHNICAL ASSESSMENTS DEVELOPED BY DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS. THESE DOCUMENTS ARE NOT INTENDED OR REPRESENTED TO BE SUITABLE FOR REUSE BY YOU OR OTHERS ON EXTENSIONS OF THE PROJECT OR ON ANY OTHER PROJECT. THESE DOCUMENTS ARE NOT TO BE USED FOR PERMITTING, BIDDING, FABRICATION, OR CONSTRUCTION PURPOSES. ANY USE OF THESE DOCUMENTS FOR SUCH PURPOSES WITHOUT THE EXPRESS WRITTEN CONSENT, GUIDANCE AND PARTICIPATION OF DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS IS AT THE SOLE RISK OF THE USER. THE USER AGREES TO INDEMNIFY AND HOLD HARMLESS DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS FROM ANY AND ALL CLAIMS, LIABILITIES, DAMAGES, AND EXPENSES ARISING FROM SUCH UNAUTHORIZED USE. THE USER ASSUMES FULL RESPONSIBILITY FOR ANY MODIFICATIONS MADE TO THESE DOCUMENTS AND FOR ANY CONSEQUENCES RESULTING FROM THEIR USE. THESE DOCUMENTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO DE LA TORRE-ESTEVEZ ARCHITECTS PLANNERS.

NO.	DATE	DESCRIPTIONS

DATE: JULY 2026

DRAWN BY:

APROVED BY:

SCALE: AS SHOWN

PROJECT:

PUERTO RICO TRAUMA HOSPITAL
PUERTO RICO MEDICAL CENTER
SAN JUAN, PUERTO RICO

SHEET TITLE:

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Attachment B: Technical Specifications

PUERTO RICO TRAUMA HOSPITAL

PREPARED FOR

Administración de Servicios Médicos de Puerto Rico (A.S.E.M.)

Puerto Rico Medical Center | San Juan, Puerto Rico

August 13, 2026

APPENDIX B – PRELIMINARY TECHNICAL SPECIFICATIONS

Bridging Documents for the New Puerto Rico Trauma Hospital



DE LA TORRE – ESTÉVEZ
ARCHITECTS - PLANNERS

NOTICE OF DOCUMENT USE

A. PROPRIETARY RIGHTS, LIMITED AUTHORIZATION, AND RESTRICTIONS ON USE OF BRIDGING DOCUMENTS

These drawings, specifications, narratives, criteria, reports, calculations, schedules, details, and other materials comprising the Bridging Documents have been prepared exclusively to establish the Owner's programmatic requirements, functional and operational objectives, design intent, performance requirements, minimum quality standards, and technical basis of design for the Request for Proposals and Design-Build procurement process for the Puerto Rico Trauma Hospital Project.

Except as otherwise expressly provided in the applicable Professional Services Agreement, these Bridging Documents constitute instruments of professional service prepared by De La Torre–Estévez Architects and shall remain subject to all applicable proprietary, copyright, intellectual-property, and professional-use protections. No ownership interest, copyright, or unrestricted right of use is transferred by the issuance, distribution, reproduction, or authorized use of these documents.

Subject to the prior written consent of De La Torre–Estévez Architects and the terms and conditions established by the Owner, the Medical Services Administration of Puerto Rico ("ASEM"), a limited, nonexclusive, and nontransferable authorization is granted solely to ASEM and to those Design-Build entities formally authorized by ASEM to participate in the procurement process. Such authorization is limited exclusively to reviewing, evaluating, interpreting, and using the Bridging Documents for the preparation and submission of proposals and, following award, as reference design guidance for the development of the Project's final design and construction documents.

These Bridging Documents are not final design documents, permit documents, bid documents for conventional construction procurement, fabrication documents, shop drawings, or construction documents. They shall not be used, in whole or in part, for permitting, fabrication, ordering or procurement of construction materials or systems, installation, construction, or any other purpose unrelated to the authorized Design-Build procurement process. Direct use of these documents for construction is expressly prohibited.

The selected Design-Build entity, acting through its duly licensed Architect of Record, Engineer(s) of Record, specialty consultants, delegated-design professionals, contractors, subcontractors, manufacturers, and suppliers, as applicable, shall be solely responsible for developing, completing, coordinating, reviewing, and certifying all final architectural, engineering, permitting, procurement, fabrication, and construction documents required for the proper execution and completion of the Project.

The Design-Build entity shall independently investigate and verify all existing conditions, field dimensions, elevations, quantities, utility locations, site constraints, design assumptions, technical criteria, code requirements, and other information affecting the Work. Information contained in the Bridging Documents shall not relieve the Design-Build entity or its design

professionals from their independent professional judgment, due diligence, coordination obligations, or responsibility for the accuracy, completeness, constructability, code compliance, permitting, safety, and performance of the final design and completed Work.

No representation or warranty is made that the Bridging Documents are complete or suitable for direct construction use. Any unauthorized use, reproduction, modification, adaptation, distribution, disclosure, or reliance upon these documents shall be at the sole risk of the person or entity undertaking such use and without liability to De La Torre–Estévez Architects or its consultants. No third-party rights, licenses, or benefits are created by the preparation, issuance, or authorized distribution of these documents.

B. DESIGN BASIS, LIMITATIONS, AND DESIGN-BUILD RESPONSIBILITIES

1. PURPOSE AND STATUS. These Preliminary Technical Specifications form part of the Bridging Documents prepared for the Medical Services Administration of Puerto Rico (ASEM) for the Puerto Rico Trauma Hospital Design-Build procurement. Read together with the Advanced Architectural Design Development Drawings, discipline narratives, programmatic information, reports, studies, criteria, and other Bridging Documents, they communicate the Owner's approved programmatic and operational requirements, design intent, basis-of-design concepts, recommended systems and materials, and minimum quality and performance expectations. They are not a complete final Project Manual, permit specification, construction specification, or comprehensive statement of every product, component, accessory, service, connection, control, execution requirement, or item required for a complete and operational Project.
2. PROFESSIONAL AND OWNER-APPROVED BASIS. The Advanced Architectural Design Development and related architectural, structural, electrical, and mechanical criteria reflected herein were developed under the direction of De La Torre-Estevez Architects, as Bridging Architect, based upon the firm's professional architectural judgment and healthcare planning and design experience, together with applicable engineering input. They also reflect the programming, planning, clinical, operational, functional, and service requirements developed, coordinated, and agreed upon with ASEM, culminating in the Schematic Design reviewed and approved by ASEM as the basis for further Project development.
3. STAGE-SPECIFIC CODE AND TECHNICAL DEVELOPMENT. These Preliminary Technical Specifications were prepared with consideration of the codes, standards, regulations, reference standards, and healthcare design guidelines identified as applicable and reasonably required for the scope and level of completion represented by the Advanced Architectural Design Development stage. Any code analysis, preliminary sizing, product or system selection, performance criterion, coordination, or compliance review is limited to the information developed at this stage and does not constitute final code analysis, engineering verification, product selection,

permitting or construction documentation, or certification of complete compliance with all requirements applicable to the final Project.

4. OWNER-DIRECTED REVISIONS. Any Owner-directed revision to the approved program, layouts, scope, systems, materials, performance criteria, or service requirements shall be confirmed in writing by ASEM. The Design-Build Entity shall evaluate, coordinate, and incorporate all resulting design, code, permitting, operational, cost, schedule, procurement, and construction impacts into its final design and construction documents.
5. DESIGN-BUILD ENTITY REVIEW AND FINAL PROJECT MANUAL. Upon proceeding beyond the Bridging Documents stage, the Design-Build Entity, through its duly licensed Architect of Record, Engineers of Record, specification professionals, and other qualified design professionals, shall independently review, verify, validate, coordinate, supplement, revise, and complete these Preliminary Technical Specifications. It shall prepare a complete, coordinated, project-specific final Project Manual; resolve all omissions, conflicts, ambiguities, discrepancies, interfaces, and requirements necessary for the complete Work; and coordinate all specification divisions with the drawings, disciplines, delegated-design components, manufacturers, utilities, authorities having jurisdiction, and existing ASEM facilities and services. Requirements herein establish minimum design, quality, and performance criteria unless the Request for Proposals or Design-Build Agreement expressly states otherwise.
6. FINAL PROFESSIONAL RESPONSIBILITY AND LIMITATION OF BRIDGING ARCHITECT RESPONSIBILITY. The Design-Build Entity shall identify and apply all codes, standards, regulations, healthcare guidelines, authority requirements, amendments, and official interpretations applicable to final design, permitting, construction, occupancy, and operation; perform all required analyses, calculations, testing, coordination, and product evaluations; and prepare, sign, seal, and submit all final drawings, specifications, permit documents, construction documents, and professional deliverables required for a complete, coordinated, code-compliant, permit-ready, construction-ready, operational, and maintainable facility. Use, adoption, modification, or further development of any portion of these Preliminary Technical Specifications shall constitute the Design-Build Entity's independent professional evaluation and acceptance of responsibility for its incorporation into the final Project. Neither ASEM's review or approval nor the Bridging Architect's preparation of these documents shall relieve the Design-Build Entity or its Architect and Engineers of Record of any professional, contractual, code-compliance, coordination, permitting, or construction-document responsibility. Unless separately retained under a subsequent written professional services agreement, De La Torre-Estevez Architects shall not serve as Architect of Record, Engineer of Record, specification professional of record, delegated designer, or design professional responsible for the Design-Build Entity's final design, final Project Manual, permit or construction documents, construction, means and methods, or completed Work.

C. NAMED PRODUCTS, MANUFACTURERS, EQUIPMENT, SYSTEMS, AND BASIS-OF-QUALITY REQUIREMENTS

Unless expressly stated otherwise in the Request for Proposals, the Bridging Documents, or the final Design-Build Agreement, any trade names, proprietary products, equipment, systems, manufacturers, suppliers, model numbers, catalog references, materials, assemblies, installation details, or similar references identified in the architectural, civil, structural, electrical, mechanical, plumbing, fire-protection, communications, medical-equipment, or other sample technical specifications are provided solely to establish a basis of design and a minimum benchmark for the required quality, performance, functionality, durability, reliability, appearance, serviceability, compatibility, and standard of workmanship. Such references shall not be interpreted as requiring the use of the specifically named product, manufacturer, supplier, model, or system, nor as limiting competition to the entities or products identified.

The Design-Build Entity may propose products, materials, equipment, systems, manufacturers, and installation methods that it determines to be equal, comparable, similar, or superior to those referenced, provided that the proposed selections fully comply with the performance criteria, design intent, functional and operational requirements, applicable codes and regulations, healthcare-facility requirements, Owner's Project Requirements, RFP Bridging Documents, and the final Design-Build Agreement. The scope and basis-of-quality criteria for such selections shall be developed and confirmed in consultation with ASEM, and products or systems that materially affect Owner operations, maintenance practices, facility standards, system compatibility, architectural character, lifecycle cost, resiliency, or long-term service requirements shall be subject to ASEM's review and agreement before being incorporated into the final design and technical specifications.

The Design-Build Entity and its Architect and Engineers of Record shall be responsible for evaluating, selecting, specifying, coordinating, and documenting the final products, materials, equipment, systems, and manufacturers to be incorporated into the Project. This selection process shall be carried out in active consultation and coordination with ASEM so that the final scope of products and systems reflects the Owner's confirmed programmatic and operational requirements, facility standards, preferred levels of quality, maintainability criteria, standardization objectives, compatibility with existing ASEM infrastructure and equipment, availability of local service and replacement parts, warranty expectations, lifecycle considerations, and other Project-specific requirements. All final selections shall be appropriate for their intended use within a critical healthcare facility and shall provide the required levels of performance, durability, infection-control compatibility, maintainability, resilience, energy efficiency, safety, accessibility, and long-term operational reliability.

At appropriate design-development and construction-document milestones, the Design-Build Entity shall present to ASEM the proposed product, manufacturer, equipment, and system selections, together with the applicable basis-of-quality and performance criteria, for consultation, coordination, and confirmation of the Owner's scope requirements. This review shall prioritize categories having significant implications for clinical operations, reliability, maintenance, compatibility, energy use, resilience, architectural appearance, or lifecycle cost, including major building-envelope and interior systems; structural and specialty systems;

electrical and emergency-power equipment; HVAC equipment and controls; plumbing and medical-gas systems; fire-protection and life-safety systems; vertical transportation; communications and security systems; and other major facility equipment. The final basis-of-quality and acceptable-manufacturer requirements for such categories shall reflect the conclusions reached through this consultation and the requirements agreed with ASEM in accordance with the RFP and final Design-Build Agreement.

The use of a product, manufacturer, material, equipment item, system, detail, or assembly identified in the Bridging Documents shall not relieve the Design-Build Entity of its obligation to independently verify its suitability, availability, dimensional compatibility, performance, code compliance, coordination with adjacent construction, interface with other building systems, and compliance with the Project's design and operational requirements. The Design-Build Entity shall remain fully responsible for the completeness and adequacy of the final design and for the successful integration and performance of all selected products and systems.

Proposed equal or comparable products shall meet or exceed the salient characteristics and minimum requirements established by the referenced basis-of-design item, including, as applicable:

1. Material composition, dimensions, capacity, and configuration.
2. Structural, mechanical, electrical, thermal, acoustical, environmental, and operational performance.
3. Fire-resistance, flame-spread, smoke-development, and life-safety characteristics.
4. Resistance to corrosion, moisture, wind, impact, vibration, seismic forces, and other applicable environmental or service conditions.
5. Compatibility with healthcare operations, infection-prevention protocols, cleaning agents, disinfectants, and maintenance procedures.
6. Energy-efficiency and sustainability requirements.
7. Required testing, certifications, listings, approvals, and regulatory acceptances.
8. Availability of replacement parts, consumables, technical support, and qualified service personnel.
9. Manufacturer experience, product history, warranties, and anticipated service life.
10. Visual appearance, profiles, colors, textures, finishes, and architectural design intent, where applicable.

As part of the product and system selection process, and whenever required by the RFP, the Design-Build Agreement, or ASEM's review procedures, the Design-Build Entity shall submit sufficient technical documentation to ASEM to support consultation, comparison, and evaluation of the proposed selection and to demonstrate compliance and equivalency with the established basis-of-quality requirements. Such documentation may include comparative product data, performance calculations, code-compliance information, test reports, certifications, samples, mockups, shop drawings, coordination drawings, delegated-design calculations, manufacturer qualifications, installation instructions, warranties, service and

maintenance requirements, replacement-parts information, commissioning requirements, and other information reasonably necessary to evaluate the proposed product or system and its suitability for ASEM's operational requirements.

The Design-Build Entity shall clearly identify any proposed variation from the referenced or ASEM-confirmed basis-of-quality requirements and shall provide a written comparison describing the differences and demonstrating that the proposed selection will not reduce the quality, performance, safety, durability, maintainability, functionality, useful life, architectural and engineering intent, compatibility with existing ASEM systems, or other Owner-established requirements of the Project. Any material variation affecting an Owner-standard, agreed basis-of-quality criterion, major equipment or system selection, operational requirement, or long-term maintenance consideration shall be specifically brought to ASEM's attention for consultation and written agreement in accordance with the procedures established by the RFP and final Design-Build Agreement. The absence of an identified deviation shall be interpreted as confirmation that the proposed product or system complies fully with the applicable requirements.

ASEM's participation in product and system consultation, establishment or confirmation of basis-of-quality criteria, agreement with Owner scope requirements, review, acceptance, or non-objection shall represent confirmation of Owner preferences and Project requirements only. Such participation shall not constitute professional approval of the Design-Build Entity's final design, shall not transfer design responsibility, and shall not relieve the Design-Build Entity, its Architect and Engineers of Record, delegated-design professionals, subcontractors, suppliers, or manufacturers from responsibility for technical evaluation, code compliance, coordination, suitability, errors, omissions, incompatibilities, deficiencies, or failure to satisfy the Contract requirements.

Products or manufacturers expressly identified in the RFP, Bridging Documents, ASEM standards or directives, or final Design-Build Agreement as mandatory, Owner-standard, sole-source, no-substitution, pre-approved, or required for compatibility or standardization with existing ASEM systems shall be provided as specified. Where ASEM elects, through consultation with the Design-Build Entity, to establish or revise such requirements during the Design-Build design process, the resulting agreed scope and basis-of-quality criteria shall be incorporated into the final technical specifications and Contract Documents, subject to the change, approval, and authorization procedures of the final Design-Build Agreement.

The final technical specifications prepared by the Design-Build Entity shall clearly define the applicable performance requirements, quality standards, basis-of-quality criteria, acceptable manufacturers, products, equipment and systems, submittal and testing requirements, installation criteria, warranties, commissioning obligations, service and maintenance requirements, and closeout documentation. They shall incorporate the product- and system-related scope developed through consultation with ASEM and shall reflect Owner standards, agreed selections, approved alternatives, compatibility requirements, and other basis-of-quality decisions established during the Design-Build design process. Nothing contained in the sample specifications or Bridging Documents shall limit the Design-Build Entity's obligation to

develop complete, coordinated, code-compliant, and construction-ready technical specifications for the entirety of the Project.

D. SCOPE, LIMITATIONS, AND DESIGN-BUILD ENTITY RESPONSIBILITY

The technical specifications included in these Bridging Documents comprise selected sections from CSI Divisions 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 13, 16, 21, 22, 23, 31, 32, and 33. These sections have been selected to correspond with the level of development represented by the Advanced Architectural Design Development Drawings and the associated civil, structural, electrical, mechanical, plumbing, fire protection, and other technical bridging information.

The included specification sections are preliminary, selective, and performance-oriented in nature. They are provided solely to communicate the Owner's programmatic requirements, technical criteria, minimum standards of quality, performance expectations, design intent, and basis of design for the Design-Build procurement process. They do not constitute a complete Project Manual, a complete construction specification package, or the full scope of specifications required for permitting, procurement, fabrication, installation, construction, testing, validation, system startup, commissioning, training, turnover, occupancy, operation, closeout, or final acceptance of the Project.

The Design-Build Entity shall be solely responsible, through its duly licensed Architect and Engineers of Record and other qualified design professionals, for reviewing, verifying, coordinating, revising, supplementing, expanding, and completing each specification section included in the Bridging Documents. The Design-Build Entity shall also prepare and incorporate all additional CSI Master Format divisions and specification sections necessary to provide a complete, coordinated, code-compliant, permit-ready, and construction-ready Project Manual for the full scope of the Project.

The completed specifications shall address all materials, products, equipment, systems, assemblies, workmanship, execution requirements, quality-control procedures, testing, inspections, delegated-design requirements, submittals, warranties, training, validation, pre-functional and functional testing, system startup, testing and balancing, commissioning, integrated systems testing where applicable, operation and maintenance documentation, closeout requirements, facility turnover, and other provisions necessary for the proper design, procurement, construction, activation, operation, and completion of the Project, whether or not such items are specifically identified in the Bridging Documents.

The absence of a particular CSI division, specification section, material, product, system, component, accessory, or execution requirement from the Bridging Documents shall not be interpreted as excluding that item from the Project or relieving the Design-Build Entity of its obligation to provide a complete and fully functional facility consistent with the Owner's requirements, the Design-Build Agreement, the accepted proposal, applicable laws and regulations, governing codes and standards, healthcare-facility requirements, authorities having jurisdiction, manufacturers' requirements, and accepted industry practice.

The Design-Build Entity shall develop the final specifications in consultation and coordination with the Medical Services Administration of Puerto Rico (ASEM) and shall incorporate ASEM's scope requirements, operational criteria, facility standards, approved products and systems, maintainability requirements, commissioning and acceptance criteria, turnover and operational documentation requirements, training requirements, and other Project-specific directives. Such consultation and review by ASEM shall not transfer responsibility for the completeness, accuracy, technical adequacy, multidisciplinary coordination, code compliance, constructability, or proper integration of the final specifications from the Design-Build Entity and its Architect and Engineers of Record.

In particular, the final Project Manual shall include all CSI Master Format divisions and specification sections required to govern the Project phases and activities associated with design and systems validation, construction-phase quality verification, equipment and system startup, pre-functional and functional performance testing, testing and balancing, commissioning and recommissioning activities where applicable, integrated systems testing, Owner training, facility activation and turnover, preparation and delivery of complete operation and maintenance manuals, record documentation, warranties, spare parts and special tools, demonstration of systems, acceptance procedures, and post-startup or deferred/seasonal testing when required. The scope, sequencing, responsibilities, documentation, acceptance criteria, and deliverables for these activities shall be developed and coordinated with ASEM and shall conform to ASEM's final scope requirements, operational needs, facility management requirements, and the applicable Contract Documents. Where any such activity is to be performed by an independent commissioning authority, specialty consultant, manufacturer, testing agency, or other party, the Design-Build Entity shall nevertheless coordinate the related specification requirements and interfaces within the complete Project Manual.

Where the Bridging Documents establish a minimum performance requirement, quality level, basis-of-design criterion, or technical standard, the final specifications shall meet or exceed that requirement unless otherwise expressly authorized in writing by ASEM. Any modification, substitution, deviation, or proposed alternative shall be fully documented by the Design-Build Entity and shall demonstrate equivalent or superior performance, quality, durability, compatibility, maintainability, life-cycle value, and compliance with the Project requirements.

The Design-Build Entity shall coordinate the final Project Manual with the final drawings, calculations, schedules, reports, equipment selections, delegated-design documents, procurement requirements, construction phasing, validation protocols, startup procedures, commissioning plans and requirements, testing and balancing, Owner training, operation and maintenance manuals, record documentation, facility turnover and acceptance requirements, and all other Contract Documents. Conflicts, omissions, inconsistencies, or ambiguities identified within or between the Bridging Documents shall be brought promptly to ASEM's attention for clarification; however, such conditions shall not relieve the Design-Build Entity of its contractual and professional responsibility to develop and deliver a complete, coordinated, and construction-ready set of specifications and Contract Documents covering the full Project lifecycle through successful startup, turnover, and acceptance.

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1.0 ARCHITECTURAL PRELIMINARY TECHNICAL SPECIFICATIONS

ARCHITECTURAL PRELIMINARY TECHNICAL SPECIFICATIONS

RFP / DESIGN-BUILD USE NOTICE

These architectural preliminary technical specifications are revised for use as RFP/bridging performance criteria for the selection of a Design-Build Entity for the New Puerto Rico Trauma Hospital. They establish minimum architectural requirements, quality criteria, design intent and coordination expectations, and are not issued as final permit or construction specifications by themselves.

The selected Design-Build Entity shall verify existing and proposed conditions, coordinate all disciplines, perform required engineering and code analysis, prepare and submit the final permit and construction documents, and obtain all required approvals through Puerto Rico licensed design professionals of record.

References in these sections to “Contractor” mean the selected Design-Build Entity after award. References to “Architect,” “Engineer,” “A/E,” “Resident Engineer,” or similar review parties mean the applicable Design Professional(s) of Record and/or ASEM/Owner review representative, as applicable under the RFP and final Design-Build Agreement.

Named products, manufacturers and details are minimum quality benchmarks unless the RFP expressly states otherwise. Proposed equals, substitutions, delegated design items, shop drawings, product data and samples shall demonstrate compliance with the RFP Bridging Documents, applicable codes, healthcare requirements and the final Design-Build Agreement.

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SECTION 01045 – CUTTING AND PATCHING

PART I – GENERAL

1.01 RELATED DOCUMENTS

A. RFP Documents, Bridging Drawings, performance criteria and, afterwards, applicable Design-Build Contract provisions, including applicable general requirements, apply to this Section.

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements for cutting and patching.

B. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1. Requirements of this Section apply to mechanical and electrical installations. Refer to the applicable Mechanical Systems and Electrical Systems Sections for other requirements and limitations applicable to cutting and patching mechanical and electrical installations.

C. Demolition of portions of the building for alterations is included in applicable demolition section.

1.03 RELATED WORK

Demolition

1.04 SUBMITTALS

A. Cutting and Patching Proposal: Where approval of procedures for cutting and patching is required before proceeding, submit to the ASEM/Owner's Representative a proposal describing procedures well in advance of the time cutting and patching will be performed and request approval to proceed. Include the following information, as applicable, in the proposal:

1. Describe the extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.

2. Describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating

components as well as changes in the building's appearance and other significant visual elements.

3. List products to be used and firms or entities that will perform Work.

4. Indicate dates when cutting and patching is to be performed.

5. List utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.

6. Where cutting and patching involves addition of reinforcement to structural elements, submit for Design Professional of Record approval, details and engineering calculations to show how reinforcement is integrated with the original structure.

7. Approval by the ASEM/Owner's Representative to proceed with cutting and patching does not waive the ASEM/Owner's Representative's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.

1.05 QUALITY ASSURANCE

A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.

1. Unless noted otherwise on drawings, obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:

a. Foundation construction.

b. Bearing and retaining walls.

c. Structural concrete.

d. Structural steel.

e. Lintels.

f. Structural decking.

g. Stair systems.

h. Miscellaneous structural metals.

i. Exterior curtain wall construction.

j. Equipment supports.

k. Piping, ductwork, vessels and equipment.

l. Structural systems of special construction.

B. Operational and Safety Limitations: Do not cut and patch operating elements or safety-related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.

1. Obtain the ASEM/Owner's Representative's approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:

a. Water, moisture, or vapor barriers.

b. Fire protection systems.

C. Visual Requirements: Do not cut and patch construction exposed to the exterior or in occupied spaces, in a manner that would, in the ASEM/Owner's Representative's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace work cut and patched in a visually unsatisfactory manner.

1. Retain a recognized experienced and specialized firm to cut and patch the following categories of Work:

a. Concrete finishes.

b. Membrane or fluid applied waterproofing.

c. Fluid-applied flooring.

d. Electrical equipment, cabinets.

e. Air-conditioning enclosures, cabinets or covers.

PART II – PRODUCTS

2.01 MATERIALS

A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the

fullest extent possible with regard to visual effects. Use materials whose installed performance will equal or surpass that of existing materials.

PART III - EXECUTION

3.01 INSPECTION

A. Before cutting existing surfaces, examine surfaces to be cut and patched conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

1. Before proceeding, meet at the site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.02 PREPARATION

A. Temporary Support: Provide temporary support of work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

3.03 PERFORMANCE

A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible, review

proposed procedures with the original installer; comply with the original installer's recommendations.

1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.

3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.

4. Comply with the requirements of applicable sitework and earthwork Sections where cutting and patching requires excavating and backfilling.

5. Bypass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

D. Where feasible, inspect and test patched areas to demonstrate the integrity of the installation.

E. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

F. Where removal of walls or partitions extends from one finished area into another, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance.

3.04 CLEANING

A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION

SECTION 01200 - SUBMITTALS, SHOP DRAWINGS AND SAMPLES

PART I - GENERAL

The RFP and the final Design-Build Agreement shall establish the governing submittal requirements. The following provisions identify minimum architectural submittal, shop drawing, product data, and sample criteria to be carried by the selected Design-Build Entity:

1.01 SHOP DRAWINGS AND SAMPLE

A. Before commencing fabrication of the Design-Build Work, the Design-Build Entity shall submit required Shop Drawings and Product/Design Submittals to its Design Professional(s) of Record and to ASEM/Owner for review or record, as required by the RFP and final Design-Build Agreement, in accordance with the procedure outlined below. All submissions of Shop Drawings, whether by catalog or by transparency, shall be in bold drafting and clear enough for future microfilming.

B. The Design-Build Entity shall review all Shop Drawings for conformance with the final Design-Build construction documents prior to submission to the Design Professional(s) of Record and his stamp shall be affixed to all Drawings submitted with his comments.

C. Submission and review of Shop Drawings shall be by the reproducible transparency or catalog method as follows: For all Shop Drawings the Design-Build Entity shall transmit one reproducible transparency of each sheet for each submission. Each sheet shall have a clear space at least 4 in. wide by 12 in. high at the right-hand side for stamping by the Design-Build Entity and by the Design Professional(s) of Record. The reproducible transparency shall be suitable for reproduction by the diazo process.

1. In addition, the Design-Build Entity shall include with each submission one black-line print or one blue-line print of each of the above-required reproducible transparency.

2. The reproducible transparency will be returned to the Design-Build Entity who shall make and distribute prints to suit all Project needs.

3. For standard manufactured items the Design-Build Entity shall submit five copies of manufacturer's catalog sheets showing the item to be furnished, scale details, sizes, dimensions, performance characteristics, capacities, wiring and control diagrams and all other pertinent information. One copy will be returned to the Design-Build Entity who will mark additional copies of the Catalog Sheets as

necessary to transmit the corrections to his vendor and to all other interested parties. The handling of catalog sheets after review by the Design Professional(s) of Record shall be the same as given below for transparencies.

4. If catalog sheets include items or information not pertinent to this Project, the sheets shall be edited and such non-pertinent data deleted.

5. Simultaneous Submissions: The Design-Build Entity shall coordinate and submit Shop Drawings of contiguous components of the various trades in such a manner that all Shop Drawings pertaining to a given assembly or area shall be submitted simultaneously. Interfaces shall be clearly delineated on the Drawings of each trade, and all Drawings shall be cross-referenced.

D. The review of Shop Drawings by the Design Professional(s) of Record will be general only. Review shall not be interpreted as a checking of detailed dimensions or approval of deviations from Drawings or Specifications or from time schedule unless such a check or review is specifically requested at time of submission. Review shall not relieve the Design-Build Entity from its responsibility for the accuracy of Shop Drawings, including coordination with and clearances for the other trades, nor from the furnishing of all materials as required by the Contract but not indicated on the Shop Drawings.

E. If upon review by the Design Professional(s) of Record, it appears that the checking has been inadequate or careless, even though stamped as checked, the Shop Drawings will be returned to the Design-Build Entity for proper checking, before further processing or review by the Design Professional(s) of Record regardless of any urgency claimed by the Design-Build Entity. Shop Drawings so returned will not be recorded or considered as submitted for review until they are properly checked and stamped by the Design-Build Entity and forwarded to the Design Professional(s) of Record for review.

F. After reviewing the Shop Drawings, the Design Professional(s) of Record will mark their comments and corrections on the Shop Drawings and will also place a stamp thereon to indicate disposition of the review. They will make copies from the stamped Shop Drawings for their own records and will return the Shop Drawings to the Design-Build Entity for making and distributing copies to suit all Project needs.

G. When the Shop Drawing is returned stamped "Rejected" or "To Be Revised and Resubmitted" it shall be corrected and resubmitted.

H. When the Shop Drawing is returned "No Exceptions Taken" the Design-Build Entity may proceed with the work.

I. When the Shop Drawing is returned "Exceptions Taken", the Design-Build Entity may proceed with the Work or the fabrication subject to the changes noted on the Shop Drawing, but the Shop Drawing shall be corrected and resubmitted for final review and for record copies.

J. The Design-Build Entity shall so schedule the submission of Shop Drawings as to allow the Design Professional(s) of Record a period of a minimum ten working days, after receipt of Shop Drawings at the Engineer's office, for the review of each submission.

K. Review of a Shop Drawing does not authorize changes in the requirements of the RFP Bridging Documents and Design-Build Contract Documents as to materials, workmanship, extent of the Work or price unless authorized in a separate Change Order.

L. The submission of Shop Drawings (in either the original submission or re-submission with corrections) is understood to constitute evidence that the Design-Build Entity has checked all information thereon, and that he accepts and is willing to perform the Work as shown, in accordance with best standard practice. No claim for additional cost or time shall be based upon work shown on a Shop Drawing unless such claim is noted on the Design-Build Entity's transmittal letter accompanying the Shop Drawings.

1.02 SHOP DRAWINGS- DESIGN AND SEAL OF A PROFESSIONAL

A. Shop Drawings are also defined as design drawing or drawings including or illustrating design or design systems or features, or both, prepared by the Design-Build Entity or by a Subcontractor, Sub-subcontractor, manufacturer, supplier, distributor, vendor, or agent or agency formally and legally acting for the foregoing, in the preparation of such Shop Drawings illustrating some portion of the Work.

B. In some instances, such Shop Drawings which include design or design features may be required to bear the Seal of a Professional Engineer by a Building Department or other Agency having jurisdiction.

C. Under such conditions the party preparing such Shop Drawings, shall arrange for and obtain the Seal of the Professional Engineer as well as any required computations of the Professional Engineer, attesting to the design or design features, and shall bear the entire cost thereof.

1.03 SAMPLES

A. Samples shall be submitted in duplicate except as otherwise specified.

B. Samples shall be submitted by the Design-Build Entity only and shall be shipped prepaid. Each sample shall have a label indicating:

    Name of Project

    Location of Project

    Name of Design-Build Entity

    Material or Equipment Represented

    Manufacturer's Data Sheets and Drawings, as available

C. Review or acceptance of samples will not preclude the rejection of the completed Work.

D. After material has been submitted, no change in brand or make will be permitted unless satisfactory evidence that the manufacturer cannot make delivery of the material on Schedule is presented to and considered by the Design Professional(s) of Record.

E. The right is reserved to require submission of samples of any material or any material list whether or not particularly mentioned herein.

F. Samples will be disposed of at the discretion of the Design Professional(s) of Record unless the return thereof is requested by the Design-Build Entity. Requests for return of samples shall be in the form of a letter accompanying the submittal and designating the shipping firm responsible for packing and transporting the samples to be returned. The Design Professional(s) of Record assumes no responsibility whatsoever for the return of any sample nor for the condition thereof, and such return shall be at the convenience of the Design Professional(s) of Record. All costs involved in the return of samples shall be borne solely by the Design-Build Entity.

END OF SECTION

SECTION 01631 – PRODUCT SUBSTITUTIONS AND DESIGN-BUILD EQUALS

PART I – GENERAL

1.01 RELATED DOCUMENTS

A. RFP Documents, Bridging Drawings, performance criteria and, after award, applicable Design-Build Contract provisions, including applicable general requirements, apply to this Section.

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of the Design-Build contract.

1.03 DEFINITIONS

A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the RFP Bridging Documents and Design-Build Contract Documents.

B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by RFP Bridging Documents and Design-Build Contract Documents proposed by the Design-Build Entity after award of the Design-Build contract are considered requests for "substitutions." The following are not considered substitutions:

1. Revisions to RFP Bridging Documents and Design-Build Contract Documents requested by the ASEM/Owner or Design Professional of Record.

2. Specified options of products and construction methods included in RFP Bridging Documents and Design-Build Contract Documents.

3. The Design-Build Entity's determination of and compliance with governing regulations and orders issued by governing authorities.

1.04 SUBMITTALS

A. Substitution Request Submittal: Requests for substitution will be considered if received within 60 days after commencement of the Work. Requests received more than 60 days after commencement of the Work may be considered or rejected at the discretion of the Design Professional of Record.

1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures

required for Change Order proposals.

2. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate: Product Data, including Drawings and descriptions of products, fabrication and installation procedures.

    a. Samples, where applicable or requested.

    b. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effects.

    c. Coordination information, including a detailed list of changes or modifications needed to other parts of the Work and to construction performed by the ASEM/Owner and separate Design-Build Entities, that will become necessary to accommodate the proposed substitution.

    d. A statement indicating the substitution's effect on the Design-Build Entity's.

    e. Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.

    f. Cost information, including a proposal of the net change, if any in the Contract Sum.

    g. Certification by the Design-Build Entity that the substitution proposed is equal to or better in every significant respect to that required by the RFP Bridging Documents and Design-Build Contract Documents, and that it will perform adequately in the application indicated. Include the Design-Build Entity's waiver of rights to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.

3. Design Professional of Record Review Action: Within one week of receipt of the request for substitution, the Design Professional of Record will request additional information or documentation necessary for evaluation of the

request. Within 2 weeks of receipt of the request, or one week of receipt of the additional information or documentation, whichever is later, the Design Professional of Record will notify the Design-Build Entity of acceptance or rejection of the proposed substitution. If a decision on the use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name. Acceptance will be in the form of a Change Order.

PART II - PRODUCTS

2.01 SUBSTITUTIONS

A. Conditions: The Design-Build Entity's substitution request will be received and considered by the Design Professional of Record when one or more of the following conditions are satisfied, as determined by the Design Professional of Record; otherwise, requests will be returned without action except to record noncompliance with these requirements.

1. Extensive revisions to RFP Bridging Documents and Design-Build Contract Documents are not required.

2. Proposed changes are in keeping with the general intent of RFP Bridging Documents and Design-Build Contract Documents.

3. The request is timely, fully documented and properly submitted.

4. The request is directly related to an "or equal" clause or similar language in the RFP Bridging Documents and Design-Build Contract Documents.

5. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided because of failure to pursue the Work promptly or coordinate activities properly.

6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.

7. A substantial advantage is offered the ASEM/Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the ASEM/Owner may be required to bear. Additional responsibilities for the ASEM/Owner may include additional compensation to the Design Professional of Record for redesign and evaluation services, increased cost of other construction by the ASEM/Owner or separate Design-Build Entities, and similar considerations.

8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Design-Build Entity certifies that the substitution will overcome the incompatibility.

9. The specified product or method of construction cannot be coordinated with other materials, and where the Design-Build Entity certifies that the proposed substitution can be coordinated.

10. The specified product or method of construction cannot provide a warranty required by the RFP Bridging Documents and Design-Build Contract Documents and where the Design-Build Entity certifies that the proposed substitution provides the required warranty.

B. The Design-Build Entity's submittal and Design Professional of Record's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the RFP Bridging Documents and Design-Build Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART III - EXECUTION

(Not Applicable)

END OF SECTION

SECTION 01800 – ALTERATIONS

PART I – GENERAL

1.01 All work in this Section shall be performed in accordance with the requirements of the RFP Bridging Documents and Design-Build Contract Documents.

1.02 SCOPE

This Section covers all materials and operations in connection with alterations, removal and demolition work.

1.03 EXAMINATION OF EXISTING BUILDING AND SITE

A. Before submitting a proposal, each Proposer shall visit the Site and examine the building to be altered and adjoining areas and buildings to determine the extent that its Proposal may be affected by existing conditions. He shall thoroughly examine the buildings and Site for accessibility thereto and for obstructions thereon, for availability of storage space and for any other condition which may affect the performance of the Work.

1.04 MAINTENANCE OF EXISTING BUILDINGS

A. The buildings are occupied and are in use. Except for those portions required to be vacated so that necessary indicated work may be performed, the buildings will be so occupied and used during the time the required work is under way.

1.05 GENERAL REQUIREMENTS

A. Alterations shall be as indicated in the Drawings and in accordance with applicable technical portions of these Specifications. The Design-Build Entity shall do all necessary demolition or removal of existing work as required in connection with this Project, including shoring, bracing and removal of unwanted material and debris from the site. This work shall be done in a most careful manner. The Design-Build Entity will be held responsible for any damage which may be caused to any part or part of existing structure. Debris shall be kept damp to keep down dust. Chutes shall be used for removal of demolished materials from upper levels.

B. Portions of the existing structure where existing work is to be demolished or removed and where new work is to be done, connections made, materials handled, or equipment moved and relocated, shall be temporarily protected. Temporary protection shall be such that the interior of existing structure will always be protected from dust and weather inclemency, and interior heat conserved. Suitable temporary dust-tight barrier partitions with hinged doors

shall be provided in the existing structure. Temporary openings in exterior walls shall be protected by temporary weatherproof plywood closures. The Design-Build Entity will be held responsible for any damage to the existing structure or contents because of the insufficiency of such protection. Location of temporary protection will be field coordinated with ASEM/Owner's representative.

C. The Design-Build Entity shall furnish and install adequate guards, barricades and other temporary protection to prevent injury to people.

D. Where alterations occur, or new and old work join, the immediate adjacent surfaces, or so much thereof as is required by the conditions involved, shall be cut, removed, patched, repaired or refinished and left in as good a condition as existed prior to the commencing of the Work. The materials and workmanship employed in the alterations involving new construction, unless otherwise shown or specified, shall conform to that of the original work.

E. Where required by the Drawings or Specifications, certain materials and equipment shall be relocated as shown or specified. Repair and refinish of existing surfaces shall be executed after the materials to be relocated are removed and shall be as hereinafter specified. All material and equipment indicated in the drawings to be relocated shall be removed from its existing location following all required procedures to ensure adequate salvage for reinstallation without damage. Removed materials and equipment shall be repaired and refinished as required to maintain its existing condition when installed in the new location.

   Reinstallation of existing materials and equipment shall be executed according to the best practices of the trade and following the original manufacturer's installation recommendations. Appropriate provisions shall be taken to prepare existing surfaces that will serve to install relocated materials and equipment. Preparation shall include all required patching, repairs and refinishing as needed to ensure proper installation and operation of relocated materials and/or equipment.

F. The Design-Build Entity shall perform the Work in a manner that will cause the least interference with the operation of the building or any part thereof.

G. The Design-Build Entity shall work overtime in the performance of the Work when required by the owner and as may be required at any time to avoid or to minimize interruption of the building services or the operation of any part of the building. Additional payment for the cost of such overtime work will be paid by the ASEM/Owner upon the written authorization for and the certification by the Engineers of the necessity to

work overtime.

H. Any temporary shut-down of the heating system or steam, power, light, water, gas or fire protection service shall be made only at such time as and for the period agreed upon with the ASEM/Owner.

I. The Design-Build Entity shall give notice to the ASEM/Owner sufficiently in advance to permit such moves as may be necessary to permit the new work to be done in any occupied portions of the building.

1.06 SALVABLE MATERIALS

A. Demolition and removal shall be performed with care to prevent unnecessary damage.

B. The ASEM/Owner may select from the existing materials, fixtures and equipment which are required to be removed, such materials, fixtures and equipment as he may deem suitable for re-use.

C. All other existing materials, fixtures and equipment which are to be removed under the Contract shall become the property of the Design-Build Entity subject to other provisions included in this Section.

1.07 TITLE TO MATERIALS

A. The Design-Build Entity shall have no right or title to any of the equipment, materials or other items to be removed from the existing building unless and until said equipment, materials and other items have been removed from the premises. The Design-Build Entity shall not sell or assign or attempt to sell or assign any interest in the said equipment, materials or other items that have been removed, without the consent of the ASEM/Owner.

1.08 SCHEDULING

A. Before commencing any alteration, removal and demolition work, the Design-Build Entity shall prepare and submit for approval by the Engineers and the ASEM/Owner a schedule showing the commencement, the order and completion dates of various parts of this Work.

END OF SECTION

SECTION 02 41 00 – DEMOLITION

PART I – GENERAL

1.01 DESCRIPTION

This section specifies demolition and removal of buildings, portions of buildings, utilities, other structures and debris from trash dumps shown.

1.02 RELATED WORK

A. Demolition and removal of roads, walks, curbs, and on-grade slabs outside buildings to be demolished.

B. Safety Requirements: Develop an ACCIDENT PREVENTION PLAN (APP).

C. Disconnecting utility services prior to demolition: GENERAL REQUIREMENTS.

D. Reserved items that are to remain the property of the ASEM/Owner.

E. Environmental Protection.

F. Construction Waste Management.

G. Infectious Control.

1.03 PROTECTION

A. Perform demolition in such manner as to eliminate hazards to persons and property; to minimize interference with use of adjacent areas, utilities and structures or interruption of use of such utilities; and to provide free passage to and from such adjacent areas of structures. Comply with requirements of the GENERAL CONDITIONS Article, ACCIDENT PREVENTION.

B. Provide safeguards, including warning signs, barricades, temporary fences, warning lights, and other similar items that are required for protection of all personnel during demolition and removal operations. Comply with requirements of Section 01 00 00, GENERAL REQUIREMENTS, Article PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES AND IMPROVEMENTS.

C. Maintain fences, barricades, lights, and other similar items around exposed excavations until such excavations have been filled.

D. Provide enclosed dust chutes with control gates from each floor to carry debris to truck beds and govern flow of material into truck. Provide overhead bridges of tight board or prefabricated metal construction at dust chutes to protect

persons and property from falling debris.

E. Prevent spreading of flying particles and dust. Sprinkle rubbish and debris with water to keep dust to a minimum. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to; ice, flooding, or pollution. Vacuum and dust the work area daily.

F. In addition to previously listed fire and safety rules to be observed in performance of work, include the following:

1. No wall or part of wall shall be permitted to fall outwardly from structures.

2. Maintain at least one stairway in each structure in usable condition to the highest remaining floor. Keep the stairway free of obstructions and debris until that level of structure has been removed.

3. Wherever a cutting torch or other equipment that might cause a fire is used, provide and maintain fire extinguishers nearby ready for immediate use. Instruct all possible users in use of fire extinguishers.

4. Always keep hydrants clear and accessible. Prohibit debris from accumulating within a radius of 4500 mm (15 feet) of fire hydrants.

G. Before beginning any demolition work, the Design-Build Entity shall survey the site and examine the drawings and specifications to determine the extent of the work. The contractor shall take necessary precautions to avoid damages to existing items to remain in place, to be reused, or to remain the property of the ASEM/Owner; any damaged items shall be repaired or replaced as approved by the ASEM/Owner's Representative. The Design-Build Entity shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The Design-Build Entity shall ensure that structural elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required because of any cutting, removal, or demolition work performed under this contract. Do not overload structural elements. Provide new support and reinforcement for existing construction weakened by demolition or removal works. Repairs, reinforcement, or structural replacement must have ASEM/Owner's Representative’s approval.

H. The work shall comply with the requirements of Section 01 57 19.

I. The work shall comply with the requirements of Section 01 00 00.

1.04 UTILITY SERVICES

A. Demolish and remove outside utility service lines shown to be removed.

B. Remove abandoned outside utility lines that would interfere with installation of new utility lines and new construction.

PART II – PRODUCTS (NOT USED)

PART III – EXECUTION

3.01 DEMOLITION

A. Completely demolish and remove buildings and structures, including all appurtenances related or connected thereto, as noted below:

1. As required for installation of new utility service lines.

2. To full depth within an area defined by hypothetical lines located 1500 mm (5 feet) outside building lines of new structures.

B. Debris, including brick, concrete, stone, metals and similar materials shall become property of Design-Build Entity and shall be disposed of by him daily, off the project contract site to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the ASEM/Owner's Representative. Break up concrete slabs below grade that do not require removal from present location into pieces not exceeding 600 mm (24 inches) square to permit drainage. The contractor shall dispose debris in compliance with applicable federal, Puerto Rico Commonwealth or municipal permits, rules and/or regulations.

C. In removing buildings and structures of more than two stories, demolish the work story by story starting at highest level and progressing down to third floor level. Demolition of first and second stories may proceed simultaneously.

D. Remove and legally dispose of all materials, other than earth to remain as part of project work, from any trash dumps shown. Materials removed shall become property of contractor and shall be disposed of in compliance with applicable federal, Puerto Rico Commonwealth or municipal permits, rules and/or regulations. All materials in the indicated trash dump areas, including the above surrounding grade and extending to a depth of 1500mm (5feet) below surrounding grade, shall be included as part of the lump sum compensation for the work of this section. Materials that are located beneath the surface of the surrounding ground more than 1500 mm (5 feet), or materials that are discovered to be hazardous, shall be handled as unforeseen. The removal of hazardous material shall be referred to Hazardous Materials specifications.

E. Remove existing utilities as indicated or uncovered by work and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the ASEM/Owner's Representative. When Utility lines

are encountered that are not indicated on the drawings, the ASEM/Owner's Representative shall be notified prior to further work in that area.

3.02 CLEAN-UP

On completion of work of this section and after removal of all debris, leave site in clean condition satisfactory to ASEM/Owner's Representative. Clean-up shall include off the project contract site disposal of all items and materials not required to remain property of the ASEM/Owner as well as all debris and rubbish resulting from demolition operations.

END OF SECTION

SECTION 02 41 19 – SELECTIVE DEMOLITION

PART I – GENERAL

1.01 RELATED DOCUMENTS

A. RFP Documents, Bridging Drawings, performance criteria and, after award, applicable Design-Build Contract provisions, including applicable general requirements, apply to this Section.

B. Specifications throughout all applicable administrative and technical Sections of the RFP Bridging Documents and Design-Build Contract Documents are directly applicable to this Section, and this Section is directly applicable to them.

1.02 REFERENCE STANDARDS

A. The latest published edition of a reference shall be applicable to this Project unless identified by a specific edition date.

B. All reference amendments adopted prior to the effective date of this Contract shall be applicable to this Project.

C. All materials, installation and workmanship shall comply with all applicable requirements and standards.

1.03 SUBMITTALS

A. Record Documents:

1. Schedule indicating proposed sequence of operations for selective demolition Work to ASEM/Owner's Representative for review prior to start of Work. Include coordination for shutoff, capping, and continuation of utility services as required, together with details for dust and noise control protection.

    a. Provide detailed sequence of demolition and removal Work to ensure uninterrupted progress of ASEM/Owner's on-site operations.

    b. Coordinate with ASEM/Owner's continuing occupation of portions of existing building and with ASEM/Owner's partial occupancy of completed new addition.

2. Photographs of existing conditions of structure surfaces, equipment, and adjacent improvements that might be misconstrued as damage related to removal operations. File with ASEM/Owner's Representative prior to start of Work.

1.04 PROJECT CONDITIONS

A. The ASEM/Owner will occupy portions of the building immediately adjacent to areas of selective demolition. Conduct selective demolition Work in manner that will minimize the need for disruption of ASEM/Owner's normal operations. Provide minimum of 72 hours advance notice to ASEM/Owner of demolition activities that will affect ASEM/Owner's normal operations.

B. The ASEM/Owner assumes no responsibility for actual condition of items or structures to be demolished.

   1. Conditions existing at time of inspection for bidding purposes will be maintained by ASEM/Owner insofar as practicable. However, minor variations within structure may occur by ASEM/Owner's removal and salvage operations prior to start of selective demolition Work.

C. Promptly repair damage caused to adjacent facilities by demolition Work.

D. Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

   1. Do not close, block, or otherwise obstruct streets, walks, or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

E. Do not use cutting torches for removal until Work area is cleared of flammable materials. At concealed spaces, such as interior of ducts and pipe spaces, verify condition of hidden space before starting flame cutting operations. Maintain portable fire suppression devices during flame cutting operations.

F. Maintain existing utilities indicated to remain in service and protect them against damage during demolition operations.

   1. Do not interrupt utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to governing authorities.

   2. Maintain fire protection services during selective demolition operations.

G. Use water sprinkling, temporary enclosures, and other methods to limit dust and dirt migration. Comply with governing regulations pertaining to environmental protection.

1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

PART II - PRODUCTS

2.01 GENERAL

A. All materials shall meet or exceed all applicable referenced standards, federal, Puerto Rico Commonwealth and municipal requirements, and conform to codes and ordinances of authorities having jurisdiction.

2.02 MATERIAL OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, or otherwise indicated to remain the ASEM/Owner's property, demolished materials shall become the Design-Build Entity's property and shall be removed from the Site with further disposition of the Construction's option.

B. Historical items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to the ASEM/Owner, which may be encountered during demolition, remain the ASEM/Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to the ASEM/Owner.

PART III - EXECUTION

3.01 PREPARATION

A. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of areas to be demolished and adjacent facilities to remain.

1. Cease operations and notify ASEM/Owner's Representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

2. Locate, identify, stub off, and disconnect utility services that are not indicated to remain.

a. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide a minimum of 72 hours advance notice to ASEM/Owner if shutdown of service is necessary during changeover.

3.02 INSTALLATION

A. Installation shall meet or exceed all applicable federal, Puerto Rico Commonwealth and municipal requirements, referenced standards and conform to codes and ordinances of authorities having jurisdiction.

B. All installation shall be in accordance with the manufacturer's published recommendations.

3.03 DEMOLITION

A. Perform selective demolition Work in a systematic manner. Use such methods as required to complete Work indicated on Drawings in accordance with demolition schedule and governing regulations.

1. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power driven masonry saw or hand tools; do not use power driven impact tools.

2. Locate demolition equipment throughout the structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing.

3. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.

4. Demolish foundation walls to a depth of not less than 12 inches below existing ground surface. Demolish and remove below grade wood or metal construction. Break up below the grade concrete slabs.

5. For interior slabs on grade, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible.

6. Completely fill below grade areas and voids resulting from demolition Work. Provide fill consisting of approved earth, gravel, or sand, free of trash and debris, stones over 6 inches in diameter, roots, or other organic matter.

B. Remove culvert or sewer pipe for reuse by careful excavation of all material on the top and sides so that the pipe will not be damaged. Removal of sewer appurtenances shall be included for removal with the pipe. Remove pipes which are unsatisfactory for reuse, and dispose of, off the Project Site.

C. Concrete parts of structures below the permanent ground-line shall be neatly squared off with reinforcement cut off close to the concrete.

D. Dismantle steel structures or steel portions of structures in sections determined by the ASEM/Owner's Representative.

1. The sections shall be of such weight and dimensions which permit convenient handling, hauling and storing.

2. Rivet and bolts connecting steel rail members, steel beams or girder spans and steel stringers of truss spans will be removed by cutting the heads with a cold cut then punching or drilling by a method that will not injure the member for reuse.

3. The removal of rivets and bolts from connections will not be required unless specifically indicated.

4. Unless otherwise specified, the Design-Build Entity shall have the option of dismantling these members by flame cutting immediately adjacent to the connection.

5. Flame-cutting will not be permitted when Drawings call for the structural unit to be salvaged in such a manner as to permit re-erection. In such cases, all members shall be carefully dismantled without damage, match marked with paint, and all rivets and bolts removed from the connections.

E. Remove brick and stone structures by sledging the masonry into removal sizes. Portions of such structures below the permanent ground-line, which will not in any manner interfere with the proposed construction, may be left in place, but removal shall be carried at least two feet below the permanent ground-line and neatly squared off.

F. If unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to ASEM/Owner's Representative in written, accurate detail. Pending receipt of directive from ASEM/Owner's Representative, rearrange selective demolition schedule as necessary to continue overall job progress without undue delay.

3.04 EXCAVATION AND BACKFILL

A. Back-fill to the level of the original ground-line, all excavation made in, and all openings below, the natural ground-line caused by the removal of old structures or portions thereof.

B. That portion of the back-fill which will support any portion of the roadbed or paving shall be placed in layers of the same thickness as those required subgrade preparation.

1. Material in each layer shall be wet uniformly, if required, and shall be compacted to the density required in the adjoining embankment. In places inaccessible to blading and rolling equipment, mechanical or hand tampers

shall be used to obtain the required compaction.

C. Place that portion of the back-fill which will not support any portion of the roadbed or paving in such a manner, and compact, to preclude settling.

3.05 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove from building Site debris, rubbish, and other materials resulting from demolition operations. Transport and legally dispose off-site.

1. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution.

2. Burning of removed materials is not permitted on the Project Site.

3.06 CLEANUP AND REPAIR

A. Upon completion of demolition Work, remove tools, equipment, and demolish materials from the Project Site. Remove protections and leave interior areas broom clean.

B. Repair demolition performed more than that required. Return elements of construction and surfaces to remain to condition existing prior to start operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition Work.

END OF SECTION

SECTION 04100 – MORTAR

PART I - GENERAL

1.01 WORK INCLUDED

A. This Section includes mortar and latex modified mortars for masonry work included in other Sections.

1.02 RELATED WORK

A. Related Work in Other Sections:

4220	Concrete Unit Masonry

1.03 REFERENCES

A. Industry standards governing this work are of the latest issue at the date of this specification release, except as otherwise noted:

1. American Society for Testing and Materials [ASTM]:

ASTM C5	Quicklime for Structural Purposes
ASTM C31	Making and Curing Concrete Test Specimens in the Field
ASTM C39	Method of Test for Compressive Strength of Cylindrical Concrete Specimens
ASTM C91	Masonry Cement
ASTM C144	Aggregate for Masonry Mortar
ASTM C150	Portland Cement
ASTM C207	Hydrated Lime for Masonry Purposes
ASTM C270	Mortar for Unit Masonry

1.04 QUALITY ASSURANCE

A. Mock-up: Furnish type of mortar required to execute on site mockups specified for masonry work.

B. Do not change source or brands of masonry mortar materials during construction.

1.05 SUBMITTALS

A. Mortar Mix Designs: Submit mix design reports for each type of mortar proposed a minimum of 21 days prior to the use of each mix. Include the following for each mix:

1. Conformance of mortar to property specifications of ASTM C 270.

2. Include the following:

a. Compressive strength

b. Flow of mortar

c. Sieve analysis for fine aggregate

d. Quantities of all ingredients

e. Type of cement

f. Sources of fine aggregate

g. Type of fine aggregate, whether natural or manufactured

B. Manufacturer's mixing instructions for masonry cement and colored mortar.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver material, except aggregate, in packages or bags, displaying manufacturer's name, product brand name, type or grade, and mixing instructions. Aggregates may be delivered in bulk form with each delivery carrying certification of product delivered.

B. Storage:

1. Cementitious products shall be stored in water-tight sheds with floors elevated off the ground.

2. Aggregates shall be stored so as not to become segregated, mixed with other aggregate size fractions, or contaminated with foreign matter, and shall be covered to keep its moisture content constant.

1.07 SEQUENCING/SCHEDULING

A. Schedule and coordinate the work of this Section with masonry work in other Sections.

PART II- PRODUCTS

2.01 CEMENTITIOUS MATERIALS

A. Portland Cement: ASTM C 150, Type I, natural color.

B. Masonry Cement: ASTM C 91, natural color, except where colored mortar is indicated.

C. Hydrated Lime: ASTM C 207, Type S.

D. Quicklime: ASTM C5.

2.02 OTHER MORTAR PRODUCTS

A. Aggregate: ASTM C144.

B. Additives:

1. Stearate: Ammonium, calcium, or aluminum tri-stearate manufactured for a masonry mortar additive to make joints more dirt and moisture resistant.

2. Waterproofing admixtures will not be permitted.

3. Acrylic polymers and modifiers to increase chemicals resistance and adhesion for latex modified mortars.

C. Water: Potable.

2.03 PROPORTIONS

A. Mortar

1. Mortar shall comply with the property specifications of ASTM C 270 and the following table:

	Average Compressive Strength
Mortar Type	at 28 Days of Field Cylinders
M	2500 psi
S	1800 psi

2. Lime may be either hydrated lime or lime putty. Mix and slake lime putty in accordance with manufacturer's instructions.

3. Mortar for fire-rated masonry shall be of type and proportions used to receive rating classification specified. However, mortar compressive strength shall comply with the table above.

2.04 MIXING

A. Mortar may be either mixed at plant or job site as specified.

B. Proportion mortar ingredients by methods that will ensure accurate measure. Measurement of materials by using shovels will not be permitted.

C. Mix mortar in power-driven, drum-type batch mixer.

D. After all the ingredients have been added, mix for minimum of five minutes and a maximum of seven minutes.

E. Empty drum before recharging for the next batch.

F. Mix proprietary products in accordance with manufacturer's instructions.

PART III - EXECUTION

3.01 MORTAR AND MORTARING

A. Refer *to* Section 04220 for specific mortar and mortar requirements.

3.02 RETEMPERING

A. Use mortar within two hours of initial mixing.

B. Use no mortar after it has begun to set.

C. Retemper mortar as often as necessary to keep it plastic and workable.

END OF SECTION

SECTION 04145 – POURED PORTLAND CEMENT CONCRETE GROUT

PART I – GENERAL

1.01 WORK INCLUDED

A. This Section specifies grout for masonry work included in other Sections.

1.02 RELATED WORK

A. Related Work in Other Sections:

4220	Concrete Unit Masonry

1.03 REFERENCES

A. Industry standards governing *this* **work** are of the latest issue at the date of this specification release, except as otherwise noted:

1. American Society for Testing and Materials [ASTM]:

ASTM C5	Quicklime for Structural Purposes.
ASTMC31	Making and Curing Concrete Test Specimens in the Field.
ASTMC39	Method of Test for Compressive Strength of Cylindrical Concrete Specimens.
ASTMC143	Slump of Portland Cement Concrete.
ASTMC150	Portland Cement
ASTMC207	Hydrated Lime for Masonry Purposes.
ASTM C404	Aggregates for Masonry Grout.
ASTMC476	Mortar and Grout for Reinforced Masonry.

1.04 QUALITY ASSURANCE

A. Testing:

1. Testing agency selected and paid by Design-Build Entity, approved by Design Professional of Record:

    a. Test grout mix design proposed by Design-Build Entity to determine conformance of grout to ASTM C 476 and this Specification.

    b. Submit to Design Professional of Record for review copies of all data and test results to substantiate mix designs.

2. Testing agency paid by ASEM/Owner, except as noted, selected and directed by Design Professional of Record:

    a. During mixing and placing grout, testing agency shall conduct compressive strength tests of mixed materials in the field complying with the following procedures and the applicable curing, storage, and transportation provisions of ASTM C31:

        1) Place masonry units, having the same moisture condition as those being placed, on non-absorptive base to form a void for a square prism with a height twice the side and a minimum size of three inches.

        2) Line the side faces of the prism with permeable paper, such *as* paper towel, or porous separator to allow water passage through liner into masonry units.

        3) Fill prism with a fully representative grout sample in two layers with each layer puddled with a puddle stick approximately one inch by two inches to eliminate air voids.

        4) Level off specimen and maintain in a damp condition.

        5) After 48 hours, remove masonry units and ship prisms to laboratory and store in fog room until testing.

        6) Cap and make compressive strength test with prism in accordance with applicable provisions of ASTM C 39.

        7) Each grout compressive strength test shall consist of five prisms for each150 cubic feet of mix or fraction thereof; however, make not less than one strength test for each day grout is placed.

        8) Perform compression test of two specimens at 7 days and two specimens at 28 days. Reserve one specimen for later testing as directed.

9) Each set of compressive tests shall be accompanied with a description of location in Project where grout was used.

10) Should a 7-day test have a compressive strength less than 55% of the required 28 day strength, lay no more masonry in walls over masonry represented by the defective grout.

11) If the 28-day tests achieve required test results, work may resume; otherwise, ASEM/Owner will have testing agency conduct on site testing to determine which masonry work shall be strengthened or removed and replaced, at ASEM/Owner's option. The testing shall be at Design-Build Entity's expense.

12) Remedial work and testing of remedial work shall be at Design-Build Entity's expense.

3. Responsibilities and duties of Design-Build Entity relative to ASEM/Owner testing:

   a. Notify ASEM/Owner's agency in advance of grouting to allow sufficient time to prepare for required testing.

   b. Assist ASEM/Owner's agency in securing field specimens.

   c. Provide and maintain, for sole use of ASEM/Owner's agency, facilities for safe storage and proper curing of test cylinders and prisms at Project site as required by this Specification.

1.05 SUBMITTALS

A. Grout Mix Designs: Submit mix design reports for each type of grout proposed a minimum of 21 days prior to the use of each mix. Include the following for each mix:

   1. Conformance of grout to *ASTM* C 476 and compressive strength required by this Specification.

   2. Include the following:

      a. Compressive strength.

      b. Slump for grout in accordance with ASTM C 143.

      c. Sieve analysis for fine and coarse aggregate.

      d. Quantities of all ingredients.

e. Type of cement.

f. Sources of fine and coarse aggregate.

g. Type of fine aggregate, whether natural or manufactured.

B. Manufacturer's mixing instructions for grout, if prepackaged.

C. Proposed Method of Measuring Materials in the Field: See Paragraph 2.04 B, this Section.

D. Certification from an acceptable independent laboratory that proposed products comply with Specifications.

E. Laboratory reports in duplicate from testing agency shall be sent to Design-Build Entity and to ASEM/Owner's Representative within two days of completion of 7- and 28-day tests.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver materials, except aggregate, in packages or bags, displaying manufacturer's name, product brand name, type or grade and mixing instructions. Aggregates may be delivered in bulk form with each delivery carrying certification of product delivered.

B. Storage:

1. Cementitious products shall be stored in water-tight sheds with floors elevated off the ground.

2. Aggregates shall be stored so as not to become segregated, mixed with other aggregate size fractions, or contaminated with foreign matter, and shall be covered to keep its moisture content constant.

C. Do not change the source or brands of grout materials during construction.

1.07 PROJECT/SITE CONDITIONS

A. Cold Weather Provisions: When masonry work is authorized between freezing and 40° F, heat mixing water not to exceed 120° F to maintain grout temperature when placed in wall between 70° F and 110° F.

1.08 SEQUENCING/SCHEDULING

A. Schedule and coordinate the work of this Section with masonry work in other Sections.

B. Waterproofing and antifreeze admixtures will not be permitted.

C. Waterproofing and antifreeze admixtures will not be permitted.

PART II - PRODUCTS

2.01 CEMENTITIOUS MATERIALS

A. Portland Cement ASTM C 150, Type I, natural color.

B. Hydrated Lime: ASTM C 207, Type S.

C. Quicklime: ASTM C5

2.02 OTHER PRODUCTS

A. Aggregate: ASTM C404.

B. Additives: Waterproofing and antifreeze admixtures will not be permitted.

C. Water: Potable

2.03 PROPORTIONS

A. Grout shall comply with ASTM C 476 and shall have a minimum compressive strength at 28 days of 2500 psi for field prisms. Mix grout with sufficient water to give a fluid pouring consistency without segregation of materials.

2.04 MIXING

A. Grout may be either mixed at the plant or job site as specified.

B. Proportion grout ingredients by methods that will ensure accurate measure. Measurement of materials by using shovels will not be permitted.

C. Mix grout in power-driven drum-type batch mixer.

D. After all the ingredients have been added, mix for a minimum of five minutes and a maximum of seven minutes.

E. Empty drum before recharging for the next batch.

F. Mix proprietary products in accordance with manufacturer's instructions.

PART III - EXECUTION

3.01 GROUTING

A. Refer to Section 04220 for specific grouting requirements.

3.02 RETEMPERING

A. Use grout within two hours of initial mixing.

B. Use no grout after it has begun to set.

END OF SECTION

SECTION 04150 – MASONRY ACCESSORIES

PART I – GENERAL

1.01 WORK INCLUDED

A. This Section includes horizontal joint reinforcement, anchors, ties, and other related masonry accessories.

1.02 RELATED WORK

A. Related Work in Other Sections: 04220 Concrete Unit Masonry

1.03 REFERENCES

A. Industry standards governing this work are of the latest issue at the date of this Specification release, except as otherwise noted:

1. American Society for Testing and Materials [ASTM):

ASTM A36	Structural Steel.
ASTM A82	Cold-Drawn Steel Wire for Concrete Reinforcement.
ASTM A116	Zinc-Coated [Galvanized] Iron or Steel Farm Field and Railroad Right-of-Way Wire Fencing. For Class I and Class III.
ASTM A153	Zinc Coating [Hot-Dip) on Iron and Steel Hardware.
ASTM A496	Deformed Steel Wire for Concrete Reinforcement.
ASTM A525	Steel Sheet, Zinc-Coated [Galvanized] by the Hot-Dip Process.
ASTM A615	Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

B. Comply with Puerto Rico Building Code, as currently adopted and amended, applicable life-safety requirements, and referenced standards adopted by the authorities having jurisdiction.

1.04 QUALITY ASSURANCE

A. Mock-up: Furnish items specified under this Section for mock-up panels

specified in Section 04220.

1.05 SUBMITTALS

A. Samples:

1. One of each type of anchor and tie.

2. Twelve-inch length of items furnished in linear form except three feet of horizontal joint reinforcement.

B. Manufacturer's standard installation instructions amended to comply with the provisions of this project.

C. Certification from an independent testing laboratory that proposed products comply with or exceed provisions of this Section.

D. Complete data on power driven anchors, giving types of anchors, type of power driver and location where anchors are proposed.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's packaging identifying product and specified finish.

B. Store in dry area with spacers to provide ventilation. Stack linear items to prevent warping, complying with manufacturer's instructions.

1.07 SEQUENCING/SCHEDULING

A. Coordinate this work with adjacent construction to which it is anchored.

PART II - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Provide accessories from the following listed manufacturers. Like items shall be from one manufacturer:

1. Dur-O-Wall.

2. **AA Wire** Products Co.

3. Hohmann and Barnard, Inc.

2.02 HORIZONTAL JOINT REINFORCEMENT

A. General: Side rods shall be deformed. All rods shall conform to ASTM A 82 or A 496. Side rods and cross rods shall be connected by welding.

B. All rods shall be galvanized complying with Class III mill galv. (0.80 oz. per sq. ft.).

C. Type, unless otherwise noted on Drawings:

1. Interior Walls and Partitions: Extra duty 3/16" by 3/16" gauge truss.

2.03 ANCHORS AND TIES

A. Corrugated Strap Anchors: Not lighter than 16 gauge unless otherwise noted by not less than 7/8 inch wide by 7 inches long. ASTM A 525.

B. Rigid Steel Anchors: Not less than 1-1/2 inches wide by 1/ 4 inch thick, by length required, with ends turned up two inches minimum. ASTM A36.

C. "Z"-bars: 3/16-inch diameter steel wire, with ends bent at 90 degrees and with at least 8 inches extension. ASTM A 82. Bars without water drips shall be provided. Space bars 16 inches OC vertically and 24 inches OC horizontally, staggered.

D. Column and Beam Anchors: 0.125" thick x 13@ width mill galv., or 3-inch diameter wire wall anchors with 1/ 4-inch diameter anchor rods. ASTM A 82.

E. Wire Mesh Ties: 16-gauge steel wire 1/2- i n c h mesh, 16 inches long and 1-1/2 inches less than width of wall. ASTM A 82.

F. Dovetail Anchors: 16-gauge corrugated steel, one inch wide, 5-1/2 inches long, to match dovetail anchor slots in concrete members. ASTM A 525.

G. Control Joint Anchors: 3@ thick x l" up to 22@ width.

2.04 METAL LATH

A. Expanded metal lath, 3.4 pounds, coated with rust inhibitive paint, and cut to one inch less than wall width.

2.05 REINFORCING STEEL

A. Steel for lintel blocks, bond beams, pilasters and reinforced masonry shall be deformed bars conforming to ASTM A 615, Grade 60, including Supplementary RequirementS-1.

2.06 CONTROL JOINTS

A. Wide flange or regular, PVC, where detailed.

2.07 THROUGH-WALL FLASHING

A. Flashing shall be fabricated specifically for through-wall flashing building construction, and as follows:

1. Copper: Not less than three ounces per square foot.

2. Fabric-covered both sides laminated to copper with high melting point asphalt.

B. Adhesive: As recommended by manufacturer.

2.08 POWER DRIVEN ANCHORS

A. Capable of developing full strength of members anchored and designed for fastening to the anchor material.

2.09 COATING

A. Metal items shall have the following coatings:

1. Wire and Joint Reinforcement Zinc coated, ASTM A 116, Class ID, 0.8 ounce.

2. Anchors and Bars: Zinc coated, ASTM A 153, Class B, 1.50 ounces.

3. Steel Sheet Galvanized, ASTM A 525, Coating Designation G90.

PART III - EXECUTION

3.01 INSTALLATION

A. Install products furnished under this Section as specified under other Sections, at spacings and locations indicated on Drawings, and in compliance with manufacturer's instructions.

END OF SECTION

SECTION 04220 – CONCRETE UNIT MASONRY

PART I – GENERAL

1.01 WORK INCLUDED

A. This Section includes work concerning concrete unit masonry.

1.02 RELATED WORK

A. Related Work in Other Sections:

	Grout
04100	Mortar
04150	Masonry Accessories

1.03 REFERENCES

A. Industry standards governing this work are of the latest issue at the date of this specification release, except as otherwise noted:

1. American Society for Testing and Materials [ASTM]:

ASTM C 90	Hollow Load-Bearing Concrete Masonry Units.
ASTM C 140	Sampling and Testing Concrete Masonry Units.

2. Underwriters Laboratories, Inc. [UL]:

UL618	Standard for Concrete Masonry Units.

3. American Concrete Institute [AC!]:

ACI 531.1	Specification for Concrete Masonry Construction.

B. Comply with the Puerto Rico Building Code, as currently adopted and amended, applicable life-safety requirements, and referenced standards adopted by the authorities having jurisdiction

1.04 QUALITY ASSURANCE

A. Masonry tolerances shall not exceed the following:

1. Plumb:

a. 3/8 inch in 10'-0",

b. 5/8 inch in any 40'-0" or more; except,

c. 1/ 4 inch in any 10'-0" and 1/2 inch in 40'-0" or more at external corners, expansion joints, and jambs at masonry openings.

2. Level:

a. 3/8 inch in any bay or 20'-0" maximum, and

b. 3/ 4 inch in 40'-0" or more.

3. Building Line:

a. .5/8 inch in any bay or 20'-0" maximum, and

b. 3/ 4 inch in 40'-0" or more.

4. Cross-Sectional Dimension of Multiple Wythes:

a. 1/ 4 inches less, and

b. 1/2 inch more.

5. Bed Joint:

a. Thickness: Plus, or minus 1/8 inch.

b. Level: Plus, or minus 1/ 4 inch in ten feet,1/2 inch maximum.

6. Head Joint

a. Thickness: Plus, or minus 1/8 inch

b. Vertical Alignment: Plus, or minus1/ 4 inch in ten feet,1/2 inch maximum.

c. Reinforcing bar tolerances shall not exceed the following:

1) Fabrication:

a) Sheared Length: Plus, or minus one inch.

b) Stirrup and Tie Dimensions: Plus, or minus 1/2 inch.

c) Other Bends: Plus, or minus one inch.

2) Vertical Placement

a) Variation in Spacing from Face of Masonry: Plus, or minus 1/4 inch.

b) Variation in Spacing in Longitudinal Run of Masonry: Plus, or minus two inches.

3) Horizontal Placement

a) Variation in Spacing Perpendicular to Face of Masonry: Plus, or minus 1/ 4 inch.

B. Surface and Edge Defects: Concrete unit masonry exposed in finished work shall be reasonably straight and true with finished faces and edges free from chips, crazes, blisters, and other imperfections detracting from appearance of finished wall when viewed at a distance of 10'-0" at right angles from wall.

1.05 SUBMITTALS

A. Prior to ordering or delivery of materials, submit to the Design Professional of Record for approval two block unit's representative of each block type to be used. Texture, profile, and color shall be consistent with job mock-up and all installed masonry work.

B. Test Reports and Certificates - Concrete Unit Masonry:

1. For Fire Rated Masonry, the producer of the concrete units shall certify that the minimum equivalent thickness of the units supplied meets all the requirements of UL-618, "Standard for Concrete Masonry Units".

1.06 DELIVERY, STORAGE AND HANDLING

A. Product Handling:

1. Deliver concrete unit masonry on pallet adequately secured. Handle during shipment and storage in manner to prevent damage of surfaces and edges.

2. Stack concrete unit masonry and installation material on platforms, off ground, and cover to protect from stains and weather exposure with waterproof cover.

1.07 PROJECT/SITE CONDITIONS

A. Weather Requirements:

1. Hot Weather-Low Humidity Requirements, When Approved by

ASEM/Owner's Representative: Prevent rapid drying. The mortar bedding surfaces may be lightly wet. Keep mortar moist, and do not string out on the wall so far ahead of units being placed that drying will take place prior to placement of units. After units are in place, a very light fog spray should be applied several times during the first 24 hours for proper curing.

B. Protection of Work:

1. During erection, keep the walls dry by covering at end of each day or shutdown period with a waterproof membrane.

2. Similarly protect partially completed walls not being worked on.

3. Covering shall overhang at least 2'-0" on each side of wall and shall be securely anchored.

4. Protect finished exposed work from stains.

5. Mortar droppings that stick to concrete block faces shall be allowed to dry, and then be removed with trowel and by lightly scrubbing surface with bristled brush.

6. Keep concrete block clean as it is laid.

7. Damaged installed materials shall be removed and replaced with new material at no additional expense to the ASEM/Owner.

8. Masonry walls and partitions above normal allowable heights shall be braced or reinforced, temporarily or permanently as required, in accordance with the requirements of the local governing codes.

C. Inspect job for conditions which would prevent execution of this work as specified. Do not proceed until such conditions are corrected.

1.08 SEQUENCING/SCHEDULING

A. Coordination:

1. Before commencing work, lay out vertical and horizontal coursing to achieve bond pattern indicated, and coordinate with other masonry work.

2. Locate on story pole each joint to receive horizontal joint reinforcing and anchors to adjacent construction. Relate joints to floor elevations and other work lines.

3. Do not enclose or cover up mechanical, electrical or other work, until such

work has been installed and accepted.

4. Provide open joints for caulking where indicated. Caulking shall be furnished and installed by others.

PART II - PRODUCTS

2.01 MORTAR

A. Mortar shall comply with Section 04100 and as follows:

1. Interior Masonry: Non-Load Bearing: Type S.

2. Cavity Walls Above Ground: Type S.

3. Mortar for Filling Pressed Metal Frames and built-in items: Grout.

4. Mortar for Parging: Type S.

B. Non-Shrink Grout for Embedment of Steel Bearing Plates and Lintels: Section 03600.

2.02 CONCRETE MASONRY UNITS

A. General:

1. Concrete Masonry Units shall be medium weight conforming to the requirements of ASTM Specification C-90, grade N-1, for hollow load bearing concrete masonry units, or ASTM Specification C-145, grade N-1, for solid load bearing concrete masonry units.

2. Cement shall be Portland cement, ASTM C-150.

3. Density of the CMUs shall be less than 90 lbs/ft.

4. Assembly: The dry weight of various sizes of 2-core CMUs shall not exceed the pounds shown in table below when tested in accordance with ASTM C-140: 6x8x16 - 45 Pounds 8x8x16 - 55 Pounds

5. Miscellaneous Concrete Masonry Units:

a. Lintel Block and Other Special Shapes: ASTM C 90, grade and aggregate to match that of adjacent masonry.

b. Hollow Load Bearing Block: ASTM C 90, Grade N-1.

B. Fire Rated Concrete Block Assemblies:

1. The units shall be produced in accordance with the "Standard for Concrete Masonry Units", Table 4.1 of UL-618. The block manufacturer shall certify, in writing, that the minimum equivalent thickness and CMU mix design are in conformance with U.L. 618.

2. If requested, the Mason Design-Build Entity must have CMUs examined and certified by a certified testing laboratory. The examination shall include width, height, length of block, shell and web thickness, minimum equivalent thickness, compressive strength and type of aggregate. The report shall comply with ASTM C-140 "Methods of Sampling and Testing Concrete Masonry Units" and U.L. - 618.

C. Cure concrete masonry units by either autoclave or low-pressure steam treatment.

D. Standard Block:

1. Provide special shapes required for starters, jambs, comers, lintels, and sash block with exposed faces matching in color and texture and other standard block.

2. Concrete Masonry Units shall be of standard size (8"x16") having two or three vertical cells, and not more than1/8"variation in standard dimension.

E. Special Block:

1. Comply with the above specifications except as modified.

2. Bond beams and lintel blocks shall be as indicated.

3. Provide bullnose corners at external comers of interior block.

2.03 MASONRY ACCESSORIES

A. Comply with Section 04150.

PART III - EXECUTION

3.01 PREPARATION

A. Remove laitance, loose aggregate, and anything that prevents mortar from bonding to foundation.

B. Before starting to lay masonry units, determine that all required dowels from foundation have been installed.

C. Do not proceed with masonry construction, until permitted, when the following

foundation tolerances are not met

1. Horizontal Alignment: Plus, or minus 1/ 4 inch in ten feet variation from plan dimension 1/2-inch maximum variation.

2. Vertical Alignment: Plus, or minus 1/ 4 inch in ten feet variation from level1/2-inch maximum variation.

3.02 JOB LAYOUT

A. Horizontal:

1. Layout coursing horizontally shall fit openings and offsets.

2. Avoid slivers of concrete masonry units less than four inches wide. Cut masonry units shall have at least one web. Cut shell pieces will not be permitted.

B. Vertical:

1. Maintain story pole marked with courses to work with head and sill of openings and to maintain uniform jointing.

2. Indicate bed joints to receive joint reinforcing, ties and anchors.

3. Coordinate story pole with joint coursing of back-up masonry.

C. Faced Concrete Masonry Unit: Interior concrete masonry units scheduled as finish wall.

D. Bond:

1. Concealed Masonry:

a. Bond units in a wythe in running bond.

b. Bond and interlock each course of each wythe at comer.

E. Fire-Rated Wall: Provide concrete masonry units with rated units, laid out as tested by UL for the ratings indicated.

3.03 WORKMANSHIP

A. Lay masonry plumb, true to line, with level and accurately spaced courses.

B. Finished work shall be within specified tolerances and match accepted job mock-up sample panels.

C. Lay corners and reveals plumb. Avoid over plumbing and pounding of comers and jambs to fit stretcher units after they are set in position.

D. Where adjustment must be made after mortar has started to harden, remove and replace mortar with fresh mortar.

E. Keep bed and head joints uniform in width. Joint thickness shall be 3/8 inch.

F. Cutting and punching of finish masonry to accommodate work of other trades shall be done not to damage or mar appearance of adjoining masonry.

G. Cut edges of units exposed in finished wall with an abrasive power saw.

H. Chases, wall cavities, and raked-out joints shall be kept free from mortar and other debris.

I. Use solid blocks where expansion bolted attachments are made to block and where end of block is exposed. Cells of hollow blocks to receive anchor bolts shall be solidly filled with grout. Design-Build Entity shall determine location from notes and details on the Drawings. Unless noted otherwise, set bolts and inserts vertically in the top of walls, pilasters, beams or columns three inches minimum from any face in masonry seven inches or more in thickness and at the centerline in thinner masonry sections.

J. Lintels and bond beams, unless otherwise indicated, shall be built-in place and filled with grout as specified. Reinforce units with not less than two No. 5 bars full length. Lintels shall extend beyond each side of the opening to a minimum of eight inches unless otherwise noted.

   Provide comer bars at bond beam comers and lap splice straight bars standard lap length.

K. Vertical cells of standard masonry units and pilaster units to be filled shall be aligned to maintain a clear, unobstructed, continuous vertical cell Remove mortar protrusions extending into cells or cavities to be grouted as necessary to have minim.um core sizes required. Units containing reinforcement shall be solid filled with grout as specified

3.04 JOINING OF WORK

A. Exposed surfaces of partially or totally set masonry shall be cleaned before laying adjoining fresh masonry. Loose masonry and mortar shall be removed.

B. If it is necessary to stop off a horizontal run of masonry, rack back one half concrete masonry unit length in each course. Toothing will not be permitted.

C. Intersecting walls shall be keyed together by masonry anchors, joint reinforcement or wire mesh, as indicated. Embed bent ends of anchors and corrugated strap anchors into cores of units filled with mortar or grout.

3.05 BUILDING-IN OF OTHER WORK

A. Build in horizontal joint reinforcement specified in Section 04150 in bed joints of all masonry walls spaced 16 inches vertically. Provide prefabricated corner units at comers. Lap longitudinal joints not less than six inches. Reinforcing shall be installed in the three courses above all openings and extend l'-0" beyond each side of opening. Place joint reinforcement so that longitudinal wires are located over face shell mortar beds and are embedded in mortar for their entire length with minimum cover of 5/8 inch when exposed to weather and 1/2 inch at other locations.

B. Build in work of other trades indicated shall be built into masonry, including anchors, wall plugs, expansion joints, and accessories, as erection progresses. Space and align built-in parts as indicated and do not displace other materials from position.

C. Fill in spaces around built-in items with grout or mortar.

D. Fill pressed metal frames in masonry walls with grout as the wall is laid. Maintain door mute holes open.

E. Where indicated, rake back 1/2-inch joint between metal frames and adjacent masonry to receive caulking.

F. Set steel lintels and bearing plates in non-shrink grout. Steel lintels and plates shall be furnished and installed under this Section as specified in Section 05500.

G. Anchor bolts shall be furnished and installed under this Section as specified under Section 05500. Bolts shall project from the face of the masonry the distance called for on the Drawings or a sufficient distance to allow for the proper attachment intended. All threads shall be oiled and protected by waterproof caps.

H. Steel channel frames for openings through masonry walls shall be furnished and installed under th.is Section and as specified in Section 05500. Fill spaces around frames solid with grout as specified.

3.06 MORTARING

A. Bed Joints:

1. Lay the first course of standard blocks and all courses of rated blocks in full bed of mortar.

2. On masonry piers, columns, and pilasters spread full mortar beds on face shells and webs of block already laid.

3. On all other bed joints apply mortar on face shells only of block already laid.

4. On block to be laid apply a beveled buttering to face shells to ensure filled bed joints.

5. On walls to be grouted, spread full mortar beds on face shells and webs where adjacent to cells or cavities to be reinforced or filled with grout.

6. Place solid units with full bed joints.

B. Head Joints:

1. Apply mortar to vertical face shells on both the block already laid and the block to be laid to ensure a filling head joint.

2. Mortar shall have a minimum depth from each block face equal to the masonry unit face shell thickness.

3. Place solid units with full head joints.

C. Place block by rolling it slightly to a vertical position and shoving it against adjacent block achieving its position and alignment with a minimum adjusting.

D. Adjustment shall be made only while mortar is still soft and plastic by tapping lightly to plumb and bringing in alignment.

E. Check each unit as laid with level for plumbness with wall below.

F. Concrete masonry units shall be dry when laid.

3.07 JOINT TREATMENT

A. Flush Joints: Joints in masonry to receive finish work of other trades shall be struck flush.

B. Facing Concrete Masonry Joint Exposed joints in concrete masonry shall be struck flush and when partially set tooled to a concave with a tool (aluminum tool not permitted) to squeeze mortar into joint producing continuous pressure on mortar against edge of block, both sides of joint. Finish joint shall match joints in accepted mock-up sample.

C. Correction of Joints: Cut out defective joints, refill with mortar, and retool to match adjacent work.

D. Joints on. Bond beams shall be caulked with flexible compound as specified on section 07920.

3.08 REINFORCING STEEL

A. Condition:

1. Reinforcing steel shall be clean and free from defects, loose mill or rust scale, or other coatings that will reduce bond.

2. Do not use reinforcing with kinks or unrequired bends.

3. Do not straighten or repair bars in a manner that will damage the bar or adjacent construction.

B. Fabrication:

1. Fabricate bars without damaging the materials.

2. Perform bending on unheated bars.

3. Bars larger than No. 5 shall not be field bent unless approved by Design Professional of Record.

4. Perform bending and fabricate standard hooks in accordance with ACI 531.1.

5. Provide standard lap length for splices of 48 bar diameters.

6. Do not weld or tack-weld reinforcing bars.

C. Installation:

1. Center vertical reinforcing bar in cell unless noted otherwise on Drawings.

2. Rigidly secure vertical bars at top and bottom, and at intervals of 192 bar diameters or ten feet maximum on center, whichever is less.

3.09 GROUTING

A. General:

1. Set reinforcing steel and anchors in required position and secure against displacement before grouting is started.

2. Freshly mix grout and place in cores while fluid and before the initial set has taken place. Puddle or vibrate grout into place.

3. Grout beams over openings in one continuous operation.

4. Grout vertical cores in maximum five feet lifts. Stop grout pours in vertical cores 1-1/2 inches below a mortar joint, except at top of wall.

5. Use metal lath, mortar, or special units to confine grout to the area required. Do not use materials which may inhibit bond or are combustible.

6. Place grout in such a way as to prevent segregation of materials. Pour grout fluid enough to flow into all crevices of grout spaces leaving no voids.

B. Low-Lift Grouting:

1. To utilize low-lift grouting method, vertical cores to be grouted shall have minimum clear distance between sides of the core of two inches and a clear area of eight square inches.

2. Limit low-lift grouting to maximum wall height of five feet per Lift

3. Do not erect masonry to a height of more than five feet before grouting.

3.10 CLEANING

A. Clean block as it is laid as specified.

B. Block work exposed to view shall be left clean and free of dirt, stains, discolorations, or blemishes.

C. Cleaning methods and materials shall be in accordance with the manufacturer’s instructions of the masonry unit cleaned.

D. Protect corrodible parts, such as metal frames, lintels, etc., from corrosive cleaning materials.

E. No muriatic acid shall be used.

END OF SECTION

SECTION 05500 – METAL FABRICATIONS

PART I - GENERAL

1.01 WORK INCLUDED

A. This Section includes all major items of metal fabrications work, consisting of but not limited to, items listed in Article 2.01.

1.02 RELATED WORK

A. Related Work in Other Sections:

09900	Painting

1.03 REFERENCES

A. Industry standards governing this work are of the latest issue at the date of this Specification- release as shown above, except as otherwise noted:

1. Aluminum Association [AA]:

AA 30	Specifications for Aluminum Structures.

2. American Institute of Steel Construction [AISC]:

AISC M008	Structural Steel Detailing.
AISC S302	Code of Standard Practice for Steel Buildings and Bridges [as modified in paragraph 1.03.3).
AISC S323	Quality Criteria and Inspection Standards.
AISC S326	Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.

3. American National Standards Institute [ANSI]:

ANSI A14.3	Safety Requirements for Fixed Ladders.

4. American Society for Testing and Materials [ASTM]:

ASTM A 36	Structural Steel.

ASTM A 53	Pipe, Steel, Black and Hot-Dipped, Zinc- Coated Welded and Stainless.
ASTM A 123	Zinc [Hot-Galvanized] Coatings on Products Fabricated from Rolled, Pressed and Forged Steel Shapes, Plates, Bars and Strip.
ASTM A 153	Zinc Coating [Hot-Dip] on Iron and Steel Hardware.
ASTM A 167	Stainless and Heat-Resisting Chromium- Nickel Steel Plate, Sheet, and Strip.
ASTM A 194	Carbon and Alloy Steel Nuts for Bolts for High-Pressure and High-Temperature Service.
ASTM A 276	Stainless and Heat-Resisting Steel Bars and Shapes.
ASTM A 307	Carbon Steel Externally Threaded Standard Fasteners.
ASTM A 325	High-Strength Bolts for Structural Steel Joints.
ASTM A 385	Providing High Quality Zinc Coatings [Hot-Dip] on Assembled Products.
ASTM A 386	Zinc Coating [Hot-Dip] on Assembled Steel Products.
ASTM A 500	Cold-Formed Welded and Seamless
Carbon	Steel Structural Tubing in Rounds and Shapes.
ASTM A 501	Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
ASTM A 525	Steel Sheet, Zinc-Coated [Galvanized] by the Hot-Dip Process, General Requirements.
ASTM A 563	Carbon and Alloy Steel Nuts.
ASTM A 569	Steel, Carbon [0.15 Maximum, Percent, Hot Rolled Sheet and Strip, Commercial Quality.
ASTM A 603	Zinc-Coated Steel Structural Wire Rope.
ASTM A 618	Hot-Formed Welded and Seamless High-Strength Low-Alloy Structural Tubing.

ASTM B 88 Seamless Copper Water Tube.

ASTM B 209 Aluminum-Alloy Sheet and Plate.

ASTM B 221 Aluminum-Alloy Extruded Bar, Rod, Wire, Shape and Tube.

ASTM F 436 Hardened Steel Washers for Use with High Strength Bolts.

5. American Welding Society [AWS]:

   AWS D1 .1 Structural Welding Code - Steel.

6. Federal Specifications {FSJ:

   FS FF-W-84 Washers, Lock [Spring

   FS F-W-92 Washers, Metal, Flat [Plain].

7. Research Council on Structural Connections of the Engineering Foundation [RCSC]:

   RCSC Structural Joints Using ASTM A 325 or A 490 Bolts.

8. Steel Structures Painting Council [SSPC]:

   SSPC Volume 11, Systems and Specifications.

1.04 QUALITY ASSURANCE

A. Testing Requirements:

   1. Prepare mill tests on all specified ASTM materials.

   2. Qualify shop and field welders in accordance with AWS D1.1 and other applicable AWS standards for all types of welds required to complete this portion of work. Conduct examinations by a recognized agency staffed and equipped for such purposes. Each welder shall be qualified prior to starting to weld.

   3. The contractor shall inspect and test shop and field welds of shear connectors and other types of studs in accordance with AWS D1.1.

B. Material Appearance: For work exposed to view, use materials which are smooth and free from surface blemishes, including seam marks, roller marks, rolled trade names and roughness. Remove such blemishes before application of surface finishes.

C. Allowable Tolerances: Fabrication and erection tolerances for steel shall not exceed those in AISC S302 and S323 unless otherwise noted.

D. Workmanship:

1. Metal fabrications work not conforming to specified requirements including type of material, strength and coatings shall be corrected as directed by Design Professional of Record at Design-Build Entity's expense without extension of contract time.

2. The contractor shall be responsible for cost of corrections or delays to other work affected by or resulting from corrections to metal fabrications work.

1.05 SUBMITTALS TO Design Professional of Record FOR APPROVAL

A. Provide welding certificates for each welder with name and title of person who conducted examination, kind of specimens, position of welds, results of tests and date of examination [see paragraph 1.04 A.2]. Submit seven (7) days prior to commencement of the work.

B. Requests for substitutions or modifications to details. Submit seven [7] days minimum prior to submitting Shop Drawings.

C. Brand and chemical composition of shop applied and field touch-up paints. Submit at same time as Shop Drawings.

D. Shop Drawings for Fabrication and Erection of All Metal Fabrication Members: Prepare Shop Drawings comparable to those in AISC MOO8. Include the following: details of shop and field connections; cuts; holes; brackets; surface preparation; shop painting; type and grade of material; accessory items; anchorage data; type, size and extent of all welds, including welding symbols adopted by AWS; and other pertinent information. Paragraph 4.2.1 of AISC S302, Section 4, is hereby modified to delete the sentence: "This approval constitutes the ASEM/Owner's acceptance of all responsibility for the design adequacy of any connections designed by the fabricator as a part of his preparation of these Shop Drawings." See the General Requirements provisions for other requirements. Review by Design Professional of Record of Shop Drawings is only for general conformance with design concept of project and general compliance with information given in RFP Bridging Documents and Design-Build Contract Documents.

E. Vendor Data for All Manufactured Items: Include specifications, load tables, ultimate capacities, dimension data, anchoring details, installation instructions and other pertinent data. Submit at same time as Shop Drawings.

F. Pattern of Embossments on Checkered Plate: Submit at same time as Shop

Drawings.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver anchor bolts and embedded items in sufficient time for installation by others in the concrete or masonry work. Deliver metal fabrications in sequence to conform to the construction schedule.

B. Handle metal fabrications in manner to prevent damage to items or finish.

C. Store items above ground. Provide sufficient support to prevent distortion. Place dunnage between items when stacking.

D. Keep items dry and clean.

1.07 PROJECT/SITE CONDITIONS

A. Existing Conditions:

1. For new construction, field verify correctness of foundations, anchor bolts, or other existing work affecting metal fabrications before starting erection. Report discrepancies to Design Professional of Record.

2. For additions or other modifications to existing structures, field verify dimensions and other things affecting new work before starting fabrication.

3. Obtain approval from Design Professional of Record before making any field changes.

PART II - PRODUCTS

2.01 MATERIALS

A. High Strength Bolts: ASTM A 325.

B. Nuts for High Strength Bolts: ASTM A 194 or A 563, as required by ASTM A 325.

C. Washers for High Strength Bolts: ASTM F 436.

D. Plain Bolts: ASTM A 307.

E. Anchor Bolts: ASTM A 36, unless otherwise noted, for material; ASTM A 307 for other properties.

F. Nuts for Plain Bolts and Anchor Bolts: ASTM A 563, Grade A. Furnish heavy hex nuts for anchor bolts.

G. Washers for Plain Bolts and Anchor Bolts: FS FF-W-84 or FS F-W-92. Use washer most suitable for application.

H. Expansion Bolts: Conform to following ultimate loads based on 3500 psi concrete:

Bolt Size	Min. Pullout	Min. Shear
3/8 in.	4,000 lbs.	5,000 lbs.
½in.	5,700 lbs.	8,000 lbs.
5/8in.	7,000 lbs.	11,000 lbs.
3/4in.	11,000 lbs.	16,000 lbs.
7/8 in.	15,000 lbs.	18,000 lbs.

To determine allowable working loads, use safety factors recommended by manufacturers for the specific application. However, the minimum safety factor shall be 4; this is 25% of above ultimate load values for allowable working loads. Spacing of bolts and distance to edges shall be taken into consideration for loads calculations.

I. Miscellaneous Fasteners: Toggle bolts, powder actuated fasteners, lag screws and miscellaneous connecting devices: Submit manufacturer's data stating materials and ultimate capacities.

J. Welding Electrodes: AWS D1 .1 for steel; applicable AWS standards, or AWS recommendations if standards are not available, for other metals.

K. Welded Studs: AWS D1. 1, General and Mechanical Requirements.

L. Miscellaneous Carbon Steel Structural Shapes: Items such as bars, angles, beams, channels, bent plates for masonry lintels, anchor straps, opening frames, brackets, equipment supports and other items not a part of the structural steel; ASTM A 36.

M. Pipe: Items such as columns, posts, wall and floor sleeves and pipe guards. Provide nominal diameter. Where thickness is not noted, use schedule 40, standard weight; ASTM A 53, Type E or S, Grade B, black finish. The following may be substituted if wall thicknesses are same as for schedule pipe noted on Drawings: ASTM A 500, Grade B or C; ASTM A 501; or ASTM A 618.

N. Checkered Plate: ASTM A 36, thickness as noted on Drawings excluding embossments.

O. Steel Grating: One-piece welded construction conforming to ASTM A 569 for carbon steel and ASTM A 276, Type 304, for stainless steel. Size and type as noted on Drawings. Maximum spacing of bearing bars: 1-3/16 inches On Center. Maximum spacing of cross bars: four inches On Center.

P. Steel Handrails and Posts: Schedule 40, 1-1/2 inches nominal diameter pipe conforming to ASTM A 53, Type E or S, Grade 8, black finish. The following may be substituted if wall thicknesses are same as for schedule 40: ASTM A 500, Grade B or C; ASTM A 501; or ASTM A 618.

Q. Custom Handrails and Posts: See Drawings.

R. Safety Nosing: Cast aluminum or cast iron, with cross-hatched, abrasive surface and integrally cast anchors. Nosing shall be at least 3/8 inch thick by three inches wide with nose protruding minimum 1/4-inch underside. Furnish length equal to width of steps less than six inches for all stairs, except nosing for metal pan stairs shall extend the full length of the tread.

S. Structural Steel Tubing, Square or Rectangular: ASTM A 500, Grade B or C, or ASTM A 618.

T. Miscellaneous Stainless-Steel Shapes: ASTM A 276, Type 304.

U. Stainless Steel Plate and Sheet: ASTM A 167, Type 304. Provide No. 4 finish for sheet, unless noted otherwise on Drawings.

V. Steel Safety Chain for Handrails: No. 1 straight link machine chain with snap fasteners and eye bolts for each end. All materials shall be galvanized in accordance with applicable ASTM industry standards.

W. Steel Wire Rope: ASTM A 603, with Class A weight zinc-coated wires throughout. Furnish all fittings and accessories for a complete installation. Galvanize all fittings and accessories in accordance with applicable ASTM industry standards.

X. Galvanizing Repair Paint: See Section 09900.

Y. Shop Paint: See Section 09900.

Z. Security Mesh: Prepared by simultaneously cutting and stretching steel plate in compliance with: Carbon Steel Security Mesh-ASTM F1267 for Type I and Type 11, Class 1, 2 and 3, Grade A; Stainless Steel Security Mesh - ASTM 1267 Type I and 11, Case 3, Grade A.

2.02 FABRICATION

A. General:

1. Fabricate miscellaneous metals in accordance with AISC S302, S323 and S326 for steel and with lines, dimensions, details and notes shown on Drawings and described in this Specification.

2. Preassemble work in shop to the greatest extent possible to minimize field assembly.

3. In general, shop weld and field bolt connections.

4. Use only welders qualified in accordance with AWS D1.1.

5. Make welds in accordance with AWS D1.1.

6. Conform to RCSC industry standard specified for high strength bolted connections.

7. Use materials of size and thickness shown or, if not shown, of required size and thickness to produce adequate strength and durability in finished product for intended use.

8. From bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing the work.

9. Welding shall be continuous along entire area of contact, unless otherwise noted on Drawings.

B. Steel Channel and Bent Plate Opening and Door Frames:

1. Use mitered, welded connections for all exterior frames and interior frames up to 6' x 7'-2" in size. Larger interior frames may be mitered and bolted.

2. Locate connecting angles, bolts and other members on concealed side.

3. Provide jambs with seat angle at bottom on concealed side, with provision for anchoring to the floor.

4. Where steel frames are installed in masonry walls, provide a minimum of three steel strap anchors at each jamb for openings up to eight feet in height. For openings over eight feet, add an additional pair of anchors for each 2'-6" increase in height, Locate strap anchors at masonry coursing heights. Strap anchors shall be bent PL 1/8" x 2" x 12" long minimum.

5. Drill, tap and cutout door frames as required for hardware.

6. Provide stops for swing doors where required by Drawings.

7. Pressed metal frames are included in Section 08111.

8. Provision shall be made to stiffen the top member for all spans over three feet.

C. Lintels: Length shall be 16 inches longer than opening width unless shown otherwise.

D. Checkered Plate:

1. If possible, cut to length in shop so each section extends over two or more spans.

2. Pre-punch for welding to supports.

3. Cut openings and attach sleeves and kickplates were shown on Drawings.

4. When noted removable, cut finger holes in plate less than 50 pounds per section and install recessed lifting rungs in plate more than 50 pounds.

5. Provide countersunk holes and machine bolts for fastening removable plate.

6. Provide non-slip nosing on edge of plate at top of stairs.

E. Grating:

1. If possible, cut to length in shop so each section extends over two or more spans.

2. Shop cut openings greater than 1'-0" in diameter. Attach sleeves and kick plates where shown on Drawings.

3. Band all openings and edges of grating when edges are not over supports. Banding bars shall be flush with top of bearing bars.

4. Weld bands to every third bearing bar.

5. Banding bars shall be same material as grating.

6. Provide non-slip nosing on edge of grating at top of stairs.

F. Railings and Posts:

1. Fabricate handrail by fitting post to top rail and intermediate rails to post.

2. Space posts not more than five feet on center.

3. Miter all joints and corners, groove weld and grind smooth.

4. Close all exposed ends.

5. Butt railing splices and reinforce with tight-fitting interior sleeves not less than six inches long.

6. Railings may be bent at corners in lieu of jointing, provided a cylindrical cross-section is maintained.

7. Railings, posts and all connections shall be capable of resisting a horizontal loading of 50 pounds per linear foot applied at top rail without exceeding allowable stresses increased by one-third.

8. Handrail connected directly to stairs and intermediate stair landings is included in Section 05510.

2.03 SHOP PAINTING

A. General:

1. Shop paint all metal fabrications, except galvanized steel, cast iron, non-ferrous and other noted items before delivery to the job site.

2. Do not ship metal until the paint is thoroughly dry.

3. Items to have topcoat[s] shall have a primer compatible with the topcoat [s]. See Section 09900.

4. Items to have non-bituminous topcoat[s] shall not be given a bituminous first coat.

B. Surface Preparation: Thoroughly clean steel surfaces prior to painting in accordance with Steel Structure Painting Council's surface preparation as noted on Drawings.

C. Shop Painting:

1. Apply primer and topcoats,if any, in accordance with manufacturer's recommendations.

2. Prior to priming, remove residual deposits resulting from cleaning.

3. Apply prime coat as soon as possible after cleaning, and before deterioration of surface occurs. However, do not allow elapsed time between cleaning

and priming to exceed two hours for surfaces cleaned in accordance with SSPC-SP 6 and SP 10 or 24 hours for surfaces cleaned in accordance with SSPC-SP 3.

4. Apply topcoat, if any, only after base coat has thoroughly dried.

5. Use painting methods which will result in full coverage of joints, corners and edges.

D. Aluminum Protection: Aluminum items that are to be embedded in, or are in contact with concrete, masonry, wet or pressure-treated wood, or absorptive materials subject to wetting, shall be painted with an approved primer.

E. Inaccessible Surfaces: Paint inaccessible surfaces before assembling, except as noted in paragraph 2.03.F.

F. Unpainted Items: The following items shall not be painted:

1. Portions of ferrous metal items that will be in contact with fresh concrete.

2. Contact surfaces of bolted parts for friction-type connections, unless approved by Design Professional of Record for special paint or treatment.

3. All areas within one inch of field welds.

2.04 GALVANIZING

A. When required by Drawings, galvanize ferrous metal items after fabrication in accordance with ASTM A 123, A 385, A 386 and/or ASTM A 525, G90, as appropriate. Galvanize after fabrication, unless not recommended by ASTM standards noted above. Thoroughly clean all weld slag, weld splatter, oil, grease, dirt and other foreign matter from surfaces to be galvanized.

B. When required by Drawings, galvanize bolts, nuts and washers in accordance with ASTM A 153. Conform to additional requirements in ASTM A 325 for high-strength bolts.

PART III - EXECUTION

3.01 ERECTION

A. General:

1. Erect steel in accordance with AISC S302 and S323.

2. Perform all cutting, drilling, fitting, bolting and welding required for installation.

3. Set work accurately in position, level, plumb and free of rack.

4. Provide anchors for items to be built into masonry or concrete work.

5. Insulate metals in contact with materials that will cause electrolytic or chemical action, such as aluminum and steel.

6. Do not drill holes in the bottom flanges of structural members without approval from Design Professional of Record.

7. Furnish all items necessary for securing metal work to other construction.

8. Provide temporary shores and bracing during progress of work to support all loads to which the miscellaneous metals may be subjected, including wind, erection and construction loads.

B. Connections:

1. In general, field bolt connections.

2. When field welds are used, grind smooth welded connections that will be exposed.

3. Fit exposed connections accurately to form tight joints.

4. Do not weld galvanized surfaces unless approved by Design Professional of Record.

5. Design connections to provide suitable access for field installation.

6. Conform to RCSC industry standard specified for high strength bolted connections.

7. When an outer face of bolted parts has a slope greater than 1/20 with respect to a plane normal to bolted axis., use a beveled washer to compensate for lack of parallelism.

8. Welding shall be continuous along entire area of contact, unless otherwise noted on the Drawings.

C. Fasteners:

1. Use only high strength bolts to connect structural members supporting shear loads in addition to own weight. Use plain bolts elsewhere.

2. In general, use expansion bolts in concrete and grouted or solid masonry, toggle bolts or plain through-bolts in hollow masonry, through-bolts in brick

work, and lag screws or through-bolts in wood.

3. Follow manufacturer's recommendations for allowable loads for fasteners anchored in various materials.

4. Use powder actuated or pneumatic driven fasteners only where specifically approved by Design Professional of Record.

5. Do not allow countersunk bolt heads to project above the surface of material in which they are installed.

6. Conform to RCSC industry standard specified for high strength bolted connections.

7. Tighten anchor bolts and plain bolts provide adequate strength for connection without overstressing bolts.

D. Pipe Guards:

1. Set in concrete with six inches minimum around sides and bottom unless otherwise noted on Drawings.

2. Fill with concrete and round off at top.

E. Checkered Plate:

1. Attach plate to all supports with either 3/4-inch plug welds or countersunk machine bolts. Use bolted fasteners where removable plate is required.

2. Fasten plate a minimum of two places at each end support and one place at all intermediate supports for every 2 '-0" width of floor plate panels.

F. Grating:

1. Fasten grating to all supports with either 3/16" x 3/4" long welds or bolted saddle clips. Use bolted saddle clips only where removable grating is required.

2. Fasten grating a minimum of two places at each end support and one place at all intermediate supports for every 2'-0" width of grating panels.

G. Handrails:

1. Plumb, level and align posts.

2. Bolt or weld to structural steel.

3. Grout into concrete pockets concrete with epoxy grout or an approved fast-setting hydraulic grout.

4. Smooth grind field splices of rails.

5. Anchor rails to walls with pipe flanges welded to rail and expansion or toggle bolts.

H. Safety Nosing:

1. Install in all formed concrete stairs and concrete filled metal pan stairs.

2. Set flush with top of concrete.

3. Rod or vibrate concrete around and under nosing to ensure full bedding.

I. Trench and Pit Covers and Frames: Construction shall be such that tops of frames and covers will be flush with the floor.

J. Errors:

1. Immediately report to the architect all errors in shop fabrication of deformation resulting from handling and shipping.

2. Obtain approval from Design Professional of Record for method of correction before proceeding with work.

3. Make approved corrections without additional cost to ASEM/Owner.

4. Do not use gas cutting torches for field correcting fabrication errors without prior approval of Design Professional of Record.

3.02 FIELD PAINTING

A. Clean all mud, weld splatter, weld slag, visible rust and other contaminants from metal.

B. Within 24 hours after cleaning, the field paints unpainted and ungalvanized surfaces, including nuts, bolts, welds and damaged surfaces. Follow manufacturer's recommendations. Use the following materials:

1. For painted items, use same primer used for shop painting, except as follows. Use an approved organic zinc primer for field painting and touch-up when primer is inorganic zinc.

2. For galvanized items, use galvanizing repair paint noted.

END OF SECTION

SECTION 05521 – PIPE AND TUBE RAILINGS

PART I – GENERAL

1.01 RELATED DOCUMENTS

A. RFP Documents, Bridging Drawings, performance criteria and, after award, applicable Design-Build Contract provisions, including applicable general requirements, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. Steel pipe and tube handrails and railing systems.

1.03 DEFINITIONS

A. Definitions in ASTM E 985 for railing-related terms apply to this Section.

1.04 PERFORMANCE REQUIREMENTS

A. General: In engineering handrail and railing systems to withstand structural loads indicated, determine allowable design working stresses of materials based on the following:

1. Cold-Formed Structural Steel: AISI "Specification for the Design of Cold-Formed Steel Structural Members."

B. Structural Performance of Handrails and Railing Systems: Engineer, fabricate, and install handrails and railing systems to withstand the following structural loads without exceeding the allowable design working stress of the materials for handrails, railing systems, anchors, and connections. Apply each load to produce the maximum stress in each of the respective components comprising handrails and railing systems.

1. Top Rail of Guardrail Systems: Capable of withstanding the following loads applied as indicated:

a. Concentrated load of 200 lbs. (890. N) applied at any point and in any direction.

b. Uniform load of 50 lbs. per linear foot (730 N/m) applied horizontally and concurrently with uniform load of 100 lbs. per linear foot (1460 N/m) applied vertically downward.

c. Concentrated and uniform loads above need not be assumed to act

concurrently.

2. Handrails Not Serving as Top Rails: Capable of withstanding the following loads applied as indicated:

    a. Concentrated load of 200 lbs. (890 N) applied at any point and in any direction.

    b. Uniform load of 50 lbs. per linear foot (730 N/m) applied in any direction.

    c. Concentrated and uniform loads above need not be assumed to act concurrently.

C. Thermal Movements: Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in engineering, fabricating, and installing handrails and railing systems to prevent buckling, opening of joints, overstressing of components and connections, and other detrimental effects. Base engineering calculation on actual surface temperatures of materials due to both solar heat gain and nighttime sky heat loss.

    1. Temperature change (Range): 120 deg F (67 deg C) ambient 180 deg F (100 deg C) material surfaces.

D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.05 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and applicable General Requirements Sections.

B. Product data for mechanically connected handrails and railing systems, each kind of fitting, grout, anchoring cement, and paint products.

C. Shop drawings showing fabrication and installation of handrails and railing systems including plans, elevations, sections, details of components, and attachments to other units of Work.

    1. For installed handrails and railing systems indicated to comply with certain design loadings, include structural analysis data sealed and signed by the qualified professional engineer who was responsible for their preparation.

D. Samples for initial selection in the form of short sections of railing or flat sheet metal samples showing available mechanical finishes.

E. Samples for verification of each type of exposed finish required, prepared on components indicated below that are of the same thickness and metal indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.

1. 6-inch- (150-mm-) long sections of each distinctly different linear railing member including handrails, top rails, posts, and balusters.

2. Fittings and brackets.

3. Assembled samples of railing system, made from full-size components, including top rail, post, handrail, and infill. Show method of finishing members at intersections. Sample need not be full height.

F. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include a list of completed projects with project names, addresses, names of architects and owners, and other information specified.

G. Product test reports from a qualified independent testing agency evidencing compliance of handrails and railing systems with requirements based on comprehensive testing of current products.

1.06 QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain handrail and railing systems of each type and material from a single manufacturer.

B. Engineer Qualifications: Professional engineer legally authorized to practice in the jurisdiction where Project is located and experienced in providing engineering services of the kind indicated for handrails and railing systems like this Project in material, design, and extent, and that have a record of successful in-service performance.

1.07 STORAGE

A. Store handrails and railing systems inside a well-ventilated area, away from uncured concrete and masonry and protected from weather, moisture, soiling, abrasion, extreme temperatures, and humidity.

1.08 PROJECT CONDITIONS

A. Field Measurements: Where handrails and railing systems are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to

avoid delaying the Work.

1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabricating handrails and railing systems without field measurements. Coordinate other constructions to ensure that actual dimensions correspond to guaranteed dimensions.

1.09 SEQUENCING AND SCHEDULING

A. Sequence and coordinate installation of wall handrails as follows:

1. Mount handrails only on completed walls. Do not support handrails temporarily by any means not satisfying structural performance requirements.

PART II - PRODUCTS

2.01 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering handrails and railing systems that may be incorporated in the Work include, but are not limited to, the following:

1. Steel Pipe and Tube Railings:

a. Humane Equipment Co.

b. Wagner. R & B Wagner, Inc.

2.02 METALS

A. General: Provide metals free from surface blemishes where exposed to view in the finished unit. Exposed-to-view surfaces exhibiting pitting, seam marks, roller marks, stains, discolorations, or other imperfections on finished units are not acceptable.

B. Steel and Iron: Provide steel and iron in the form indicated, complying with the following requirements:

1. Steel Pipe: ASTM A 53; finish, type, and weight class as follows:

a. Galvanized finish.

b. Type F, or Type S, Grade A, standard weight (schedule 40), unless otherwise indicated, or another weight, type, and grade required by structural loads.

2. Steel Plates, Shapes, and Bars: ASTM A 36 {ASTM A 36M).

3. Gray Iron Castings: ASTM A 48, Class 30.

4. Malleable Iron Castings: ASTM A 47, Grade 32510 {ASTM A 47M, Grade 22010).

C. Brackets, Flanges, and Anchors: Cast or formed metal of the same material and finish as supported rails, unless otherwise indicated.

2.03 WELDING MATERIALS, FASTENERS, AND ANCHORS

A. Welding Electrodes and Filler Metal: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.

B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of the type, grade, and class required to produce connections that are suitable for anchoring railings to other types of construction •indicated and capable of withstanding design loadings.

1. For steel railings and fittings, use plated fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating.

C. Fasteners for Interconnecting Railing Components: Use fasteners of the same basic metal as the fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.

1. Provide concealed fasteners for interconnecting railing components and their attachment to other work, except where otherwise indicated.

2. Provide Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.

D. Cast-in-Place and Post installed Anchors: Anchors of type indicated below, fabricated from corrosion-resistant materials, capable of sustaining, without failure, a load equal to 6 times the load imposed when installed in unit masonry and equal to 4 times the load imposed when installed in concrete, as determined by testing per ASTM E 488, conducted by a qualified, independent testing agency.

1. Cast-in-place anchors.

2. Expansion anchors.

2.04 PAINT

A. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer, selected for good resistance to normal atmospheric corrosion, compatibility with finish paint systems indicated, and capability to provide a sound foundation for field-applied topcoats despite prolonged exposure, complying with performance requirements of FS TT-P-664.

B. Shop Primer for Galvanized Steel: Zinc-dust, zinc-oxide primer formulated for priming zinc-coated steel and compatibility with finish paint systems indicated, complying with SSPC-Paint 5.

C. Galvanizing Repair Paint: High-zinc-dust-content paint for galvanizing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, complying with DOD-P-21035 or SSPC-Paint 20.

2.05 GROUT AND ANCHORING CEMENT

A. Non-shrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturers for interior and exterior applications.

B. 8. Erosion-Resistant Anchoring Cement: Factory-packaged, non-shrink, nonstaining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without need for protection by a sealer or waterproof coating and is recommended for exterior use by manufacturers.

C. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

1. Non-shrink, Nonmetallic Grouts:

a. 8-6 Construction Grout; W.R. Bonsal Co.

b. Diamond-Crete Grout; Concrete Service Materials Co.

c. Supreme; Comix Construction Chemicals.

d. Sure-grip High Performance Grout; Dayton Superior Corp.

e. Euco N-S Grout; Euclid Chemical Co.

f. Five Star Grout; Five Star Products.

g. Vibropruf #11; Lambert Corp.

h. Crystex; L & M Construction Chemicals, Inc.

i. Masterflow 928 and 713; Master Builders Technologies, Inc.

j. Sealtight 588 Grout; W.R. Meadows, Inc.

k. Sonogrout 14; Sonneborn Building Products-ChemRex, Inc.

l. Kemset; The Spray-Cure Company.

2. Erosion-Resistant Anchoring Cement:

a. Bonsal Anchor Cement; W.R. Bonsal Co.

b. Super Por-Rok; Minwax Construction Products Division.

c. Thorogrip; Thero Systems Products.

2.06 FABRICATION

A. General: Fabricate handrails and railing systems to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of hollow members, post spacings, and anchorage, but not less than those required to support structural loads.

B. Assemble handrails and railing systems in the shop to the greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

C. Form changes in direction of members as follows:

1. As detailed.

2. By radius bends of radius indicated.

3. By insertion of prefabricated flush elbow fittings.

4. By any method indicated above, applicable to change of direction involved.

D. Form simple and compound curves by bending pipe in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of pipe throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of pipe.

E. Welded Connections: Fabricate handrails and railing systems for connection of members by welding. For connections made during fabrication, weld comers and seams continuously to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlapping.

3. Remove the welding flux immediately.

4. At tee and cross intersections, cope ends of intersecting members to fit contour of pipe or tube to which end is joined, and weld all around.

5. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

F. Nonwelded Connections: Fabricate handrails and railing systems by connecting members with railing manufacturer's standard concealed mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

1. Fabricate splice joints for field connection using epoxy structural adhesive where this represents manufacturer's standard splicing method.

G. Brackets, Flanges, Fittings, and Anchors: Provide manufacturer's standard wall brackets, flanges, miscellaneous fittings, and anchors to interconnect handrail and railing system members to other constructions.

H. For railing posts set in concrete, provide preset sleeves of steel, not less than 6 inches (150 mm) long with inside dimensions not less than 1/2 inch (12 mm) greater than outside dimensions of post, and steel plate forming bottom closure.

I. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.

J. Ease exposed edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Form bent-metal corners to the smallest radius possible without causing grain separation or otherwise impairing work.

K. Cut, reinforce, drill, and tap components, as indicated, to receive finish hardware, screws, and similar items.

L. Provide weep holes, or another means to evacuate entrapped water, in hollow

sections of railing members that are exposed to exterior or to moisture from condensation or other sources.

M. Fabricate joints that will be exposed to weather in a manner to exclude water.

N. Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated.

2.07 FINISHES, GENERAL

A. Comply with NAAMM "Metal Finishes Manual" for recommendations related to applying and designating finishes.

B. 8. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering prior to shipment.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one half of the range of approved samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved samples and they are assembled or installed to minimize contrast.

D. Provide exposed fasteners with finish matching appearance, including color and texture, of handrails and railing systems.

2.08 STEEL FINISHES

A. Galvanized Finish: Hot dip galvanize items indicated to be galvanized to comply with applicable standard listed below:

1. ASTM A 153 for galvanizing iron and steel hardware.

2. ASTM A 123 for galvanizing iron and steel products made from rolled, pressed, and forged steel shapes, castings, plates, bars, and strips.

B. Fill vent and drain holes that will be exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.

C. For galvanized handrails and railing systems, provide galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.

D. Preparation for Shop Priming: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matters and treat with metallic phosphate process.

PART III – EXECUTION

3.01 PREPARATION

A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installing anchorages, such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors, that are to be embedded in concrete as masonry construction. Coordinate delivery of such items to Project site.

3.02 INSTALLATION, GENERAL

A. Fit exposed connections accurately together to form tight, hairline joints.

B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing handrails and railing systems. Set handrails and railing systems accurately in location, alignment, and elevation, measured from established lines and levels and free from rack.

1. Do not weld, cut, or abrade surfaces of handrails and railing components that have been coated or finished after fabrication and are intended for field connection by mechanical or other means without further cutting or fitting.

2. Set posts plumb within a tolerance of 1/4 inch in 12 feet (2 mm in 1 mm).

3. Align rails so that variations from level for horizontal members and from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (2 mm in 1 m).

C. Field Welding: Comply with the following requirements:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.

2. Obtain fusion without undercut or overlapping.

3. Remove welding flux immediately.

4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and welded surface matches contours of adjoining surfaces.

D. Adjust handrails and railing systems prior to anchoring to ensure matching alignment at abutting joints. Space posts at interval indicated but not less than that required by design loadings.

E. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing handrails and railing systems and for properly transferring loads to in-place construction.

3.03 RAILING CONNECTIONS

A. Nonwelded Connections: Use mechanical joints for permanently connecting railing components. Locate exposed fasteners in least conspicuous locations. Seal recessed holes of exposed locking screws with plastic filler, cement colored to match finish of handrails and railing systems.

B. Welded Connections: Use fully welded joints for permanently connecting railing components by welding. Cope or butt components to provide 100 percent contact, or use fittings designed for this purpose.

C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches (50 mm) beyond joint on either side; fasten internal sleeve securely to one side; locate joint within 6 inches (150 mm) of post.

3.04 ANCHORING POSTS

A. Anchor posts in concrete by forming or core-drilling holes not less than 5 inches (125 mm) deep and 3/4 inch (20 mm) greater than outside diameter of post. Clean holes of all loose material, insert posts, and fill annular space between post and concrete with the following anchoring material, mixed and placed to comply with anchoring material manufacturer's directions.

1. Non-shrink, nonmetallic grout or anchoring cement.

B. Cover anchorage joint with a round steel flange attached to post as follows:

1. Welded to post after placement of anchoring material.

C. C. Leave anchorage joint exposed, wipe off surplus anchoring material, and leave 1/8- inch (3-mm) buildup, sloped away from post.

3.05 ANCHORING RAIL ENDS

A. Anchor rail ends into concrete and masonry with round flanges connected to rail ends and anchored into wall construction with post installed anchors and bolts.

1. Weld flanges to rail ends.

3.06 ATTACHING HANDRAILS TO WALLS

A. Attach handrails to wall with wall brackets and end fittings. Provide bracket with 1- 1/2-inch (38-mm) clearance from inside face of handrail to finished wall surface.

B. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

C. Secure wall brackets and wall return fittings to building construction as follows:

1. Use a type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.

2. For concrete and solid masonry anchorage, use drilled-in expansion shield and concealed hanger bolt.

3.07 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material.

B. For Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and apply galvanizing repair paint to comply with ASTM A 780.

3.08 PROTECTION

A. Protect finishes of handrails and railing systems from damage during construction period with temporary protective coverings approved by railing manufacturers. Remove protective coverings at time of Substantial Completion.

B. Restore finishes damaged during installation and construction period so that no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish the entire unit, or provide new units.

END OF SECTION

SECTION 06100 – ROUGH CARPENTRY

PART I – GENERAL

1.01 RELATED DOCUMENTS

A. RFP Documents, Bridging Drawings, performance criteria and, after award, applicable Design-Build Contract provisions, including applicable general requirements, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. Wood furring, grounds, nailers, and blocking.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Requirements for finish carpentry, including nonstructural carpentry items exposed to view and not specified in another Section.

1.03 DEFINITIONS

A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise specified.

1.04 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and applicable General Requirements Sections.

B. Wood treatment data are as follows, including chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated materials:

1. For each type of preservative-treated wood product, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.

2. For waterborne-treated products, include statement that moisture content of treated materials was reduced to levels indicated before shipment to Project site.

C. Warranty of chemical treatment manufacturer for each type of treatment.

1.05 QUALITY ASSURANCE

A. Testing Agency Qualifications: To qualify for approval, an independent testing agency must demonstrate to Design Professional of Record's satisfaction, based on evaluation of agency-submitted criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Keep the materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide air circulation within and around stacks and under temporary coverings.

1. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

PART II - PRODUCTS

2.01 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Wood-Preservative-Treated Materials:

a. Baxter: J. H. Baxter Co.

b. Chemical Specialties, Inc.

c. Continental Wood Preservers, Inc.

d. Hickson Corp.

e. Hoover Treated Wood Products, Inc.

f. Osmose Wood Preserving, Inc.

2.02 LUMBER, GENERAL

A. Lumber Standards: Comply with DOC PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.

B. Inspection Agencies: Inspection agencies, and the abbreviations used to reference them, include the following:

1. NELMA - Northeastern Lumber Manufacturers Association.

2. NLGA - National Lumber Grades Authority (Canadian).

3. SPIB - Southern Pine Inspection Bureau.

4. WCLIB - West Coast Lumber Inspection Bureau.

5. WWPA - Western Wood Products Association.

C. Grade Stamps: Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.

1. For exposed lumber, furnish pieces with grade stamps applied to ends or back of each piece, or omit grade stamps and provide grade-compliance certificates issued by inspection agency.

D. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.

1. Provide dressed lumber, S4S, unless otherwise indicated.

2. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2- inch nominal (38-mm actual) thickness or less, unless otherwise indicated.

2.03 WOOD-PRESERVATIVE-TREATED MATERIALS

A. General: Where lumber or plywood is indicated as preservative treated or is specified to be treated, comply with applicable requirements of AWPA C2 (lumber) and AWPA C9 (plywood). except that preservative shall be copper chromated arsenicals (CCA). Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.

B. Pressure-treat aboveground items with waterborne preservatives to a minimum retention of

C. 0.25 lb./cu. ft. (4.0 kg/cu. m). After treatment, kiln-dry lumber and plywood to a maximum moisture content of 19 and 15 percent. respectively. Treat indicated items and the following:

1. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

D. Complete fabrication of treated items before treatment, where possible. If cut after treatment, apply field treatment complying with AWPA M4 to cut surfaces. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

2.04 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction, including bucks, nailers, blocking, furring, grounds, stripping, and similar members.

B. 8. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.

C. Moisture Content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.

D. Grade: For dimension lumber sizes, provide No. 3 or Standard grade lumber per ALSC's NGRs of any species. For board-size lumber, provide No. 3 Common grade per NELMA, NLGA, or WWPA; No. 2 grade per SPl8; or Standard grade per NLGA, WCU8 or WWPA of any species.

2.05 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. Provide fasteners with a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.

B. Nails, Wire, Brads, and Staples: FS FF-N-105.

C. Power-Driven Fasteners: CASO NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1. (ASME B18.2.3.8M)

F. Bolts: Steel bolts complying with ASTM A 307, Grade A {ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

PART III -EXECUTION

3.01 INSTALLATION, GENERAL

A. Discard units of material with defects that impair the quality of rough carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.

B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.

C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.

D. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.

E. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. CASO NER-272 for power-driven staples, P-nails, and allied fasteners.

2. "Recommended Nailing Schedule" of referenced framing standard and with AFPA's "National Design Specifications for Wood Construction."

3. "Table 23-1-Q-Nailing Schedule" of the Uniform Building Code.

4. "Table 2305.2-Fastening Schedule" of the BOCA National Building Code.

5. "Table 1705.1-Fastening Schedule," of the Standard Building Code.

F. Use common wire nails, unless otherwise indicated. Use finishing nails for finishing work. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finished materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.

G. Use hot dip galvanized or stainless-steel nails.

H. Countersink nail heads on exposed carpentry work and fill holes with wood filler.

3.02 WOOD GROUNDS, NAILERS AND BLOCKING.

A. Install wood grounds, nailers and blocking where shown and where required for screeding or attaching other work. Form to shapes shown and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.

C. Install permanent grounds of dressed, preservative-treated, key-beveled lumber not less than 1-1/2 inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

END OF SECTION

SECTION 06200 – FINISH CARPENTRY

PART I – GENERAL

1.01 WORK INCLUDED

A. This Section includes finish carpentry and related items.

1.02 RELATED WORK

A. Related Work in Other Sections:

09900 Painting

1.03 REFERENCES

A. Industry standards governing this work are of the latest issue at the date of this Specification release, except as otherwise noted:

- National Lumber Manufacturers Association.
- The Douglas Fir Plywood Association.
- “Quality Standards” of the Architectural Woodworking Institute [AWI].
- The American Wood Preservers Association.
- National Board of Fire Underwriters.
- American Plywood Association.
- National Woodwork Manufacturing Association.
- Hardwood Plywood Manufacturer's Association.
- National Electrical Manufacturer's Association [NEMA] Standards GP-30, 43 and 50-LD3.

1.04 QUALITY ASSURANCE

A. Grade and Treatment Marking:

1. Marking: Lumber and plywood shall bear grade and treatment mark indicating compliance with this Specification.

2. Grade Marking: Comply with regulations of inspection bureau or agency having jurisdiction.

1.05 SUBMITTALS

A. Samples: Two 2” by 2" pieces of each color and pattern of plastic laminate representative of actual finish, pattern, texture, and color to be used.

B. Shop Drawings:

1. Show plans, elevations, sections, methods of assembly, and. anchorage.

2. Indicate species and thickness of materials, locations of cut outs, hardware blocking and hardware to be furnished.

3. Indicate plumbing items to be built-in or enclosed in work furnished under this Section.

4. Identify areas for jobsite placement

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Wrap or carton materials to protect from damage during shipment and storage. Mark clearly for job site location.

B. Materials are not to be fabricated until Shop Drawings and samples have been approved.

C. Materials shall not be delivered until it is required for incorporation into the structure. Materials shall be carefully protected against all possible damage upon delivery to the building.

D. Materials shall be stored inside a building, in a dry and ventilated area and remain in manufacturer’s cartons or wrapping.

E. Casework items shall be assembled and hardware applied at mill to the greatest extent practicable.

1.07 PROJECT/SITE CONDITIONS

A. Inspect job for conditions which would prevent execution of this work as specified. Do not proceed until such conditions are corrected.

1.08 SEQUENCING/SCHEDULING

A. Schedule delivery of materials to coordinate with the work of other trades and avoid construction delays.

PART II – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Acceptable Manufacturers for Plastic Laminate:

1. Wilson Art Plastics [Base manufacturer].
2. Formica Corp.
3. Westinghouse Corp., Micarta.

2.02 BASIC MATERIALS

A. Grades and Kinds of Wood: Finish in accordance with the grading rules of the National Lumber Manufacturers Association under whose jurisdiction the species was manufactured with the applicable manufacturer's stamp.

1. Quality: Dressed four sides[S4S], sound and free from warpage.
2. Moisture Content Not to exceed U% for millwork lumber, all lumber kiln dried.
3. Lumber of every kind shall be free from knots, sap stain, twist, and decay. The use of green or partially dried lumber or lumber is wet by rain. Snow, or other causes will not be permitted.
4. Millwork: Sound, close grained, kiln-dried lumber, thoroughly seasoned stock. Exposed wood parts shall be rift sawn white oak. Concealed wood parts shall be Grade "Band better" Douglas Fir.
5. Wood Trim and Base:
    a. Material Standard: AWI100, custom grade.
6. Shelving: Douglas Fir 3/4 inch thick, five-ply plywood, Grade A/B, DFPA, with mortised and glued hardwood nosing, except were noted otherwise. AWI 600, Custom Grade.
7. Shelf Hardware:
    a. Brackets for Fixed Shelves: Equal to Stanley V797BG, gray enamel finish of sizes to fit shelves.
    b. Adjustable Shelf Standards and Supports: Zinc or brass plated, equal to Knape and Vogt Mfg. Co. Nos. 255 and 256.
8. Closet Rods and Flanges: Knape and Vogt No. 770-5, 1-5/16 inches OD tube and No. 734 and 735flanges.

9. Plastic Laminate:

    a. General: High pressure plastic laminate, heat resisting, satin finish unless otherwise noted in Finish Schedule.

    b. Thickness:

        1) Horizontal and General Use Where High Performance Is Required: 0.050 inch thick, plus or minus 0.005 inch, complying with NEMA GP50, NEMA L03.

        2) Vertical Surface Type: 0.030 inch thick, plus or minus 0.004 inch, complying with NEMA GP28, NEMA LD3.

        3) Postforming Type: 0.042 inch thick, plus or minus 0.005 inch, complying with NEMA PF43 and NEMA LD3.

    c. Use chemical resistant type for laboratory uses.

    d. Adhesive: As recommended by manufacturer.

10. Exposed Plywood: A/ A or "B and better" Douglas Fir DFPA, except as otherwise specified. Use interior or exterior grade as conditions require. Plywood required to be painted shall be Creson Paper overlaid. Thickness of plywood as indicated on the Drawings and specified.

11. Wood Handrails:

    a. Material Standard: AWI100, Premium Grade.

    b. Species and Cut Plainsawn white oak.

12. Prefinished Plywood Paneling: Georgia Pacific “barn plank” three-ply rotary cut ponderosa pine, weathered gray.

13. Miscellaneous Woodwork: Where no mention is made to the kind of wood for

14. finish carpentry and millwork, wood shall be Grade "B and better" Douglas Fir.

15. Adhesives: Water resistant type.

16. Fasteners: Finishing nails for woodwork of the smallest size commensurate with the function and use intended. Screws shall be Phillips head, chrome-plated, or stainless steel, size as required for the application.

17. Railing Brackets and Steel Railing Bar: As detailed.

PART III – EXECUTION

3.01 GENERAL

A. Field Measurements: Take and be responsible for final measurements after walls adjacent to shelves and counter tops have been installed.

B. Preliminary work shall consist of inspecting the materials for damage and the structure and surfaces for alignment and completeness, including painting and "positioning" of members which will support the finish carpentry materials. Damaged materials or incomplete items shall not be installed.

1. The structure shall be plumb, level, and alignment. Structural and framing members and surfaces to be covered shall be in place, secure, and painted. Surfaces on, or to which materials and items are to be attached shall be complete, dry, smooth, and within tolerances. Discrepancies in the structure surfaces shall be corrected before work is started.

C. No finish carpentry or millwork shall be done until all wet trades have completed their work and such work is cured and dry, and minimum temperature established for finishing work is maintained.

D. Cutting and fitting in connection with finish carpentry work shall be done, as required for and by work of other trades, and repaired neatly afterwards.

E. Painting of Finish Carpentry: Comply with Section 09900.

F. Custom Grade Millwork: Finished and assembled at the mills, as far as practicable, and delivered to the job site ready to set in place. Shop fabricated in accordance with the reviewed Shop Drawings and this Specification.

G. Members shall be mortised, tenoned, doweled, blocked, and glued together so as to avoid the use of nails as much as possible. Tenons and dowels shall be made to a driving fit Dowels shall be of hardwood. and at least two shall be used in each joint

H. Moldings and trim shall be cleanly cut, sharply defined and miters accurately made.

I. Joints: Make neatly and carefully, on the miter as far as possible, tight and so formed to conceal shrinkage. Plain butt-joints without an approved device for preventing separation at joints will not be accepted.

J. Nails and Screws, Where Necessary: Concealed, blind-nailed wherever possible, but where not possible, the nailing shall be done with finishing nails of the smallest size commensurate with the function and shall be so located and

driven as not to be visible in the finish.

K. Surfaces: Smooth machine finished, straight, and clean, sanded with the grain, with stains, abrasions, cross scratches, raised grain, and other defects removed before priming or painting.

L. Exposed Edges of Plywood: Edge-banded with solid stock wood of same species as adjacent finish surfaces.

M. Wood finish shall be back primed prior to job delivery, unless noted for "natural finish".

3.02 INSTALLATION

A. Finish carpentry and millwork shall be installed in accordance with reviewed Shop Drawings and this Specification.

1. Finish carpentry installation shall be of workmanship common to best practices of the trade.

2. Use only highly skilled finish carpenters for installation of millwork

B. Fixed shelving shall be supported on metal brackets. For shelves of long lengths, support shall include additional brackets spaced on not greater than 4'-0" centers.

C. Adjustable Shelving: Install shelf standards recessed or surface mounted, as detailed. Carefully adjust before fastening to ensure that shelves will be level

D. Closet Rods and Flanges: Install in accordance with manufacturer's instructions at heights indicated on the Drawings.

E. Millwork:

1. Carefully install millwork in place, framed, and secured in the most rigid manner, neatly and accurately fitted, and scribed as necessary. Set finish work absolutely true, level, and plumb.

2. Running Finish, Such as Bases, Moldings and Trim: Commercial lengths, coped at returns and interior angles, mitered at comers and jointed only where solid fastenings can be made.

3. Use concealed fastenings or blind nailing of the size commensurate for the use intended. Make necessary field miters and other connections with tight hairline joints and formed to conceal shrinkage. Sand joints after installation. Set nails for putty stopping.

F. Cabinet Work: This work shall include toilet room vanities, counter top work, base cabinets, wall cabinets, receptionist counters, and similar items as shown on the Drawings.

1. Fabrication:

a. Fabricate cabinet work in accordance with Custom Grade requirements of AWL

b. As far as possible, assemble work in the shop in unit sizes as large as can be delivered into the area of installation.

c. Shop-prepare attachment devices for field connections.

2. Counter Tops:

a. Material and Finish: 3/4 inch Douglas Fir plywood, five ply, Grade A/C, DFPA, Exterior Grade covered with plastic laminate specified in Article 2.02Paragraph A.9. Laminated plastic shall be self-edged.

b. Back Splashes: Four inches high, 3/ 4 inch Exterior Grade Plywood continuous around perimeter of top where adjacent to wall. Splash backs shall be laminated to counter top to form a one-piece unit covered with laminated plastic on exposed faces and edges.

c. Use exterior grade plywood for all counter tops.

3. Base and Wall Cabinets:

a. Quality: AWI Custom Grade.

b. Finish Materials:

1) For Exposed Solid Natural Wood: Quarter sawn white oak.

2) For Exposed Solid Wood Paint Finish: Close grained "B and Better• Douglas Fir.

3) Exposed Plywood for Natural Finish: Quarter sawn white oak with •A" veneer on exposed sides.

4) Exposed Plywood for Paint Finish: Hardwood face veneered.

5) Plywood for Plastic Laminate Finish: Hardwood face veneered.

4. Cabinet Hardware:

a. Hinges:

1) Provide one pair for doors up to 36 inches high and 1-1/2 pairs for doors over 36 inches high.

2) Equal or similar to Stanley.

b. Pulls:

1) Each door and drawer shall have one pull.

2) Equal or similar to Stanley

c. Catch:

1) Each door should have one magnetic catch.

2) Equal to Stanley No. SP41 with 15-pound pull.

d. Drawer Slides: Each drawer shall be equipped with one set of ball bearing nylon roller drawer slides, Knape and Vogt Mfg. Company's No. 1240. The capacity for slides shall be 50 pounds. Use No. 1300, 75-pound capacity when heavy loading is expected.

5. Cabinet Doors: Overlay type. Drawer fronts shall be similar.

6. Installation of Cabinet Work

a. General: Install cabinet work plumb, level, true and straight with no distortions. Shim, if required, shall be concealed. Secure to grounds stripping and blocking with concealed fasteners and blind nailing. Scribe cut for accurate fit to other finished work

b. Cabinet Hardware: Install in accordance with manufacturer's instructions. Rabbet [recess] shelf standards flush into vertical wood supports.

c. Adjustments: Adjust cabinet work and hardware so that drawers and doors operate smoothly with proper clearances and without forcing or binding.

3.03 PROTECTION AND CLEANUP

A. Woodwork shall be left clean, free from warp, twist, open joints, or any other defects.

B. Protection of installed materials shall be the responsibility of the Design-Build

Entity until the Project has been accepted by the ASEM/Owner. Damaged materials shall be removed and replaced with new materials by the Design-Build Entity at no additional expense to the ASEM/Owner.

END OF SECTION

SECTION 7270 – FIRESTOPPING & SMOKE SEALS

PART I – GENERAL

1.01 DEFINITIONS

A. For the purposes of this section the following definitions shall apply;

B. Firestop System: means a specific construction consisting of any device intended to close off an opening or penetration during a fire and/or materials that fill an opening in a wall or floor assembly where penetration is by cables, cable trays, conduits, ducts, pipes and any poke through termination device, such as electrical outlet boxes along with their means of support through the wall or the floor opening. (ref: ASTM E-814)

C. Firestop System Report: means results reported in accordance with the performance in the tests prescribed in the ASTM E-814 methods. Reports shall include the assembly, the materials and penetrating items of the tested Firestop Systems and each condition shall be identified and described. Drawings depicting geometry, exact size (length-width- thickness) and location of firestop systems within the test assembly shall be recorded. (ref: ASTM E-814)

D. Listed System Design: means an informational listing by an Accredited Testing Agency developed by Firestop Systems Reports depicting the correct use and installation of firestop materials. These published listings contain drawings depicting geometry, minimum/maximum dimensions for all the individual components tested including penetration item type and size, annular space, insulating materials used, substrate types and thickness, sealant types and thickness, etc.

E. Fire Compartment: means an enclosed space in a building that is separated from all other parts of the building by enclosing construction providing a Fire Separation having a required fire-resistance rating. Fire Compartments are also referred to as Fire Zones.

F. Fire Resistance Rating: means the time in hours or fraction thereof that a material or assembly of materials will withstand the passage of flame and the transmission of heat when exposed to fire under specified conditions of test and performance criteria.

G. Fire Separation: means a construction assembly that acts as a barrier against the spread of fire.

H. Firewall: means a type of fire separation of noncombustible construction which subdivides a building or separates adjoining buildings to resist the spread of fire, and which has a fire-resistance rating and structural ability to remain intact

under fire conditions for the required fire-rated time.

I. Combustible Construction: means that type of construction that does not meet the requirement for noncombustible construction. Combustible means that a material fails to meet the acceptance criteria of Standard Method of test for determination of non-combustibility in Building Materials

J. Noncombustible Construction: means that type of construction in which a degree of fire safety is attained by the use of noncombustible materials for structural members and other building assemblies. Noncombustible means that a material meets the acceptance criteria of Standard Method of test for determination of non-combustibility in Building Materials.

K. Authority Having Jurisdiction (AHJ): means the governmental body responsible for the enforcement of any part of the Standard codes or the official or agency designated to exercise such a function and/or the Design Professional of Record.

L. Service Penetration: means any hole or void created in the faces or edges of Fire Separations or Firewalls for Mechanical and Electrical through penetrations or poke through termination devices and/or other building services.

M. Firestop Material: means any material used individually or as a component to create an onsite or off-site ASTM E-814 Firestop Systems.

N. Single Component Firestop System: means a Firestop Material that has a Listed Systems Design and is used individually without the use of high temperature insulation or other materials to create firestop systems.

O. Multiple Component Firestop System: means a group of Firestop Materials that are used within a Listed Systems Design to create a Firestop System.

P. Smoke Seal: means an elastomeric sealant material that has been used for a Single Component Firestop System and that has a ASTM E-84 flame spread rating of 25 or less.

Q. Tightly Fitted: means penetrating items that are cast in place in Noncombustible Construction or have "0" annular space in Combustible Construction. In Combustible Construction Fire Separations each assembly of this type must have a Smoke Seal.

R. Third Party Testing Agency: means any accredited Standards Council notified testing agency approved to perform Fire Endurance Testing as outlined in this section of Work which includes any of the following agencies.

    1. Underwriters Laboratories (United States), UL mark.

2. Inchcape Testing Service NA Ltd. (formerly Warnock Hersey), WH mark

1.02 WORK INCLUDED

A. Work of this Section comprises Firestop Materials and Listed Systems Designs intended to act as Firestop Systems and Smoke Seals at openings around penetrations, at un-penetrated openings, at projecting or recessed items, and at openings and joints within and around Fire Separations and Firewalls.

B. Provide seals in all Fire Rated Separations and Firewalls to form tight barriers to retard the passage of flame and smoke.

C. The installed seals shall provide and maintain the fire resistance rating of the adjacent floor, wall or other fire separation assembly to the requirements of ASTM E-814 and acceptable to Authorities Having Jurisdiction and the Engineer.

D. Firestop and smoke seals within mechanical (i.e. inside sleeves, ducts, dampers) and electrical assemblies (i.e. inside electrical bus ducts, conduits) shall be provided as part of the Mechanical Systems and Electrical Systems Work, respectively. Firestop and Smoke Seal around the outside of such mechanical and electrical assemblies where they penetrate Fire Rated Separations and Firewalls shall form part of the Work of this Section.

E. Fluid seals as well as fire and smoke seals are required for all floor penetrations in Laboratories and Operating Rooms in Hospitals, Universities and Schools.

1.03 RELATED WORK

A. Cast In Place Concrete

B. Area Separation Walls

C. Basic Materials and Methods

1.04 QUALITY ASSURANCE

A. Provide the work of this Section using competent installers, experienced in the application of the materials and systems being used, approved and trained by the material or system manufacturer.

B. Firestop Systems shall conform to the fire (F) and temperature (T) ratings of ASTM E-814 and other local requirements of Authorities Having Jurisdiction.

C. Firestop Materials and Smoke Seal materials shall have a flame spread rating of 25 or less.

1.05 REFERENCES AND ACCEPTABLE STANDARDS

A. ASTM E-814 Standard Method of Fire Tests of Firestop Systems.

B. ASTM E-119 Standard Method of Fire Endurance Tests of Building Construction and Materials.

C. ASTM E-84 Standard Method of Testing for Surface Burning Characteristics of Building Materials and Assemblies.

1.06 SUBMITTALS

A. Submit the following:

1. Manufacturer's Listed Systems Designs.
2. Manufacturer's Product Data Sheets.
3. Manufacturer's Materials Safety Data Sheets.
4. Manufacturer's printed instructions for installation on each proposed product.
5. Manufacturer's prefabricated devices providing descriptions sufficient for identification at the Project site.
6. Manufacturer's Third-Party Testing Agency Firestop Systems Report (only if requested).
7. Clearly indicate which firestop sealant products are single component firestops and which are multiple components (ones that require high temperature insulation filler materials to comply with the ASTM E-814 Standard).
8. Samples of each type of firestopping and smoke seal material.
9. Submit Trade Qualifications (TQ) Certificate or related experience of each installer performing work on the site.
10. If an independent firestop contractor is engaged, a copy of that contractor’s Liability Insurance Policy. (This clause is optional in some jurisdictions)

1.07 DELIVERY AND STORAGE

A. Deliver and store materials in their original unopened containers. Protect from damage and environmental conditions as noted under manufacturer's recommendations.

PART II – PRODUCTS

2.01 ACCEPTABLE PRODUCTS AND OR MANUFACTURERS

A. Only Firestop Systems tested to the ASTM E-814 Standard complete with Listed Systems Designs showing their appropriate individual applications are acceptable.

2.02 MATERIALS

A. All Firestop Systems and Listed Systems Designs selected for use shall be listed and tested by a recognized and accredited Third Party Testing Agency in accordance with ASTM E-814, Standard Method of Fire Tests of Firestop Systems.

B. All Smoke Seal materials shall have been tested in accordance with ASTM E-84 Standard Method of Testing for Surface Burning Characteristics of Building Materials and Assemblies and have a flame spread classification of 25 or less.

C. Fire resistance ratings of installed Firestop Systems shall not be less than the fire resistance rating of the surrounding Fire Separation or Firewall.

D. All Listed Systems Designs selected for use shall have a Smoke Seal

E. incorporated within the ASTM E-814 rated Firestop Systems.

F. All Firestop Materials that will come directly in contact with plastic pipe or plastic-coated wire shall have undergone Firestop Material compatibility testing by the Firestop Systems manufacturer and/or the pipe or wire manufacturer.

G. Where moisture seals are required for floor penetration in Operating Rooms, Morgues, and Laboratories in Hospitals, Universities and Schools, the Firestop Materials selected must be compatible with Formalin. (37% formaldehyde / 63% methanol)

H. All Firestop Materials and Smoke Seals shall have elastomeric characteristics to allow for building settling and seismic movement.

I. All Firestop Materials and Smoke Seals shall be free of asbestos.

J. Site Firestop Systems must be installed in accordance with the Listed System Design limitations, unless a technical evaluation is approved by one of the acceptable Third-Party Testing Agencies.

K. All Listed Systems Designs used must provide a Flame (F), Temperature (T) and Hose (H) stream rating.

PART III - EXECUTION

3.01 PREPARATION

A. Examine sizes and conditions of voids to be filled to establish correct thickness and installation of Firestop Materials. If silicones are to be used ensure that substrates and penetrating item surfaces are dry, clean and frost free.

B. Prepare surfaces in contact with Firestop Systems and Smoke Seals to manufacturer's instructions.

C. Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.02 INSTALLATION

A. ASTM E-814 tested and Listed Systems Designs govern all installations

B. of Firestop Systems and Firestop Materials.

C. In all Firestop Systems that require mineral wool or ceramic fiber backer or filler materials, these materials must be dry and free of other contaminants before, during and after installation of sealant Firestop Materials. Alkaline water contamination of the backer or filler materials may cause corrosion of metallic penetrating items.

D. Apply Firestop Systems and Smoke Seals in strict accordance with manufacturer's instructions and Listed Systems Designs to provide required temperature and flame rated seals, to prevent the passage of fire and smoke, and where specifically designated, the passage of fluids.

E. Provide temporary forming and packing as required.

F. Tool or trowel all exposed surfaces to smooth, neat and tidy finish.

G. Notify Design Professional of Record when completed installations are ready for inspection and prior to concealing or enclosing Firestop Systems and Smoke Seals.

3.03 SERVICE PENETRATION FIRESTOP SYSTEMS

A. Firestop and smoke seal gaps and holes in all Fire Separation and Firewall construction through which, wire, cables, ductwork, piping and all other protrusions pass as a result of Work using an appropriate Listed System Design identifying substrate type, penetrating material type, penetrating item size, minimum and maximum annular space and overall "FTH" ratings.

B. In Combustible Construction (membrane GWB type) where the framing members are wood a Fire and Temperature rise "FT" rating is required equal to that of the rating of the Fire Separation. Include openings which have been formed and sleeved.

C. In Combustible Construction (membrane GWB type) where paper faced insulation or combustible vapor, and air barriers are incorporated within the separation a Fire and Temperature rise "FT" rating is required equal to that of the rating of the Fire Separation.

D. In Combustible Construction (membrane GWB type), firestop and smoke seal all penetrations of the faces as above and firestop and smoke seal all penetrations that enter or exit (transverse) the edges of one Fire Separation into another Fire Separation. (i.e. where the header or sill plate is penetrated in the interior of a wall separation into the hollow ceiling or floor cavity of the adjacent separation).

E. In Combustible Construction (membrane GWB type), fire taping of service penetrations and HVAC duct work is not acceptable unless a tested ASTM E-814 Firestop Systems is submitted.

F. Apply Firestop Systems at unpenetrated openings and sleeves installed for future use through Fire Separations and Firewalls.

G. Install 1/4" to 3/8" bead of firestop caulking at interface of retaining angles around fire dampers, where angles meet fire-rated assembly, and between retaining angles and fire damper, both sides of penetration. At floor locations, the sealant bead at top of assembly is adequate.

H. Where necessary, remove fiberglass insulation and replace mineral wool insulation from insulated pipes and ducts where such services penetrate a Fire Separation or Firewall unless the Listed Systems Design permits such insulation to remain within the Firestop System.

3.04 HORIZONTAL JOINT AND CURTAIN WALL FIRESTOP SYSTEMS

A. For joint configurations through floor slabs, ceilings and roof Fire Separation unless otherwise stipulated; The detail to be used shall state the substrate material that has been tested for i.e.; (concrete to concrete) or (concrete to metal). Where metal curtain wall assemblies are meeting floor slab assemblies, use only Listed Systems Designs that have been tested to ASTM E-814 for concrete to metal curtain wall performance.

B. Single Component Firestop Systems; Install as per the Listed Systems Design with the following additional provisions:

1. All Listed Systems Designs selected for use shall have a smoke seal incorporated within the Firestop System.

2. For joints 1" (25mm) and under in width; Install as per Listed Systems Design.

3. For joints 1 ¼" to 3" (30mm-75mm); Install 6 lb./pcf mineral wool board stock at a depth of 4" (100mm). Cut mineral wool board stock 10% over the width dimension and compress into the opening.

4. For joints 3" (75mm) and over; Use mineral wool as above and insert impaling clips on 16" (400mm) centers. Impaling clips, minimum heavy gauge galvanized steel 25 mm wide x 0.65 mm thick, Z formed, dimensions to suit location and width of void to be filled. Butt succeeding sections of mineral wool backer material tightly up against preceding. Leave no voids.

C. Multiple Component Firestop Systems; Install as per the Listed Systems Design with the following additional provisions:

1. All Firestop Systems selected for use shall have a Smoke Seal incorporated within the Listed System Design.

2. For all joints 1" to 3" (25mm-75mm); Install 6 lb./pcf mineral wool board stock at a depth of 4" (100mm). Cut mineral wool board stock 10% over the width dimension and compress into the opening.

3. For joints 3" (25mm) and over; Use mineral wool as above and insert impaling clips on 16" (400mm) centers. Impaling clips, minimum heavy gauge galvanized steel 25 mm wide x 0.65 mm thick, Z formed, dimensions to suit location and width of void to be filled. Butt succeeding sections of mineral wool backer material tightly up against preceding. Leave no voids.

3.05 VERTICAL JOINT AND WALL FIRESTOP SYSTEMS

A. Firestop and Smoke Seals at top of masonry and gypsum wall board Fire Separations and Firewalls which extend nominally to within 20 mm of underside of deck above. Provide adequate depth of material to fill gap flush with face of wall, except as otherwise specified.

B. Insert at both sides of vertical joints where masonry or concrete Firewalls or Fire Separations intersect with Fire Separations of Combustible Construction (GWB).

C. Insert at both sides of control and sway joints in masonry or concrete

D. Firewalls or Fire Separations.

E. Where wall/slab junction is exposed in finished work, apply a concrete gray in color fire-rated sealant to gap, tooling to a concave joint.

3.06 EXPOSED SERVICE PENETRATIONS IN CEILING OF UNDERGROUND PARKING AREAS

A. Where the bottom of a Firestop System is exposed, seal bottom side of the assembly with a fire rated elastomeric firestop sealant.

3.07 SCHEDULE OF LOCATIONS

A. Service Penetrations:

1. All Mechanical penetrations and poke through termination devices in Fire Separations and Firewalls.

2. Penetrations in Sills and Headers of gypsum wall board Fire Separations. (interior of wall)

3. All Electrical penetrations and poke through termination devices in Fire Separations and Firewalls.

4. All Telecommunication and Cable penetrations and poke through termination devices in Fire Separations and Firewalls.

5. All HVAC penetrations and poke through termination devices in Fire Separations and Firewalls.

6. All Sprinkler Heads protruding from Fire Separations.

B. Joint Firestopping:

1. Concrete Vertical or Horizontal Joints with dissimilar Firewalls or Fire Separations.

2. Top of Masonry Fire Separations and Firewalls to underside of slabs and decks.

3. Masonry Vertical or Horizontal Joints with dissimilar Firewalls or Fire Separations.

4. Gypsum Wall Board Vertical or Horizontal Joints with dissimilar Firewalls or Fire Separations.

5. Slab edge to curtain wall assembly.

6. All Mechanical Damper Joints in Fire Separations and Firewalls. Completely

around all wall and floor dampers, both sides of the wall-on-wall dampers, top side only in floor dampers.

3.08 ABNORMAL CONDITIONS NOT COVERED BY SUBMITTED LISTED SYSTEMS DESIGNS

A. Where any of the following conditions are encountered after Work has commenced notify the Design Professional of Record and/or the site Engineer prior to proceeding.

1. Penetrating item materials not covered by Listed Systems Design(s)

2. Penetrating item sizes exceeding the parameters of Listed Systems Design(s)

3. Annular spaces exceeding the parameters of Listed Systems Design(s)

4. Vertical or horizontal joints exceeding the parameters of Listed Systems Design(s)

3.09 INFORMATION TO BE RETAINED ON SITE AT ALL TIMES

A. First-stop System Trade Qualification Certificate (TQ) or installer Resume of experience.

B. Firestop System Manufacturer's Listed Systems Designs, Product Data Sheets and Materials Safety Data Sheets.

C. Firestop System Manufacturer's printed instructions for installation on each product and prefabricated device.

3.10 CLEAN UP

A. Remove excess materials and debris and clean adjacent surfaces immediately after application to satisfaction of Construction Manager. Remove and/or correct staining and discoloring of adjacent surfaces as directed.

B. Remove temporary dams after the initial set of Firestop Systems where such materials are left exposed in finished areas and flame spread rating of such materials exceed a value of 25.

3.11 TESTING

A. Destructive Testing

1. Cut tests will be performed at random locations throughout the Work to check for Firestop Systems component sealant depths and fill weights of filler/backer materials.

B. Non-Destructive Testing

1. At the Authority Having Jurisdiction or Architects discretion perform a series of 5 fog tests to random locations as designated by Design Professional of Record. Should any penetration, joint or void, under the jurisdiction of this Section, emit visible fog, make repairs and replace deficiencies and re-perform fog test at no addition cost to Design-Build Entity.

2. Fog units (machines) shall have a formulation output range of

3. 6.8 L/h. Formulation particle size 0.5 - 25 microns. Fogging agent shall be non-toxic, non-staining and shall provide a heavy fog at 30 PPM with a permissible airborne level concentration of 50 PPM.

4. Fog at a rate of 4 s / 2.8 m3. Maintain the fog density until the inspection is complete.

END OF SECTION

SECTION 07901 – JOINT SEALANTS

PART I – GENERAL

1.01 RELATED DOCUMENTS

A. RFP Documents, Bridging Drawings, performance criteria and, after award, applicable Design-Build Contract provisions, including applicable general requirements, apply to this Section.

1.02 SUMMARY

A. This Section includes joint sealants for the following locations:

1. Exterior joints in vertical surfaces and nontraffic horizontal surfaces as indicated below:

a. Control and expansion joints in cast-in-place concrete.

b. Control and expansion joints in unit masonry.

c. Perimeter joints between materials listed above and frames of doors and windows.

d. Other joints as indicated.

2. Exterior joints in horizontal traffic surfaces as indicated below:

a. Control, expansion, and isolation joints in cast-in-place concrete slabs.

b. Tile control and expansion joints.

c. Other joints as indicated.

3. Interior joints in vertical surfaces and horizontal non-traffic surfaces as indicated below:

a. Perimeter joints of exterior openings where indicated.

b. Joints between tops of non-load-bearing unit masonry walls and underside of cast- in place concrete slabs and beams.

c. Tile control and expansion joints.

d. Vertical control joints on exposed surfaces of interior unit masonry and concrete walls and partitions.

e. Perimeter joints between interior wall surfaces and frames of interior

doors, windows, and elevator entrances.

f. Perimeter joints of toilet fixtures.

g. Other joints as indicated.

4. Interior joints in horizontal traffic surfaces as indicated below:

a. Control and expansion joints in cast-in-place concrete slabs.

b. Control and expansion joints in stone flooring.

c. Control and expansion joints in tile flooring.

d. Other joints as indicated.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Requirements for flashing and sheet metal, including sealing joints associated with roofing applications.

2. Requirements for glass and glazing, including sealants used in glazing.

3. Requirements for acoustical ceiling systems, including sealing edge moldings at ceiling perimeters.

4. Requirements for tile work, including sealing tile joints.

1.03 SYSTEM PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.

1.04 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and applicable General Requirements Sections.

B. Product data from manufacturers for each joint sealant product required.

1. Certification by joint sealant manufacturer that sealants plus the primers and cleaners required for sealant installation comply with local regulations controlling use of volatile organic compounds.

C. Samples for initial selection purposes in form of manufacturer's standard bead

samples, consisting of strips of actual products showing full range of colors available, for each product exposed to view.

D. Samples for verification purposes of each type and color of joint sealant required. Install joint sealant samples in 1/2-lnch (13-mm) wide joints formed between two 6-inch (150-mm) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

E. Certificates from manufacturers of joint sealants attest that their products comply with specification requirements and are suitable for the use indicated.

F. Qualification data complying with requirements specified in "Quality Assurance" article. Include a list of completed projects with project names, addresses, names of Architects and Owners, plus other information specified.

G. Compatibility and adhesion test reports from elastomeric sealant manufacturers indicating that materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.

H. Product test reports for each type of joint sealants indicated, evidencing compliance with requirements specified.

I. Preconstruction field test reports indicating which products and joint preparation methods demonstrate acceptable adhesion to joint substrates.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed joint sealant applications similar in material, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.

B. Testing Laboratory Qualifications: To qualify for acceptance, an independent testing laboratory must demonstrate to Design Professional of Record's satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct satisfactorily the testing indicated without delaying progress of the Work.

C. Single Source Responsibility for Joint Sealant Materials: Obtain joint sealant materials from a single manufacturer for each different product required.

D. Preconstruction Compatibility and Adhesion Testing: Submit to joint sealant manufacturers samples of materials that will contact or affect joint sealants for

compatibility and adhesion testing as indicated below:

1. Use test methods standard with manufacturers to determine if priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.

    a. Perform tests under normal environmental conditions that will exist during actual installation.

2. Submit not fewer than 9 pieces of each type of material, including joint substrates, shims, joint sealant backings, secondary seals, and miscellaneous materials.

3. Schedule sufficient time for testing and analysis of results to prevent delay in the progress of the Work.

4. Investigate materials failing compatibility or adhesion tests and obtain joint sealant manufacturer's written recommendations for corrective measures, including use of specially formulated primers.

5. Testing will not be required when joint sealant manufacturer is able to submit joint preparation data required above that are acceptable to Design Professional of Record and are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

E. Product Testing: Provide comprehensive test data for each type of joint sealant based on tests conducted by a qualified independent testing laboratory on current product formulations within a 24-month period preceding date of Design-Build Entity's submittal of test results to Design Professional of Record.

    1. Test elastomeric sealants for compliance with requirements specified by reference to ASTM C 920. Include test results for hardness, stain resistance, adhesion and cohesion under cyclic movement (per ASTM C 719), low-temperature flexibility, modulus of elasticity at 100 percent strain, effects of heat aging, and effects of accelerated weathering.

    2. Include test results performed on joint sealants after they have cured for 1 year.

F. Preconstruction Field Testing: Prior to installation of joint sealants, field-test their adhesion to joint substrates as follows:

    1. Locate test joints where indicated or, if not indicated, as directed by Design Professional of Record.

2. Conduct field tests for each application indicated below:

    a. Each type of elastomeric sealant and joint substrate indicated.

    b. Each type of non-elastomeric sealant and joint substrate indicated.

3. Notify Design Professional of Record one week in advance of the dates and times when mock-ups will be erected.

4. Arrange for tests to take place with joint sealant manufacturer's technical representative present.

5. Test Method: Test joint sealants by hand pull method described below:

    a. Install joint sealants in 60 inches (1500 mm) joint lengths using same materials and methods for joint preparation and joint sealant installation required for completed Work. Allow sealants to cure fully before testing.

    b. Make knife cuts horizontally from one side of joint to the other followed by 2 vertical cuts approximately 2 inches (50 mm) long at side of joint and meeting horizontal cut at top of 2-inch (SO-mm) cuts. Place a mark 1 inch (25 mm) from top of 2-inch (50-mm) piece.

    c. Use fingers to grasp 2-inch (50-mm) piece of sealant just above 1-inch (25-mm) mark; pull firmly down at a 90-degree angle or more while holding a ruler alongside of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.

6. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.

7. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

G. Field-Constructed Mock-Ups: Prior to installation of joint sealants, apply elastomeric sealants as follows to verify selections made under sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution:

    1. Joints in field-constructed mock-ups of assemblies specified in other Sections that are indicated to receive elastomeric joint sealants specified in

this Section.

H. Pre-Installation Conference: Conduct conference at Project site to comply with the applicable General Requirements provisions governing pre-installation conferences.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color. expiration period for use, pot life, curing time, and mixing instructions for multicomponent materials.

B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures. contaminants, or other causes.

1.07 PROJECT CONDITIONS

A. Environmental Conditions: Do not proceed with the installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturers.

2. When joint substrates are wet.

B. Joint Width Conditions: Do not proceed with the installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.

C. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

1.08 SEQUENCING AND SCHEDULING

A. Sequence installation of joint sealants to occur not fewer than 21 nor more than 30 days after completion of waterproofing, unless otherwise indicated.

PART II – PRODUCTS

2.01 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions

of service and application, as demonstrated by sealant manufacturers based on testing and field experience.

B. Colors: Provide color of exposed joint sealants to comply with the following:

1. Provide selections made by Design Professional of Record from manufacturer's full range of standard colors for products of type indicated.

2.02 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing elastomeric sealants that comply with ASTM C 920 and other requirements indicated on each Elastomeric Joint Sealant Data Sheet at end of this Section, including those requirements referencing ASTM C 920 classifications for Type, Grade, Class, and Uses.

1. Additional Movement Capability: Where additional movement capability is specified in Elastomeric Joint Sealant Data Sheet, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, to withstand the specified percentage change in the joint width existing at time of installation and remain in compliance with other requirements of ASTM C 920 for Uses indicated.

B. Available Products: Subject to compliance with requirements, elastomeric sealants that may be incorporated in the Work include, but are not limited to, the products specified in each Elastomeric Sealant Data Sheet.

2.03 PREFORMED FOAM SEALANTS

A. Preformed Foam Sealants: Manufacturer's standard preformed, pre-compressed, impregnated open-cell foam sealant manufactured from high-density urethane foam impregnated with a nondrying, water repellent agent; factory-produced in pre-compressed sizes and in roll or stick form to fit joint widths indicated and to develop a watertight and airtight seal when compressed to the degree specified by manufacturer; and complying with the following requirements:

1. Properties: Permanently elastic, mildew-resistant, nonmigratory, nonstaining, and compatible with joint substrates and other joint sealants.

2. Impregnating Agent: Manufacturer's standard.

3. Density: Manufacturer's standard.

4. Backing: None.

5. Available Products: Subject to compliance with requirements, pre-formed foam sealants that may be incorporated in the Work include, but are not limited to, the following:

    a. "Emseal," Emseal Corp.

    b. "Emseal Greyflex," Emseal Corp.

    c. "Wil-Seal 150," Wil-Seal Construction Foams Div., lllbruck.

    d. "Wil-Seal 250," Wil-Seal Construction Foams Div., lllbruck.

2.04 JOINT SEALANT BACKING

A. General: Provide sealant backings of material and types that are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonstaining, non-waxing, non-extruding strips of flexible plastic foam of material indicated below and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance:

    1. Open-cell polyurethane foam.

    2. Closed-cell polyethylene foam, non-absorbent to liquid water and gas, non-outgassing in unruptured state.

    3. Proprietary, reticulated, closed-cell polymeric foam, non-outgassing, with a density of 2.5 pcf (40 kg/cu. m) and tensile strength of 35 psi (240 kPa) per ASTM D 1623, and with water absorption less than 0.02 g/cc per ASTM C 1083.

    4. Any material indicated above.

C. Elastomeric Tubing Joint Fillers: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, capable of remaining resilient at temperatures down to -26 deg F (-32 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.

D. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would

result in sealant failure. Provide self-adhesive tape where applicable.

2.05 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealants backing materials, free of oily residues or other substances capable of staining or harming in any way joint substrates and adjacent nonporous surfaces, and formulated to promote optimum adhesion of sealants with joint substrates.

C. Masking Tape: Nonstaining, non-absorbent material compatible with joint sealants and surfaces adjacent to joints.

PART III – EXECUTION

3.01 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint sealant performance. Do not proceed with the installation of joint sealants until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with the recommendations of joint sealant manufacturer and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean concrete, masonry, unglazed surfaces of ceramic tile, and similar porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

3. Remove laitance and form release agents from concrete.

4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile, and other nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealant manufacturer based on preconstruction joint sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's recommendations. Confine primers to areas of joint sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove the tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Acoustic Sealant Application Standard: Comply with recommendations of ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

D. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:

1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed seal and relative to joint widths that allow optimum sealant movement capability.

a. Do not leave gaps between ends of joint fillers.

b. Do not stretch, twist, puncture, or tear joint fillers.

c. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.

2. Install bond breaker tape between sealants where backer rods are not used between sealants and joint fillers or back of joints.

E. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.

F. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturers.

1. Provide concave joint configuration per Figure SA in ASTM C 1193, unless otherwise indicated.

2. Provide flush joint configuration, per Figure SB in ASTM C 1193, where indicated.

a. Use masking tape to protect adjacent surfaces of recessed tooled joints.

3. Provide recessed joint configuration, per Figure SC in ASTM C 1193, of recess depth and at locations indicated.

G. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, and to comply with sealant manufacturer's directions for installation methods, materials, and tools that produce seal continuity at ends, turns, and intersections of joints.

3.04 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

3.05 PROTECTION

A. Protect joint sealants during and after curing periods from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or

deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so that installations with repaired areas are indistinguishable from original work.

PRODUCT DATA SHEET 1 - ELASTOMERIC JOINT SEALANT

A. Base Polymer. Neutral-curing silicone.

B. Type: S (single component).

C. Grade: NS (non-sag).

D. Class: 25.

E. Additional Movement Capability: 50 percent movement in extension and SO percent in compression for a total of 100 percent movement.

F. Use[s] Related to Exposure: NT (nontraffic).

G. Uses Related to Joint Substrates: M, G, A and, as applicable to joint substrates indicated,0.

H. Available Products:

795, Dow Corning Corp.

799, Dow Corning Corp.

Silpruf Sealant, General Electric Co. 864 Silicone, Pecora Corp.

895 Silicone, Pecora Corp. 890 Silicone, Pecora Corp. Spectrem 2, tremco

END OF SECTION

SECTION 07920 – SEALANTS AND CAULKINGS

PART I – GENERAL

1.01 WORK INCLUDED

A. This Section includes caulking, sealant, and related items.

1.02 QUALITY ASSURANCE

A. Certify that materials to be used are in accordance with the Design Professional of Record's specifications.

B. Compatibility of Materials: Provide only materials which are proven to be compatible with each other and with adjacent joint material.

1.03 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original manufacturer packaging with seals and labels intact Handle and store in accordance with manufacturer's instructions.

B. Caulking and sealant materials shall have shelf-life clearly indicated by terminal date on each carton, package, or container.

1.04 PROJECT/SITE CONDITIONS

A. Weather Conditions:

1. Do no install under weather conditions contrary to manufacturer's specifications for installation.

2. Proceed with work only when forecasted weather conditions are favorable for joint cure and development of high early bond strength.

3. Wherever joint width is affected by ambient temperature variations, install materials only when temperatures are in lower third of manufacturer's recommendations.

B. Protection of Adjacent Surfaces:

1. Protect either by applying masking material or manipulating application equipment to confine caulking or sealant material in joint.

2. If masking materials are used, allow no tape to touch cleaned surfaces to receive sealant, and remove tape immediately after finished tooling is accomplished and before surface skin has started to form.

3. Remove misapplied caulking or sealant materials from surfaces immediately, using solvents and methods recommended by manufacturer.

4. Restore surfaces from which caulking or sealant materials have been removed to their original condition and appearance.

C. Inspect job for conditions which would prevent the execution of this work as specified. Do not proceed until such conditions are corrected.

PART II – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Provide caulking and sealant from the following manufacturers: Dow Corning and G.E. for Silicone; W.R. Grace, Pecora Corp. and Sonneborne for polysulfide. Equivalent materials from other manufacturers may be provided, if approved prior to bid by the Design Professional of Record. Materials shall be from one source for each type specified.

2.02 CAULKING AND SEALANT MATERIAL

A. Interior Caulking System: Two component polysulfide sealants, selected from one of the following "Hornflex Thickol LP-32", "Synthacalk GC-5" or "Sonolastic Sealant''.

B. Primer: As recommended by the caulking or sealant manufacturer.

C. Backup Materials, Where Required: "Ethafoam" as manufactured by Dow Chemical Company or approved equivalent material. Size of backup material shall be such that a minimum of 25% compression and a maximum of 50% is obtained in all joints. Braided rods are not acceptable.

D. Bondbreaker: Polyethylene Bondbreaker tape recommended by sealant manufacturer.

E. Solvents and cleaning agents as recommended by the manufacturer for use with the caulking or sealant being applied.

F. Color:

1. Interior Joints at Prefinished Surfaces Not to be Painted.

2. Other Interior Locations: as approved by the Design Professional of Record.

PART III – EXECUTION

3.01 INSTALLATION

A. Caulking and Sealant Materials: Install materials in accordance with the manufacturer's printed directions for the material and substrates involved.

3.02 AREAS OF APPLICATION

A. The required typical applications of sealants and caulking include, but are not necessarily limited to the following general locations:

1. Wall joints, including perimeter of metal doors and vision panels.

2. Flooring joints.

3. Joints at penetrations of walls, decks and floors by piping and other services and equipment.

4. Other interior joints between different building materials where voids are created by construction joints and where indicated on Drawings.

3.03 PREPARATORY WORK

A. Inspection: Examine joint surfaces to receive caulking and sealant materials, and report to the ASEM/Owner's Representative all unacceptable conditions. Commencement of work shall constitute acceptance of joint surface conditions.

B. Cleaning:

1. General: Thoroughly clean joints scheduled to receive caulking and sealant materials. Rake joints to full width and depth. Remove loose particles present or resulting from cleaning operations by blowing out joints with oil free compressed air. All traces of bituminous materials must be removed.

2. Porous Surfaces: Clean surfaces such as concrete by grinding, blast-cleaning, mechanical abrading, acid washing, or combination of these methods to provide a clean, sound base surface for caulking and sealant adhesion. Remove form oils by blasting-cleaning. Ensure that concrete is fully cured and free from laitance, loose aggregate, and surface treatments. If surface treatments are present, test for adhesion before proceeding with sealing work.

3. Nonporous Surfaces: Clean Surfaces such as metal and glass in accordance with system manufacturer's recommendations. Do not use solvents that leave a residue. Apply and remove solvents with clean white cloths. Do not allow solvents to air dry without wiping.

C. Protection: Prior to priming, apply masking tape to adjacent surfaces. Leave

masking tape in place until the tooling operation is complete.

3.04 APPLICATION

A. General: Employ only proven installation techniques which will ensure that sealants will be deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of the joint bond surfaces equally on opposite sides. Except as otherwise indicated, fill sealant rabbet to a slightly concave surface, slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and a vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt.

B. Back-up: Install back-up material to proper depth in joints. Use back-up material of suitable size and shape, so that when compressed [25% to 50%], it will fit in joints as required. Carefully roll back-up material into joints to avoid stretching or twisting. Use bond-breaker strip in all joints where sufficient room for back-up material does not exist and where required by manufacturer's recommendations.

C. Primer: Prime surfaces in accordance with manufacturer's recommendations and allow them to dry before applying sealing material.

D. Caulking and Sealant Follow manufacturer's instructions regarding mixing, pot life, and application procedure. Do not apply sealing materials during wet or humid weather. Apply sealing materials in full bead and force into joint.

E. Tooling: Tool joints to compress the compound into the joint. Except as recommended by the sealing material manufacturer, do not use liquid solutions to moisten tools. Remove masking tape immediately after tooling.

3.05 CLEANING

A. Remove excess sealing materials from adjacent surfaces. Clean surfaces using procedures recommended by the sealing material manufacturer.

END OF SECTION

SECTION 08100 – METAL DOORS AND FRAMES

PART I – GENERAL

1.01 SCOPE

A. A The contractor shall provide all materials, labor and equipment necessary to furnish, deliver and install all work for this section as required by the drawings and/or herein specified.

B. All materials used in the fabrication of metal doors and frames shall be free from defects impairing their strength, durability or appearance.

C. The contractor shall provide all materials, labor and equipment necessary to furnish, deliver and install all work for this section as required by the drawings and/or herein specified, but not necessarily limited to the following:

1. Hollow Metal Doors.
2. Formed Sheet Steel Frames for doors and fixed view windows.
3. Formed Sheet Steel Louvers in Hollow Metal.
4. Reinforcing, Supporting and Attachment devices for work of this section.
5. Underwriters Laboratories, Inc., Labeled Doors and Frames.
6. Reinforcing Hardware as required.
7. Prime Painting for all doors and frames.

D. Referenced Standards

1. American National Standards Institute (ANSI):
2. National Builders Hardware Association (NBHA):
3. Builders Hardware Manufacturers Association: BHMA
4. National Fire Protection Association (NFPA):
5. Building Code "Reglamento de Edificaci6n" - P.R.:
6. Código para la Prevención de Incendios del Cuerpo de Bomberos de P.R
7. ASTM A526/A 526M-90 - Standard Specification for Steel, Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Commercial Quality.

8. ASTM A 591 - Standard Specification for Electronically Galvanized Sheet Steel.

9. ASTM A 569/A 569M-9la- Standard Specification for Steel, Carbon (0.15 Maximum Percent), Hot-Rolled Sheet and Strip Commercial Quality.

10. ASTM B 749-85(91)- Standard Specification for Lead and Lead Alloy Street, Strip, and Plate Products.

11. SDI 100-1991 - Recommended Specifications; Standard Steel Doors and Frames; Steel Door Institute.

12. SDI 105-92- Recommended Erection Instructions for Steel Frames; Steel Door Institute.

E. Shop Drawings: Submit six (6) copies of shop drawings of all items herein specified to architect for approval. Obtain approval of drawings prior to proceeding with manufacturing. Drawings shall include sizes, details of construction, anchorage, methods of assembly, hardware details and complete information regarding materials, gauges and finish. Approval indicates general conformance with design but does not relieve contractor of full responsibility for the correctness of the documents furnished or for conformance with the detailed provisions of this specifications.

F. Samples: Submit for approval corner sections of metal frames and hollow metal doors, indicating all construction details, prime coat for frames and doors, submit all required accessories and anchors.

G. Painting: All steel doors are to be thoroughly cleaned and primed to present a smooth surface and given sufficient coats of baked-on rust inhibiting primer as required to receive finish painting. Frames shall be prime painted at the factory with dust, zinc oxide primer.

H. Storage: Doors and frames shall be stored in an upright position under cover at the building site on wood sills or on floors in a manner that will prevent damage.

I. Manufacturer: The Law requires that local manufactured products be specified. Specifications are based on the published standards of Trujillo Alto Metal Corp. Other manufacturers must comply with specific requirements as indicated herein.

J. Labeled Work-Fire Protection: Doors and frames requiring labels as indicated on drawings shall meet the requirements for the ratings noted in accordance with the established procedures of the Underwriter Laboratories, Inc. Doors and frames shall bear the necessary labels separately.

PART II – PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Products of the following manufacturers, provided they comply with the specific requirements of the contract documents, will be considered acceptable:

1. AMWELD Building Products.

2. Basic Industries.

3. Pioneer Industries, Inc.

4. Trujillo Alto Metal Corporation.

B. Special requirements - Doors and frames must be furnished through a local manufacturer or an acceptable local manufacturer representative active in this trade for not less than four (4) years.

Local manufacturers or manufacturer representative of proposed products must submit, together with shop drawings, Certificates of Compliance and Good Standing for a period covering the last four years from the following:

1. Fondo del Seguro del Estado

2. Negociado de Arbitrios del Departamento de Hacienda

3. Negociado de Contribuci6n sobre Ingresos del Departamento de Hacienda.

4. Certificado de conformidad del Informe Anual del Departamento de Estado.

2.02 MATERIALS

A. Steel Sheets, galvanized: ASTM A 526 commercial quality, G60 zinc coating mill phosphatized or electrogalvanized bonderized with 2.5 MY per side zinc coating as per ASTM-A591.

B. Lead Sheet: Rolled sheet lead, complying with FS QQ-L-201, Grade C or ASTM B 749, type L51120 (chemical lead), in sizes and thicknesses indicated.

2.03 FABRICATION

A. General: Shop-fabricate assemblies to the greatest extent possible assuring that installed units will be without warp, twist, bow or other defects in appearance or function.

B. Exposed Panel Faces: Fabricate from cold-rolled electrogalvanized bonderized steel.

C. Exposed Door Faces: Fabricate from cold-rolled electrogalvanized bonderized steel.

D. Frames: Fabricate from cold or hot rolled electro or hot dipped galvanized steel.

E. Top and Bottom Channels, Stiffeners and Reinforcements: Fabricate from cold rolled electrogalvanized steel.

F. Louvers and Glass Moldings: Fabricate Louvers and Moldings from cold-rolled electrogalvanized steel.

G. Seal top and bottom edges with an added 16-gauge electrogalvanized steel channel to form a flush closure.

H. Exposed Screws and bolts: Where required, provide only countersunk, flat Phillips-bead fasteners.

2.04 STEEL DOORS:

A. General: Fabricate doors for scheduled openings in styles and sizes as shown on drawing and in accordance with the best-known industrial practice for custom hollow metal doors. Doors to be no less than 1 3/4" thick. Door shall have flush seamless faces.

B. Doors shall be fabricated from electrogalvanized Steel sheets of gauges herein after specified. Doors shall be of 14 gauges or of gauges shown on contract drawings.

C. Core Material: All interior doors shall be free of blemishes and spot-welding marks with a honeycomb core of not more than 3/4" cell. Provide polystyrene core at all exposed exterior doors.

D. Door Louvers: Where called for on contract drawings, provide non removable 16-gauge electrogalvanized louver blades of the inverted "V" type for interior doors and 14-gauge electrogalvanized storm proof louver blades at exterior doors. Louver blades shall be rigid, leveled, equally spaced to present a neat appearance. Louver shall provide 5/8" clearance between louver blades. Louver blades shall be set into 16-gauge electrogalvanized steel frames. Pre-assembled louver blades with frame are to be inserted within the core of the door and welded to both faces of door. -See details

E. Closure Channels: For added bending resistance provide a non-removable (welded)Top and bottom closure channel of 16 gauge electrogalvanized steel

running the full width of the door to provide a flush cover top and bottom. Closure channel to be welded to both faces of door. Provide water tight sealed cover top at all exposed exterior doors. For doors over 40" wide provide channels of 14-gauge galvanized steel.

F. Meeting Style: Provide a double integral astragal interlocked between active and inactive door and/or as shown on contract drawings. Astragal should provide latch protection from both sides of the door. Astragal shall be flushed to door surface on both sides. See detail

G. Door Panels: Where metal panels are required provide such panels of same gauge and thickness as metal door and fabricated from electrogalvanized steel.

H. Door Glass Mouldings: Glass mouldings shall consist of a four-sided fixed moulding on the exterior side of door and a loose moulding on the interior side. The glass moulding on the exterior side shall be non-removable fabricated from 16-gauge electrogalvanized steel. Exterior fixed moulding shall be welded to the interior of the door prior to assembly of door. Moulding shall be not less than 5/8" deep and factory pre-fitted for a neat appearance. The removable glass moulding shall be 5/8" deep made of 16-gauge electrogalvanized steel. Loose mouldings shall be factory pre-fitted and predrilled and countersunk for 1/4" round flat head machine screw. See details

I. Beveled Edges: In order to maintain the minimum possible clearance at jambs provide doors with beveled edges. The rate of bevel shall be one eight (1/8") of an inch in two (2'') inches. See details.

J. All doors shall be mortised, reinforced, drilled, and tapped for all specified mortise hardware and reinforced only for surface applied hardware. Drilling and tapping for surface applied hardware to be done at time of installation.

K. Soundproof Doors and Frames

Where called for provide Sound Attenuating Doors with a rated STC as indicated on drawings. Doors shall be of 2 3/8" thick fabricated from not less than 16-gauge galvanized steel face sheets. Provide galvanized flush covered non-removable steel channel top. Meeting stiles of pair openings shall be of the double integral astragal type provided with required sound seals. Frame stops to be not less than one inch high provided with a double continuous perimeter sound seal. Automatic drop sill together with horizontal seals at aluminum threshold shall provide a continuous sound seal at bottom of door. Frames for soundproof doors shall be fabricated from 14 gauge galvanized steel and properly anchored and sealed at perimeter wall.

2.05 STEEL FRAMES AND BORROWED LIGHT FRAMES.

A. General: Fabricate steel frames for scheduled openings, in sizes, styles, and profiles as shown.

B. Frames shall be fabricated from 14-gauge electrogalvanized steel. Frames to be notched, mitered and mechanically interlocked to a hairline joint at forty five (45) degrees. Frames shall be factory assembled and fully welded. Where indicated on drawings frames shall be provided with invisible comer joints. See details

C. Frames are to be mortised, reinforced drilled and tapped for all mortise hardware. They shall be factory reinforced only for surface applied hardware.

D. Guards: Weld protective covers to back of hardware openings at locations where grout plasters or other materials might interfere with hardware operations.

E. Corner Clips: Provide corner clip reinforcements at head and jamb joints. Corner clips to be of no less than 16-gauge electrogalvanized steel. Comer clips are to be factory welded to both head and jambs.

F. Steel Spreaders: Provide steel spreaders at bottom of jambs temporarily attached to serve as brace during transportation and handling of frames prior to installation. Remove brace only after frame has been properly set and braced.

G. Vision Panels and Transom Panels frames where adjacent to door frames shall be fabricated integral with and of same gauge and type of steel as the door frame.

H. Conceal all fastenings unless shown otherwise. Use 1/4" round flat head machine screws where exposed at applied stops.

I. Provide additional 12-gauge electrogalvanized steel reinforcement channel at head of frames on openings over 54" wide with a masonry load above. Submit detail for architects’ approval.

2.06 DOOR AND FRAME REINFORCEMENTS

A. Prepare hollow metal units at the manufacturers plant to receive mortised and concealed finish hardware, including cutouts, reinforcing, drilling, and tapping. Comply with the applicable requirements of these specifications, and with the specific requirements of the hardware template drawings of the manufacturer of each finish hardware specified. In addition, all door and frame reinforcements with the exception of hinge reinforcements shall be fabricated from electrogalvanized bonderized steel of U.S. Standard gauges specified herein.

B. Provide 6 gauge plain steel reinforcements at each hinge cut-out. Use of 8-gauge steel reinforcements specially stiffened or formed for added bending

resistance will be acceptable in lieu of the above.

C. Door and frame reinforcements shall be not less than 14-gauge electrogalvanized steel. Use 12 gauge for strikes, flush bolts, exit devices, pull plates, closers and holders. Other reinforcements as recommended by Hardware Manufacturer. Use "HAT" type reinforcement on all "pulls" hardware. "HAT" type reinforcement to be welded on the interior or push side of door.

2.07 FIRE PROTECTION U.L. LABELED

A. Doors and frames requiring labels as indicated on drawings shall meet the requirements for the ratings noted in accordance with the established procedures of the Underwriter Laboratories, Inc.. Doors and frames shall bear the necessary labels separately. The manufacturer must submit a certificate of compliance and good standing with the Underwriters Laboratories, Inc., methods and follow-up procedures.

B. In the case of local manufacturers' representative submitting doors and frames with U.L. labels, evidence of actual purchase of merchandise must be submitted so that the architect may establish that the doors and frames being incorporated to the project, were specifically fabricated for this project and that records of compliance will be available when requested.

C. The contractor must obtain from the manufacturer and provide an itemized list of serial numbers of labels being used on the project with door identification and location, together with label classification, name and address of manufacturer issuing the label, manufacturer order number, and Underwriters Laboratories file number under which label is issued.

2.08 ANCHORS:

Shall be fabricated from 16-gauge electrogalvanized steel. Provide no less than three anchors per jamb or no less than one anchor for every applied hinge. Submit manufacturers anchoring standard method for the various wall conditions shown on drawings. Provide anchors at no more than 30 inches on centers. See detail

2.09 FINISH HARDWARE:

A. A contractor shall obtain all required templates from hardware supplier and furnish same to hollow metal manufacturer to be used in the fabrication as directed. See builders' hardware section 08710 for detailed information.

PART III – EXECUTION

3.01 INSTALLATION

A. Installation of Frames: Install frames at designated (tagged) location in accordance to contract requirements. Installation shall be plumb straight and true, rigidly secured in place and properly braced. Frames shall be anchored securely to concrete floors.

   1. Set frames in their correct locations, plumb, true and adequately braced to prevent displacement during erection of walls and partitions.

   2. Except for frames located at in-place concrete or masonry, place frames prior to the construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned and braced securely until permanent anchors are set.

   3. Install one wall anchor for every hinge provided on frame. Provide no less than three wall anchors per jamb. Submit details of frame anchorage for in-place concrete or masonry walls, for the approval of owner engineers.

B. Installation of Doors: Install the pre-designated (tagged) door at the indicated location shown on contract drawings. Verify compliance with door type required and hardware preparation. Revise and correct all scratches and dents prior to installation.

C. Final installation: Do not finally install hardware until all plastering and painting is completed and the building is totally dry.

D. Silencers: Door silencers shall be installed after installation is completed. Three silencers for single doors and two for head of pair of swing doors. Door manufacturers shall submit silencers for approval.

E. Maximum Clearances at all Openings. In order to maintain clearances to a minimum provide beveled-edged doors at a rate of one eight of an inch in two inches.

   1. At top rail 1/8"

   2. At hinge and lock 1/8"

   3. At floor or saddle 3/8"

F. All doors and frames shall be properly marked and or tagged at factory for proper identification at job site.

END OF SECTION

SECTION 08211 – FLUSH WOOD DOORS

PART I - GENERAL

1.01 RELATED DOCUMENTS

A. RFP Documents, Bridging Drawings, performance criteria and, after award, applicable Design-Build Contract provisions, including applicable general requirements, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. Solid core doors with wood veneer faces.
2. Solid core doors with plastic laminate faces.
3. Hollow core doors with wood veneer faces.
4. Hollow core doors with plastic laminate faces.
5. Louvers for flush wood doors.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Requirements for interior architectural woodwork, including wood door frames.

1.03 SUBMITTALS

A. General: Submit each *item* in this Article according to the Conditions of the Contract and applicable General Requirements Sections.

B. Product data for each type of door, including details of core and edge construction, trim for openings and louvers, and factory-finishing specifications.

C. Shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for veneer matching and factory finishing and other pertinent data.

1. For factory-machined doors, indicate dimensions and locations of cutouts for locksets and other cutouts adjacent to light and louver openings.

D. Samples for initial selection in the form of color charts consisting of actual materials in small sections for the following:

1. Plastic laminate door faces. Show the full range of colors, textures, and patterns available.

E. Samples for verification in the form and size indicated below:

1. Comer sections of doors approximately 12 inches (300 mm) square with door faces and edgings representing the typical range of color and grain for each species of veneer and solid lumber required. Finish sample with the same materials proposed for factory-finished doors.

2. Plastic laminate-clad door sections, 6 inches (1SO mm) square, for each color, texture. and pattern selected.

3. Louvers consisting of blade arid frame, 6 inches (150 mm) long, for each material and finish specified.

4. Frames for light openings, 6 inches (150 mm) long, for each material, type, and finish required.

1.04 QUALITY ASSURANCE

A. Quality Standard: Comply with the following standard:

1. NWWDA Quality Standard: I.S.1-A, "Architectural Wood Flush Doors," of the National Wood Window and Door Association.

B. Fire-Rated Wood Doors: Provide wood doors that comply with NFPA 80; are identical in materials and construction to units tested in door and frame assemblies per ASTM E 152; and are labeled and listed by UL, Warnock Hersey, or another testing and inspection agency acceptable to authorities having jurisdiction.

1. Oversized, Fire-Rated Wood Doors: For door assemblies exceeding sizes of tested assemblies, provide manufacturer's certificate stating that doors conform to all standard construction requirements of tested and labeled fire-door assemblies except for size.

C. Single-Source Responsibility: Obtain doors from one source and by a single manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect doors during transit, storage, and handling to prevent damage,

soiling, and deterioration. Comply with requirements of referenced standard and manufacturer's instructions.

1. Comply with WIC Technical Bulletin 420-R for delivery, storage, and handling *of* doors.

B. Identify each door with individual opening numbers as designated on shop drawings, using temporary, removable, or concealed markings.

1.06 PROJECT CONDITIONS.

A. Conditioning: Do not deliver or install doors until the building is enclosed, wet work is complete, and the HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

B. Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during the remainder of the construction period to comply with the following requirements applicable to Project's geographical location:

1. AWI quality standard Section 100-S-11 "Relative Humidity and Moisture Content."

1.07 WARRANTY

A. General Warranty: Door manufacturer's warranty specified in this Article shall not deprive the ASEM/Owner of other rights the ASEM/Owner may have under other provisions of the RFP Bridging Documents and Design-Build Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Design-Build Entity under requirements of the RFP Bridging Documents and Design-Build Contract Documents.

B. Door Manufacturer's Warranty: Submit written agreement on door manufacturer's standard form signed by manufacturer, Installer, and Design-Build Entity, agreeing to repair or replace defective doors that have warped (bow, cup, or twist) more than 1/4 inch (6.35 mm) in a 42-by-84-inch (1067-by-2134-mm) section or that show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 75-mm) span, or do not conform to tolerance limitations of referenced quality standards, or that show damage by termites (polilla or comegen).

1. The warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors where defect was not apparent prior to hanging.

2. The warranty shall be in effect during the following period of after date of Substantial Completion.

    a. Solid Core Exterior Doors: Two years.

    b. Solid Core Interior Doors: Two years.

    c. Hollow Core Interior Doors: Two years.

PART II – PRODUCTS

2.01 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering doors that may be incorporated in the Work include, but are not limited to, the following:

B. Manufacturer. Subject to compliance with requirements, provide doors by one of the following:

1. Solid Core Doors:

    a. Algoma Hardwoods Inc.

    b. Ampco Products, Inc.

    c. Buell Door Co.

    d. Chappell Door Co.

    e. Eagle Plywood & Door Manufacturing, Inc.

    f. Eggers Industries, Architectural Door Division.

    g. Fenestra Corporation.

    h. Graham Manufacturing Corp.

    i. Haley Brothers, Inc.

    j. Ideal Wood Products, Inc.

    k. IPIK Door Co., Inc.

    l. Marlite.

    m. Mohawk Flush Doors, Inc.

n. Poncraft Door Co.

o. Ragland Manufacturing Co., Inc.

p. V-T Industries Inc.

q. Weyerhauser Co.

r. Empresas Lausell.

s. Rosado Carpentry, Inc.

2. Hollow Core Doors:

a. Algoma Hardwoods Inc.

b. Ampco Products, Inc.

c. Eggers Industries, Architectural Door Division.

d. Graham Manufacturing Corp.

e. Haley Brothers, Inc.

f. Marlite.

g. Mohawk Flush Doors, Inc.

h. Weyerhauser Co.

i. Wing Industries, Inc.

j. Empresas Lausell.

k. Rosado Carpentry, Inc.

2.02 EXTERIOR FLUSH WOOD DOORS

A. Solid Core Doors for Transparent Finish: Comply with the following requirements:

1. Faces: White ash, plain sliced.

2. Grade: Custom.

3. Construction: 5 plies.

4. Core: Glued-block core.

5. Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.

B. Solid Core Doors for Opaque Finish: Comply with the following requirements:

1. Faces: Any closed-grain hardwood of mill option.

2. Grade: Custom.

3. Construction: 5 plies.

4. Core: Glued-block core.

5. Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.

2.03 INTERIOR FLUSH WOOD DOORS

A. Solid Core Doors for Transparent Finish: Comply with the following requirements:

1. Faces: White birch, plain sliced.

2. Grade: Custom.

3. Construction: 5 plies.

4. Core: Glued-block core.

5. Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.

B. Solid Core Doors for Opaque Finish: Comply with the following requirements:

1. Faces: Any closed-grain hardwood of mill option.

2. Grade: Custom.

3. Construction: 5 plies.

4. Core: Glued-block core.

5. Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.

C. Solid Core Doors with Plastic Laminate Faces: Comply with the following requirements:

1. Laminate Faces: High-pressure, decorative laminates complying with NEMA LD 3 and as follows:

    a. Colors. Patterns, and Finishes: As indicated or, if not otherwise indicated, as selected by Design Professional of Record from laminate manufacturer's full range of products.

    b. Faces: GP-50 (0.050-inch (1.270-mm) nominal thickness).

2. Grade: Custom.

3. Construction: 5 plies.

4. Core: Glued-block core.

5. Bonding: Stiles and rails bonded to core, then entire unit abrasive planed before veneering.

D. Fire-Rated Solid Core Doors: Comply with the following requirements:

1. Faces and Grade: Provide faces and grades to match non-fire-rated doors in same area of building, unless otherwise indicated.

2. Construction: Manufacturer's standard core construction as required to provide fire- resistance rating indicated.

3. Blocking: Provide composite blocking designed to maintain fire resistance of door but with improved screw-holding capability of same thickness as core and with minimum dimensions as follows:

    a. 5-inch (125-mm) top rail blocking.

    b. 5-inch (125-mm) bottom rail blocking.

    c. 5-by-18-inch (125-by-450-mm) lock blocks.

    d. 5-inch (125-mm) mid-rail blocking.

4. Edge Construction: Provide manufacturer's standard laminated-edge construction for improved screw-holding capability and split resistance as compared to edges composed of a single layer of treated lumber.

E. Hollow Core Doors for Transparent Finish: Comply with the following requirements:

1. Faces: White birch, rotary cut.

2. Grade: Custom.

3. Core: Standard hollow core.

4. Blocking: Provide wood blocking of the same thickness as core with minimum dimensions as follows:

    a. 5-inch (125-mm) top rail blocking.

    b. 10-inch (250-mm) bottom rail blocking.

    c. 5-by-18-inch (125-by-450-mm) lock blocks.

    d. 2-1/2-inch (63-mm) mid-rail blocking.

F. Hollow Core Doors for Opaque Finish: Comply with the following requirements:

1. Faces: Any closed-grain hardwood of mill option.

2. Grade: Custom.

3. Core: Standard hollow core.

4. Blocking: Provide wood blocking of the same thickness as core with minimum dimensions as follows:

    a. 5-inch (125-mm) top rail blocking.

    b. 10-inch (250-mm) bottom rail blocking.

    c. 5-by-18-inch (125-by-450-mm) lock blocks.

    d. 2-1/2-inch (63-mm) mid-rail blocking.

G. Hollow Core Doors with Plastic Laminate Faces: Comply with the following requirements:

1. Laminate Faces: High-pressure, decorative laminates complying with NEMA LO 3 and as follows:

    a. Colors, Patterns, and Finishes: As indicated or, if not otherwise indicated, as selected by Design Professional of Record from laminate manufacturer's full range of products.

    b. Faces: GP-50 (0.05O-inch (1.270-mm) nominal thickness).

2. Grade: Custom.

3. Construction: 5 plies.

4. Core: Standard hollow core.

5. Blocking: Provide wood blocking of the same thickness as core with minimum dimensions as follows:

   a. 5-inch (125-mm) top rail blocking.

   b. 10-inch (250-mm) bottom rail blocking.

   c. 5-by-18-inch (125-by-450-mm) lock blocks.

   d. 2-1/2-inch (63-mm) mid-rail blocking.

2.04 VENEER MATCHING

A. Within Door Faces: Provide doors with the following veneer matching:

   1. Book matching.

2.05 LOUVERS AND LIGHT FRAMES

A. Wood Louvers: Door manufacturer's standard solid wood louvers, unless otherwise indicated, and of size indicated.

B. Metal Louvers: Size, type, and profile shown and fabricated from the following:

   1. Natural Aluminum: Extruded aluminum with natural-anodized finish complying with AA- C22A31, Class II.

C. Wood-Veneered Beads for Light Openings in Fire Doors: Manufacturer's standard wood- veneered steel beads matching veneer species of door faces and approved for use in doors of fire-rating indicated.

2.06 FABRICATION

A. Fabricate flush wood doors to comply with the following requirements:

   1. In sizes indicated for job-site fitting.

B. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.

   1. Light Openings: Trim openings with moldings of material and profile

indicated.

2. Louvers: Factory install louvers in prepared openings.

C. Exterior Doors: Treat exterior doors at factory with water repellent after manufacturing has been completed.

PART III – EXECUTION

3.01 EXAMINATION

A. Examine installed door frames prior to hanging door.

1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.

2. Reject doors with defects.

B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Hardware:

1. The finish hardware to be applied to wood doors is to be furnished under Section 08710 but installed under this section.

2. All items shall operate easily, quietly and properly and locks, bolts, etc. shall lock securely.

3. Cut-outs and mortises for hardware shall be treated with an approved preservative solution.

4. Screws, bolts and other fastenings shall match in finish the item with which they are associated; and any exposed to view shall have Phillips heads. Though such fastenings shall generally be furnished with the hardware, any missing ones needed to complete the installation shall be furnished under this section at no additional cost to the ASEM/Owner.

B. Manufacturer's Instructions: Install wood doors to comply with manufacturer's instructions and referenced quality standard and as indicated.

1. Install fire-rated doors in corresponding fire-rated frames according to requirements of NFPA 80.

C. Job-Fit Doors: Align and fit doors in frames with uniform, clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted with fire- rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.

1. Fitting Clearances for Non-Fire-Rated Doors: Provide 1/8 inch (3.2 mm) at jambs and heads, 1/16 inch (1.6 mm) per leaf at meeting styles for pairs of doors, and 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4-inch (6.4-mm) clearance from bottom of door to top of threshold.

2. Fitting Clearances for Fire-Rated Doors: Comply with NFPA 80.

3. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at tock and hinge edges.

4. Bevel fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) on lock edge; trim stiles and rails only to extent permitted by labeling agency.

D. Field-Finished Doors: Refer to the following for finishing requirements:

1. Requirements for painting.

3.03 ADJUSTING AND PROTECTION

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Protect doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at the time of Substantial Completion.

END OF SECTION

SECTION 08520 - ALUMINUM WINDOWS

PART I – GENERAL

1.01 RELATED DOCUMENTS

A. RFP Documents, Bridging Drawings, performance criteria and, after award, applicable Design-Build Contract provisions, including applicable general requirements, apply to this Section.

1.02 SUMMARY

A. This Section includes Commercial Grade aluminum windows of the performance class indicated. Window types required include the following:

1. Casement windows.

2. Projected windows.

3. Fixed windows.

1.03 DEFINITIONS

A. Performance class number, included as part of the window designation system, is the actual design pressure in pounds force per square foot (pascals) used to determine structural test pressure and water test pressure.

1. Structural test pressure, wind load test, is equivalent to 150 percent of the design pressure.

2. Water-leakage-resistance test pressure is equivalent to 15 percent of the design pressure with 2.86 lb./sq. ft. (137 Pa) as a minimum for Residential, Commercial, and Heavy-Commercial Grade windows.

1.04 PERFORMANCE REQUIREMENTS

A. General: Provide aluminum windows engineered, fabricated, and installed to withstand normal thermal movement, wind loading, and impact loading without failure, as demonstrated by testing manufacturer's standard window assemblies representing types, grades, classes, and sizes required for Project according to test methods indicated.

B. Test Criteria: Testing shall be performed by a qualified independent testing agency based on the following criteria:

1. Design wind velocity at Project site is 70 mi./h (113 km/h).

2. Heights of window units above grade at window centerline are indicated on or can be determined from the Drawings. Consult the Design Professional of Record, if necessary, to confirm required loading and test pressures.

3. Test Procedures: Test window units according to ASTM E 283 for air infiltration, both ASTM E 331 and ASTM E 547 for water penetration, and ASTM E 330 for structural performance.

C. Performance Requirements: Testing shall demonstrate compliance with requirements indicated in AAMA 101 for air infiltration, water penetration, and structural performance for type, grade, and performance class of window units required. Where required design pressure exceeds the minimum for the specified window grade, comply with requirements of AAMA 101, Section 3, "Optional Performance Classes," for higher than minimum performance class.

1. Air-Infiltration Rate for Operating Units: Not more than 0.37 cfm/ft (2.06 cu. m/h perm) of operable sash joint for an inward test pressure of 6.24 lb./sq. ft. (299 Pa).

2. Air-Infiltration Rate for Fixed Windows: Not more than 0.15 cfm/ft. (2.74 cu. m/h perm) of area for an inward test pressure of 6.24 lb./sq. ft. (299 Pa).

3. Water Penetration: No water penetration as defined in the test method at an inward test pressure of 20 percent of the design pressure.

4. Uniform Load Deflection: No deflection more than 1/175 of any member's span during the imposed load, for a positive (inward) and negative (outward) test pressure of 60 lb./sq. ft. (2873 Pa).

5. Structural Performance: No failure or permanent deflection more than 0.4 percent of any member's span after removing the imposed load, for a positive (inward) and negative (outward) test pressure of 30 lb./sq. ft. (1437 Pa).

6. Forced-Entry Resistance: Comply with Performance Level 10 requirements when tested according to ASTM F 588.

7. Thermal Movements: Provide window units that allow thermal movement resulting from the following maximum change (range) in ambient temperature when engineering, fabricating, and installing aluminum windows to prevent buckling, opening of joints, and overstressing of components, connections, and other detrimental effects. Base engineering calculation on actual surface temperatures of materials due to solar

heat gain and nighttime sky heat loss.

a. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

1.05 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and applicable General Requirements Sections.

B. Product Data for each type of window required, including the following:

1. Construction details and fabrication methods.

2. Profiles and dimensions of individual components.

3. Data on hardware, accessories, and finishes.

4. Recommendations for maintaining and cleaning exterior surfaces.

C. Shop Drawings showing fabrication and installation of each type of window required including information not fully detailed in manufacturer's standard Product Data and the following:

1. Layout and installation details, including anchors.

2. Elevations at 1/4 inch = 1 foot (1:50) scale and typical window unit elevations at 3/4 inch = 1 foot (1:20) scale.

3. Hardware, including operators.

4. Glazing details.

5. Accessories.

D. Samples for initial color selection on 12-inch- (300-mm-) long sections of window members. Where finishes involve normal color variations, include Sample sets showing the full range of variations expected.

E. Samples for Verification: The Design Professional of Record reserves the right to require additional samples that show fabrication techniques, workmanship, and design of hardware and accessories.

F. Test reports from a qualified independent testing agency indicating that each type, grade, and size of window unit complies with performance requirements indicated. Test results based on use of down-sized test units will not be accepted.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed installation of aluminum windows similar in material, design, and extent to those required for this Project and with a record of successful in-service performance.

B. Testing Agency Qualifications: To qualify for approval, an independent testing agency must demonstrate to Design Professional of Record's satisfaction, based on evaluation of agency-submitted criteria conforming to ASTM E 699, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.

C. Single-Source Responsibility: Obtain aluminum windows from one source and by a single manufacturer.

D. Mockups: Prior to installing aluminum windows, construct mockups for each form of construction and finish required to verify selections made under Sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.

1. Locate mockups on-site in the location and of the size indicated or, if not indicated, as directed by Design Professional of Record.

2. Notify Design Professional of Record one week in advance of the dates and times when mockups will be constructed.

3. Demonstrate the proposed range of aesthetic effects and workmanship.

4. Obtain Design Professional of Record's approval of mockups before start of final unit of Work.

5. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

a. When directed, demolish and remove mockups from the Project site.

b. Approved mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

E. Product Options: The Drawings indicate sizes, profiles, dimensional requirements, and aesthetic effects of aluminum windows and are based on the specific window types and models indicated. Other aluminum window manufacturers whose products have equal performance characteristics may be considered provided with deviations in size, profile, and dimensions

are minor and do not alter the aesthetic effect. Refer to the General Requirements provisions governing substitutions.

1.07 PROJECT CONDITIONS

A. Field Measurements: Check window openings by field measurements before fabrication and show recorded measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Where field measurements cannot be made without delaying the Work, guarantee opening dimensions and proceed with fabricating aluminum windows without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to guaranteed dimensions.

1.08 WARRANTY

A. General Warranty: The special warranty specified in this Article shall not deprive the ASEM/Owner of other rights the ASEM/Owner may have under other provisions of the RFP Bridging Documents and Design-Build Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Design-Build Entity under the requirements of the RFP Bridging Documents and Design-Build Contract Documents.

B. Special Warranty: Submit a written warranty signed by an aluminum window manufacturer agreeing to repair or replace window components that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, the following:

1. Structural failures include excessive deflection, water leakage, air infiltration, or condensation.

2. Faulty operation of sash and hardware.

3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

C. Warranty Period: 3 years after date of Substantial Completion.

D. Warranty Period for Metal Finishes and Glass: 5 years after date of Substantial Completion.

PART II - PRODUCTS

2.01 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

1. Casement Windows:

    a. Acom Window Systems.

    b. Alenco Commercial Division.

    c. Capitol Products Corp.

    d. Custom Window Company.

    e. DeSCo Windows.

    f. EFCO Corporation.

    g. Graham Architectural Products Corporation.

    h. TRACO.

    i. Wausau Metals Corporation.

    j. Wince Manufacturing Co.

2. Single-Hung Windows:

    a. Acorn Window Systems.

    b. Alenco Commercial Division.

    c. Capitol Products Corp.

    d. Custom Window Company.

    e. EFCO Corporation.

    f. Graham Architectural Products Corporation.

    g. Peerless Products, Inc.

    h. TRACO.

    i. Tropicair manufacturing Corp.

3. Projected Windows:

a. Acorn Window Systems.

b. Alenco Commercial Division.

c. Capitol Products Corp.

d. Custom Window Company.

e. EFCO Corporation.

f. Graham Architectural Products Corporation.

g. TRACO.

h. Wausau Metals Corporation.

i. Winco Manufacturing Co.

j. Kawneer Co., Inc.

4. Fixed Windows:

a. Alenco Commercial Division.

b. Capitol Products Corp.

c. Custom Window Company.

d. DeSCo Windows.

e. EFCO Corporation.

f. Graham Architectural Products Corporation.

g. Peerless Products, Inc.

h. TRACO.

i. Wausau Metals Corporation.

j. Kawneer Co., Inc.

2.02 MATERIALS

A. Aluminum Extrusions: Provide alloy and temper recommended by manufacturer for strength, corrosion resistance, and application of required finish, but not less than 22,000-psi (150-MPa) ultimate tensile strength and not less than 0.062 inch (1.6 mm) thick at any location for main frame and sash

members.

B. Fasteners: Provide aluminum, nonmagnetic stainless steel, epoxy adhesive, or other materials warranted by manufacturers to be noncorrosive and compatible with aluminum window members, trim, hardware, anchors, and other components of window units.

1. Reinforcement: Where fasteners screw anchor into aluminum less than 0.125 inch (3.2 mm) thick, reinforce interior with aluminum or nonmagnetic stainless steel to receive screw threads or provide standard, noncorrosive, pressed-in, splined grommet nuts.

2. Exposed Fasteners: Except where unavoidable for application of hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate. All exposed fasteners shall have Phillips flat heads.

C. Anchors, Clips, and Window Accessories: Fabricate anchors, clips, and window accessories of aluminum, nonmagnetic stainless steel, or hot-dip zinc-coated steel or iron complying with requirements of ASTM B 633; provide sufficient strength to withstand design pressure indicated.

D. Compression-Type Glazing Strips and Weatherstripping: Unless otherwise indicated, and at manufacturer's option, provide compressible stripping for glazing and weatherstripping such as molded EPDM or neoprene gaskets complying with ASTM D 2000 Designation 2BC415 to 3BC620, or molded PVC gaskets complying with ASTM D 2287, or molded expanded EPDM or neoprene gaskets complying with ASTM C 509, Grade 4.

E. Sliding-Type Weatherstripping: Provide woven-pile weatherstripping of wool, polypropylene, or nylon pile and resin-impregnated backing fabric. Comply with AAMA 701.2.

1. Provide stripping with integral centerline barrier fin of semirigid plastic sheet of polypropylene.

F. Sealant: For sealants required within fabricated window units, provide type recommended by manufacturer for joint size and movement. Sealant shall remain permanently elastic, non-shrinking, and nonmigrating. Comply with the joint sealant requirements of these Specifications for selection and installation of sealants.

2.03 HARDWARE

A. General: Provide manufacturer's standard hardware fabricated from aluminum, stainless steel, or other corrosion-resistant material compatible

with aluminum and of sufficient strength to perform the function for which it is intended.

B. Four-Bar Friction Hinges: Comply **with MMA** 904.1.

1. Friction Shoes: Provide friction shoes of nylon or other nonabrasive, nonstaining, noncorrosive, durable material.

C. Limit Device: Provide manufacturer's standard, concealed support arms with adjustable, limited, hold-open limit device designed to restrict ventilator opening.

D. Counterbalancing Mechanism: Comply with AAMA 902. 2.

1. Sash-Balance Type: Concealed block-and-tackle type of size and capacity to hold sash stationery at any open position.

E. Pole Operators: Provide one pole operator and a pole hanger for every room in the Project that has operable aluminum windows more than 72 inches (1800 mm) above floor. Fabricate pole of tubular-shaped anodized aluminum with rubber cap at lower end and standard push-pull hook at top to match hardware design. Provide sufficient length for window operation without reaching more than 60 inches (1500 mm) above floor.

2.04 ACCESSORIES

A. General: Provide manufacturer's standard accessories that comply with indicated standards.

B. Weatherstripping: Provide sliding-type weatherstripping where sash rails slide horizontally or vertically along unit frame. Provide compression-type weatherstripping at perimeter of each operating sash where sliding type is inappropriate.

1. Provide weatherstripping locked into extruded grooves in sash.

2.05 CASEMENT WINDOWS

A. Window Grade and Class: Comply with requirements of AAMA Grade and Performance Class C-HC40. Window units shall successfully pass vertical deflection, hardware load, and torsion test performance requirements specified in AAMA 101.

B. Hardware: Provide the following equipment and operating hardware:

1. Operating Device: Gear-type rotary operator located on jamb at sill, or

combination lever handle and cam latch.

2. Hinges: Concealed 4-bar friction hinges with adjustable slide shoe (2 per ventilator).

3. Lock: Lift-type, cam-action lock.

2.06 SINGLE-HUNG WINDOWS

A. Window Grade and Class: Comply with requirements of AAMA Grade and Performance Class DH-HC40. Window units shall successfully pass operating force test performance requirements specified in AAMA 101.

B. Hardware: Provide the following equipment and operating hardware:

1. Sash Balances: Manufacturer's standard type (2 per sash).

2. Tilt Lock: Tamperproof concealed, tilt mechanism to permit sash to tilt inward for cleaning.

3. Lift Handle: Applied sash lifts on bottom rail of lower sash (2 per sash).

2.07 PROJECTED WINDOWS

A. Window Grade and Class: Comply with requirements of AAMA Grade and Performance Class P-HC40. Window units shall successfully pass the following test requirements as specified in AAMA 101:

1. Torsion test on an unglazed ventilator.

2. Horizontal and vertical concentrated load tests on latch rail of each ventilator.

B. Hardware: Provide the following equipment and operating hardware:

1. Hinges: Concealed 4-bar friction hinges with adjustable slide shoe (2 per ventilator).

2. Lock: Cam-action, sweep lock handle with surface-mounted strike.

2.08 FIXED WINDOWS

A. Window Grade and Class: Comply with requirements of AAMA Grade and Performance Class F-HC40.

2.09 FABRICATION

A. General: Fabricate aluminum window units to comply with indicated standards. Include a complete system for assembly of components and anchorage of window units.

1. Provide units that are realizable without dismantling sash or ventilator framing.

2. Prepare window sash or ventilators for glazing.

2.10 FINISHES

A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designating finishes.

B. Finish designations prefixed by AA conform to the system established by the Aluminum Association for designating aluminum finishes.

C. High-Performance Organic Coating Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's instructions.

1. Fluoropolymer 2-Coat Coating System: Manufacturer's standard 2-coat, thermocured system composed of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 605.2.

2. Color and Gloss: As selected by Design Professional of Record from manufacturer's full range of choices for color and gloss.

PART III – EXECUTION

3.01 INSPECTION

A. Inspect openings before installation. Verify that rough or masonry opening is correct, and sill plate is level.

1. Masonry surfaces shall be visibly dry and free of excess mortar, sand, and other construction debris.

3.02 INSTALLATION

A. Comply with manufacturer's specifications and recommendations for installing window units, hardware, operators, and other components of the Work.

B. Set window units plumb, level, and true to line, without warp or rack of frames or sash. Provide proper support and anchor securely in place.

1. Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified under "Dissimilar Materials" Paragraph in appendix to AAMA 101.

C. Set sill members and other members in a bed of sealant or with joint fillers or gaskets, as shown on Shop Drawings, to provide weathertight construction. Refer to the joint sealant requirements for compounds, fillers, and gaskets to be installed concurrently with window units. Coordinate installation with wall flashings and other components of the Work.

3.03 FIELD QUALITY CONTROL

A. Conduct on-site tests for air and water infiltration with window manufacturer's representative present. The Design Professional of Record will select units to be tested. Tests not meeting specified requirements and units having similar deficiencies shall be corrected at no cost to the ASEM/Owner. Testing shall be performed by a qualified independent testing agency selected by the Design Professional of Record.

1. Air-Infiltration Tests: Conduct tests according to requirements of ASTM E 783. Allowable infiltration shall not exceed 1.5 times the amount indicated.

2. Water-Resistance Tests: Conduct tests according to requirements of ASTM E 1105. No water leakage is permitted.

3.04 ADJUSTING

A. Adjust operating sash and hardware to provide a tight fit at contact points and at weatherstripping for smooth operation and a weathertight closure.

3.05 CLEANING

A. Clean aluminum surfaces promptly after installing windows. Exercise care to avoid damage to protective coatings and finishes. Remove excess glazing and sealant compounds, dirt, and other substances. Lubricate hardware and other moving parts.

B. Clean glass of pre-glazed units promptly after installing windows. Comply with the glazing requirements for cleaning and maintenance.

3.06 PROTECTION

A. Provide final protection and maintain conditions, in a manner acceptable to aluminum window manufacturers, that ensure window units are without damage or deterioration at the time of Substantial Completion.

END OF SECTION

SECTION 08710 – BUILDERS HARDWARE

PART I – GENERAL

1.01 SECTION INCLUDES:

A. Builders hardware for doors.

1.02 RELATED SECTIONS:

A. Hollow metal doors and frames - Section 08110.

1.03 REFERENCES:

A. American National Standards Institute (ANSI):

1. ANSI 156.1-1988 -Butts and hinges.
2. ANSI 156.2-1983 - Bored & preassembled locks.
3. ANSI 156.3-1984 - Exit devices.
4. ANSI 156.4-1986 - Door control (Closer).
5. ANSI 156.5-1984 - Auxiliary locks.
6. ANSI 156.13-1987- Mortise locks & latches.
7. ANSI 156.16-1989-Auxiliary hardware.
8. ANSI 156.18-1987- Materials & finishes.
9. ANSI 117. 1-1986- Providing accessibility and usability for physical handicapped people.

B. National Builders Hardware Association (NBHA):

1. Recommended Locations for Builders Hardware -1975.
2. Basic Builders Hardware - October 1969.

C. Builders Hardware Manufacturers Association:

1. Directory of Certified Locks & Latches -June 1989.
2. Directory of Certified Door Closers - July 1989.

D. National Fire Protection Association (NFPA):

1. NFPA 80 -Fire Doors and Windows.
2. NFPA 101-Life Safety Code 1988

E. Building Code "Reglamento de Edificación de P.R.

1.04 QUALITY ASSURANCE:

A. Hardware shall conform to the following standards:

1. All butts shall comply with ANSI A2112 and A2133.
    a. Butts on outswing exterior doors shall have non-removable pins (NRP).
    b. Provide Ball Bearing Hinges at Self Closing Doors
2. Locksets and latches shall meet the following minimum ANSI standards.
    a. Heavy duty cylindrical locks -ANSI Series 4000, Grade 1.
    b. Mortise Locks-ANSI Series 1000, Grade I test requirements.
    c. Use UL approved locks on labeled fire doors.
3. Door closers shall comply with ANSI Series C02011, Grade 1 with cast iron case and adjustable backcheck. Closers for reverse bevel doors and all doors opening towards a hallway shall comply with ANSI Series CO202l, Grade 1 and be sized according to the manufacturer's recommendation.
4. Exit devices shall be of the modern push-bar type, ANSI Grade 1. All pair openings with a combination mortise and vertical rod device shall be equipped with an open back strike. Pair openings with a combination Rim and vertical rod device and door closers on each doors shall be equipped with a type 21 door coordinator.

1.05 SUBMITTALS

A. The hardware supplier shall submit seven (7) copies of a complete hardware schedule for approval. See the General Requirements provisions of these Specifications.

1. Preface sheet listing category only and manufacturers name of items being furnished, as follows:

Category	Specified	Scheduled
Hinges	Mfg."A"	Mfg. “B”
Locksets	Mfg."C"	Mfg. “D”
Kickplates	Open	Mfg. “X”

2. For hardware locations, see Article 3.3 - Locations.
3. Open description: Single or pair, number, room locations, hand, active leaf, degree of opening, size, material, frame material, and fire rating.
4. Hardware description: Quantity, category, product number, fasteners, and finish.
5. Headings that refer to the specified Hardware Set Numbers.
6. Scheduling sequence shown in Hardware Sets.
7. Product data of each hardware item and shop drawings, where required, for special conditions and specialty hardware.
8. Vertical scheduling format only. Horizontal schedules are not acceptable.
9. Typed copy.
10. Double spacing.
11. Eight and one-half by eleven inch (8 l/2"x 11") sheets.
12. U.S. Standards finish symbols.

B. Samples: Submit sample of each type of builders hardware item proposed for project. If approved, samples may be used in the project.

1.06 DELIVERY, STORAGE AND HANDLING:

A. Package and deliver hardware items separately and mark each to correspond with heading numbers on hardware schedule.

B. Include necessary instructions, templates, drawings and fasteners for proper installation.

1.07 JOB CONDITIONS:

A. Furnish templates to the hollow metal and frame manufacturer as required for installing the hardware to avoid any delay in fabrication.

B. See Article 3.3 - Locations, and coordinate with templates.

C. Sub-contract the furnishing of builders' hardware to a recognized local builders' hardware representative for the lockset being furnished. The local hardware supplier must have been furnishing builders' hardware for a period of not less than 5 years and must have in his employment an experienced hardware consultant who is available at all reasonable times while the work for project hardware consultation to the owner or architect. Hardware supplier must furnish all hardware required to comply pertinent government regulations from American Disability Act, and National Fire Protection Association.

1.08 REGULATORY REQUIREMENTS

Design-Build Entities must provide hardware to conform to:

1. All applicable codes for fire rated doors and frames.

1. All applicable sections of Chapter 5 of N.F.P.A. 101.

2. ANSI Al 17.1 for hardware locations and requirements to meet all handicapped codes of the Americans with Disabilities Act.

3. The quantities shown on schedule are for reference only. Final count is the contractor's responsibility.

PART II - PRODUCTS:

2.01 MANUFACTURERS:

A. General:

1. Products are listed in a brand name only to establish a standard of quality.

2. Equivalent products, as described in section 2.2 of these specifications, are acceptable substitutions.

B. Locks and latches:

1. Corbin Russwin

2. Sargent.

C. Door Closers:

1. Corbin Russwin.
2. Donna
3. LCN
4. Sargent

D. Manufacturers of other items:

1. Butts: Soss, Hager, McKinney or Lawrence
2. Exit Devices: Corbin Russwin, Sargent, Von Duprin
3. Floor Closers & Pivots: Donna or McKinney
4. Overhead Door Holders: Corbin Russwin -Sargent
5. Door Pulls: Rockwood, Trimco, Hager
6. Protective Plates: Rockwood, Trimco, Hager
7. Bolts: Rockwood, Trimco, Hager
8. Stops: Rockwood, Trimco-Hager
9. Electromagnetic Locks and Holders-Von Duprin
10. Padlocks -American- Corbin Russwin

2.02 LABEL REQUIREMENTS:

A. Furnish Underwriters Laboratories, Inc. approved hardware items, meeting requirements of NFPA 80, at doors scheduled to be labeled doors.

2.03 FINISHES:

Unless otherwise specified on the hardware schedule all finishes will be as follows:

A. Butts and Pivots: 630

B. Locksets, Deadlocks, Padlocks and Latches: 626 (Except MS1850-628).

C. Exit Devices: 626.

D. Closers: Sprayed aluminum to match; 626 on Floor Type.

E. Pulls & Plates: 630.

F. Stops/Holders: 626.

G. Thresholds: 628.

H. Flush Bolts: 626.

2.04 KEYING:

A. Key and master key in accordance with owner's requirements and approved keying schedule. Furnish 3 change keys for each lock, and 3 ea. Master keys, and 10 construction keys.

B. Where specified all cylinders shall be of the high security Type with interlocking pins and skew out key bitting.

C. Furnish a complete key control system that provides tags for each individual change key and a key cabinet that will hold 150% of the key capacity of the building.

PART III – EXECUTION

3.01 EXAMINATION

A. Examine door frames and related items for conditions that would prevent proper application of builders' hardware.

B. Do not proceed until defects are corrected, with approval obtained from owner or his designated representative.

3.02 INSTALLATION:

A. Install hardware according to manufacturer's printed instructions and to template dimensions. See Article 1.6.

B. All hardware shall be installed in a neat workmanlike manner by experienced workmen and left in perfect working condition. Any hardware lost or damaged shall be replaced at no additional cost to the owner.

3.03 LOCATIONS:

A. Dimensions are from finish floor to center line of items.

B. This list to be included in Hardware Schedule:

Category	Dimension
Hinges	Door manufacturer standards
Flush bolt Levers	72” and 12”
Knobs	Door manufacturer standards
Exit Device Crossbars	Manufacturer’s Template
Push Plates	52”
Pull Plates	42”
Wall Stops	At Head

3.04 FINAL ADJUSTMENT:

A. Provide the services of a representative to inspect material furnished and its installation and adjustment, to make final hardware adjustment, and to instruct the Tenant's personnel in adjustment, care and maintenance of the hardware.

END OF SECTION

SECTION 08800 – GLAZING

PART I – GENERAL

1.01 RELATED DOCUMENTS

A. RFP Documents, Bridging Drawings, performance criteria and, after award, applicable Design-Build Contract provisions, including applicable general requirements, apply to this Section.

1.02 SUMMARY

A. This Section includes glazing for the following products, including those specified in other Sections where glazing requirements are specified by reference to this Section:

1. Window units.

2. Vision lites.

3. Entrances and other doors.

4. Storefront construction.

1.03 DEFINITIONS

A. Manufacturers are used in this Section to refer to a firm that produces primary glass or fabricated glass as defined in the referenced glazing standard.

B. Deterioration of Laminated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's directions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated glass standard.

1.04 SYSTEM PERFORMANCE REQUIREMENTS

A. General: Provide glazing systems that are produced, fabricated, and installed to withstand normal thermal movement, wind loading, and impact loading (where applicable), without failure including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; and other defects in construction.

B. Glass Design: Glass thicknesses indicated on Drawings are for detailing only. Confirm glass thickness by analyzing Project loads and in-service conditions.

Provide glass lites for the various size openings in the thicknesses and strengths (annealed or heat-treated) to meet or exceed the following criteria:

1. Minimum glass thickness, nominally, of lites in exterior walls is 6 mm.

2. Tinted and heat-absorbing glass thicknesses for each tint indicated are the same throughout Project.

3. Minimum glass thicknesses of lites, whether composed of annealed or heat-treated glass, are selected so the worst-case probability of failure does not exceed the following:

    a. 8 lites per 1000 for lites set vertically or not over 15 degrees off vertical and under wind action. Determine minimum thickness of monolithic annealed glass according to ASTM E 1300. For other than monolithic annealed glass, determine thickness per glass manufacturer's standard method of analysis including applying adjustment factors to ASTM E 1300 based on type of glass.

C. Normal thermal movement results from the following maximum change (range) in ambient and surface temperatures acting on glass-framing members and glazing components. Base engineering calculation on materials' actual surface temperatures due to both solar heat gain and nighttime sky heat loss.

1. Temperature Change (Range): 120 F deg (67 C deg), ambient; 180 F deg (100 C deg), material surfaces.

1.05 SUBMITTALS

A. General: Submit the following according to Conditions of Contract and applicable General Requirements Sections.

B. Product data for each glass product and glazing material indicated.

C. Samples for verification purposes of 12-inch (300 mm) square samples of each type of glass indicated except for clear monolithic glass products, and 12-inch (300 mm) long samples of each color required (except black) for each type of sealant or gasket exposed to view. Install sealant or gasket sample between two strips of material representative in color of the adjoining framing system.

D. Product certificates signed by glazing materials manufacturers certifying that their products comply with specified requirements.

1. Separate certifications are not required for glazing materials bearing

manufacturer's permanent labels designating type and thickness of glass, provided labels represent a quality control program of a recognized certification· agency or independent testing agency acceptable to authorities having jurisdiction.

E. Compatibility and adhesion test reports from sealant manufacturers indicate that glazing materials were tested for compatibility and adhesion with glazing sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and.substrate preparation needed for adhesion.

F. Product test reports for each type of glazing sealant and gasket indicated, evidencing compliance with requirements specified.

G. Maintenance data for glass and other glazing materials to include in Operating and Maintenance Manual specified in the General Requirements.

1.06 QUALITY ASSURANCE

A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, except where more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. FGMA Publications: "FGMA Glazing Manual."

2. LSGA Publications: "LSGA Design Guide."

3. SIGMA Publications: TM-3000 "Vertical Glazing Guidelines".

B. Safety Glass: Products complying with ANSI 297.1 and testing requirements of 16 CFR Part 1201 for Category II materials.

1. Subject to compliance with requirements, provide safety glass permanently marked with certification Jabel of Safety Glazing Certification Council (SGCC) or other certification agency acceptable to authorities having jurisdiction.

C. Fire-Resistive Glazing Products for Door Assemblies: Products identical to those tested per ASTM E 152, labeled and listed by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

D. Glazier Qualifications: Engage an experienced glazier who has completed glazing similar in material, design, and extent to that indicated for Project with a record of successful in-service performance.

E. Single-Source Responsibility for Glass: Obtain glass from one source for each product indicated below:

1. Primary glass of each (ASTM C 1036) type and class indicated.

2. Heat-treated glass of each (ASTM C 1048) condition indicated.

3. Laminated glass of each (ASTM C 1172) kind indicated.

F. Single-Source Responsibility for Glazing Accessories: Obtain glazing accessories from one source for each product and installation method indicated.

G. Field-Constructed Mockups: Prior to glazing, erect mockups for each glass product indicated below to verify selections made under sample submittals and to demonstrate aesthetic effects and quality of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of **Work:**

1. Glass Products: Erect mockups with the following kinds of glass to match glazing systems required for Project, including typical lite size, framing systems, and glazing methods:

   a. Fully tempered glass.

   b. Laminated glass.

2. Place mockups on site in location and of size indicated or, if not indicated, as directed by Design Professional of Record.

3. Notify Design Professional of Record one week in advance of the dates and times when mockups will be erected.

4. Obtain Design Professional of Record's acceptance of mockups before start of final unit of Work.

5. Demonstrate the proposed range of aesthetic effects and workmanship.

6. Retain and maintain mockups during construction in undisturbed condition as a standard for judging completed unit of Work.

   a. When directed, demolish and remove mockups from the Project site.

   b. Accepted mockups in undisturbed condition at time of Substantial Completion may become part of completed unit of Work.

H. Preconstruction Compatibility and Adhesion Testing: Submit to sealant

manufacturers. samples of each glass, gasket, glazing accessory, and glass-framing member that will contact or affect glazing sealants for compatibility and adhesion testing as indicated below:

1. Use test methods standard with sealant manufacturer to determine if priming and other specific preparation techniques are required for rapid, optimum glazing sealants adhesion to glass and glazing channel substrates.

    a. Perform tests under normal environmental conditions during installation.

2. Submit not fewer than nine pieces of each type and finish of glass-framing members and each type, class, kind, condition, and form of glass (monolithic, laminated units) for adhesion testing, as well as one sample of each glazing accessory (gaskets, setting blocks and spacers) for compatibility testing.

3. Schedule sufficient time to test and analyze results to prevent delay in the Work.

4. Investigate materials failing compatibility or adhesion tests and get sealant manufacturer's written recommendations for corrective measures, including using special primers.

5. Testing is not required when glazing sealant manufacturer can submit required preparation data that is acceptable to Design Professional of Record and is based on previous testing of current sealant products for adhesion to and compatibility with submitted glazing materials.

I. Pre-Installation Conference: Conduct conference at Project site to comply with the General Requirements provisions governing Project Meetings.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials to comply with manufacturer's directions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.08 PROJECT CONDITIONS

A. Environmental Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by the glazing materials manufacturer or when glazing channel substrates are wet from rain, condensation, or other causes.

1.09 WARRANTY

A. General: Warranties specified in this Article shall not deprive the ASEM/Owner of other rights the ASEM/Owner may have under other provisions of the RFP Bridging Documents and Design-Build Contract Documents and will be in addition to and run concurrent with other warranties made by the Design-Build Entity under requirements of the RFP Bridging Documents and Design-Build Contract Documents.

B. Manufacturer's Warranty on Laminated Glass: Submit written warranty signed by insulating glass manufacturer agreeing to furnish replacements for those laminated glass units that deteriorate as defined in the "Definitions" article, f.o.b. point of manufacture, freight allowed Project site, within specified warranty period indicated below. Warranty covers only deterioration due to normal conditions of use and not to handling, installing, and cleaning practices contrary to glass manufacturer's published instructions.

1. Warranty Period: Manufacturer's standard but not less than 5 years after date of Substantial Completion.

PART II – PRODUCTS

2.01 MANUFACTURERS

A. Available Products: subject to compliance with requirements, products mat may be incorporated in the Work include, but are not limited to, the products specified in Product Data Sheets at end of this Section.

B. Products: Subject to compliance with requirements, provide one of the products specified in Product Data Sheets at end of this Section.

2.02 PRIMARY FLOAT GLASS PRODUCTS

A. Float Glass: ASTM C 1036, Type I (transparent glass, flat), Class as indicated below, and Quality q3 (glazing select).

1. Class 1 (clear) unless otherwise indicated.

2. Class 2 (tinted, heat-absorbing, and light-reducing) where indicated.

B. Refer to Primary Clear Float Glass Product Data Sheet for Class 1 uncoated tinted glass for monolithic glazing.

C. Refer to Primary Tinted Float Glass Product Data Sheet for tint color and nominal performance characteristics of Class 2 uncoated tinted glass for monolithic

glazing relative to visible light transmittance, U-values, shading coefficient, and visible reflectance.

2.03 HEAT-TREATED FLOAT GLASS PRODUCTS, GENERAL

A. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.

2.04 HEAT-TREATED FLOAT GLASS

A. Uncoated, Clear, Heat-Treated Float Glass: ASTM C 1048, Condition A (uncoated surfaces). Type I (transparent glass, flat), Class 1 (clear), Quality q3 (glazing select), kind as indicated below.

1. Kind FT (fully tempered) where indicated.

B. Uncoated, Tinted, Heat-Treated Float Glass: ASTM C 1048, Condition A (uncoated surfaces), Type I (transparent glass, flat), Class 2 (tinted heat-absorbing and light-reducing), Quality q3 (glazing select), with tint color and performance characteristics for 6 mm thick glass matching those indicated for annealed primary tinted float glass; kind as indicated below:

1. Kind FT (fully tempered) where indicated.

C. Available Manufacturers: Subject to compliance with requirements, manufacturers offering heat-treated glass products that may be incorporated in the Work include, but are not limited to, the following companies.

1. AFG Industries, Inc.
2. Artistic Glass Products Co.
3. Cardinal IG.
4. Saint-Gobain.
5. Falconer Glass Industries.
6. Glasstomp, Inc.
7. Guardian Industries Corp.
8. HGP Industries.
9. PPG Industries, Inc.

10. Spectrum Glass Products, Inc.

11. Tempglass.

12. Viracon. Inc.

2.05 LAMINATED GLASS PRODUCTS

A. Laminated Glass Products: Comply with ASTM C 1172 for kinds of laminated glass indicated and other requirements specified, including those in Laminated Glass Product Data Sheet at the end of this Section. Refer to primary and heat-treated glass requirements relating to properties of glass products comprising laminated glass products.

B. Interlayer: Interlayer material as indicated below, in clear or colors, and of thickness indicated with a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after laminating glass lites and installation.

1. Interlayer Material: Polyvinyl butyral sheets.

2. Available Products: Subject to compliance with requirements, the plastic interlayer products that may be incorporated in the Work include, but are not limited to, the following:

a. Polyvinyl Butyral Interlayer.

1) Saflex, Monsanto Co.

2) Butacite, E. I. du Pont de Nemours & Co., Inc.

C. Laminating Process: Fabricate laminated glass to produce glass free of foreign substances and air or glass pockets as follows:

1. Laminate lites with polyvinyl butyral interlayer in autoclave with heat plus pressure.

2.06 FIRE-RESISTIVE GLAZING PRODUCTS

A. Fire-Resistive, Ceramic Glazing Material: Proprietary product in the form of clear flat sheets of 3/16 inch (5 mm) nominal thickness, weighing 2.5 psf (4.7 kg/sq m), permanently labeled with appropriate marks of testing and inspecting agency, acceptable to authorities having jurisdiction, showing product complies with fire-resistive installation indicated, and as follows:

1. Polished on both surfaces, transparent with visible light transmission of

76.9 percent.

2. Product: Subject to compliance with requirements, provide the following product manufactured by Nippon Electric Glass Co., Ltd. and distributed by Technical Glass Products:

   a. Pyroswiss.

2.07 ELASTOMERIC GLAZING SEALANTS

A. General: Provide products of the type indicated, complying with the following requirements:

1. Compatibility: Select glazing sealants and tapes of proven compatibility with other materials they will contact, including glass products, seals of insulating glass units, and glazing channel substrates, under conditions of Installation and service, as demonstrated by testing and field experience.

2. Suitability: Comply with sealant and glass manufacturer's recommendations for selecting glazing sealants and tapes that are suitable for applications indicated and conditions existing at time of installation.

3. Colors: Provide color of exposed joint sealants to comply with the following:

   a. Provide selections made by Design Professional of Record from manufacturer's full range of standard colors for products of type indicated.

B. Elastomeric Glazing Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that comply with ASTM C 920 requirements indicated on each Elastomeric Glazing Sealant Product Data Sheet at the end of this Section, including those referencing ASTM classifications for Type, Grade, Class and Uses.

C. Glazing Sealant for Fire-Resistant Glazing Products: Identical to product used in test assembly to obtain fire-resistive rating.

2.08 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tape: Preformed, butyl-based elastomeric tape with a solids content of 100 percent, nonstaining and nonmigrating in contact with nonporous surfaces, with or without spacer rod as recommended by tape and glass manufacturers for application indicated,

packaged on rolls with a release paper backing, and complying with AAMA 800 for products indicated below:

1. MMA804.1.
2. MMA 806.1.
3. MMA 807.1.

B. Expanded Cellular Glazing Tape: Closed-cell, polyvinyl chloride foam tape, factory coated with adhesive on both surfaces, packaged on rolls with release liner protecting adhesive, and complying with MMA 800 for product 810.5.

C. Available Products: Subject to compliance with requirements, glazing tape that may be incorporated in the Work include, but is not limited to, the following:

1. Back-Bedding Mastic Glazing Tape Without Spacer Rod:
    a. PTI 303 Glazing Tape (shimless), Protective Treatments, Inc.
    b. S-M 5700 Poly-Glaze Tape Sealant, Schnee-Morehead, Inc.
    c. Tremco 440 Tape, Tremco Inc.
    d. Extru-Seal, Pecora Corp.
    e. PTI 606 Architectural Sealant Tape, Protective Treatments, Inc.
    f. Dyna-Seal, Pecora Corp.
    g. PTI 626 Architectural Sealant Tape, Protective Treatments, Inc.
    h. S-M 5710 H.P Poly-Glaze Tape Sealant, Schnee-Morehead, Inc.
    i. SST-800 Tape, Tremco, Inc.
2. Back-Bedding Mastic Glazing Tape with Spacer Rod:
    a. PTI 303 Glazing Tape (with shim), Protective Treatments. Inc.
    b. Pre-shimmed Tremco 440 Tape, Tremco, Inc.
    c. PTI 606 Architectural Sealant Tape, Protective Treatments, Inc.
3. Expanded Cellular Glazing Tape:

a. Norseal V-980 Closed-Cell Glazing Tape, Norton Company.

2.09 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials involved for glazing application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85 plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions with a Shore-A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side- walking).

F. Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonstaining, non-extruding, non-outgassing, strips of closed-cell plastic foam of density, size, and shape to control sealant depth and otherwise contribute to produce optimum sealant performance.

G. Perimeter Insulation for Fire-Resistive Glazing: Identical to product used in test assembly to obtain fire-resistive rating.

2.10 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturers and referenced glazing standard as required to comply with system performance requirements.

B. Clean cut or flat grind vertical edges of butt-glazed monolithic lites in a manner that produces square edges with slight kerfs at junctions with indoor and outdoor faces.

PART III – EXECUTION

3.01 EXAMINATION

A. Examine glass framing, with glazier present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size. squareness, offsets at corners.

2. Presence and functioning of weep system.

3. Minimum required face or edge clearances.

4. Effective sealing between joints of glass-framing members.

B. Do not proceed with glazing until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings that are not firmly bonded to substrates.

3.03 GLAZING, GENERAL

A. Comply with combined recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, except where more stringent requirements are indicated, including those in referenced glazing publications.

B. Glazing channel dimensions as indicated on Drawings provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.

C. Protect glass from edge damage during handling and installation as follows:

1. Use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing. Use suction cups to shift glass units within openings; do not raise or drift glass with a pry bar. Rotate glass lites with flares or bevels on bottom horizontal edges so edges are located at top *of* opening, unless otherwise indicated by manufacturer's label.

2. Remove damaged glass from Project site and legally dispose of off-site. Damaged glass is glass with edge damage or other imperfections that, when installed, weaken glass and impair performance and appearance

D. Apply primers to joint surfaces where required for adhesion of sealants, as

determined by preconstruction sealant-substrate testing.

E. Install elastomeric setting blocks in sill rabbets, sized and located to comply with referenced glazing standard, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

G. Provide spacers for glass sizes larger than 50 united inches (1250 mm) (length plus height) as follows:

1. Locate spacers inside, outside, and directly opposite each other. Install correct size and spacing to preserve required face clearances, except where gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and comply with system performance requirements.

2. Provide 1/8-inch (3 mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

H. Provide edge blocking to comply with requirements of referenced glazing publications. unless otherwise required by glass manufacturer.

I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

3.04 TAPE GLAZING

A. Position tapes on fixed stops so that when compressed by glass their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously but not in one continuous length. Do not stretch tapes to make them fit opening.

C. Where framing joints are vertical, cover these joints by applying tapes to heads and sills first and then to jambs. Where framing joints are horizontal, cover these joints by applying tapes to jambs and then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Do not remove release paper from tape until just before each lite is installed.

F. Apply heel bead of elastomeric sealant.

G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.05 GASKET GLAZING (DRY)

A. Fabricate compression gaskets in lengths recommended by gasket manufacturers to fit openings exactly, with stretch allowance during installation.

B. Secure compression gaskets in place with joints located at corners to compress gaskets producing a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturers.

C. Install gaskets so they protrude past face of glazing stops.

3.06 SEALANT GLAZING (WET)

A. Install continuous spacers between glass lites and glazing stops to maintain glass face clearances and to prevent sealants from extruding into glass channel weep systems until sealants cure. Secure spacers in place and in a position to control depth of installed sealant relative to edge clearance for optimum sealant performance.

B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealants to glass and channel surfaces.

C. Tool exposed surfaces of sealants to provide a substantial wash away from glass. Install pressurized gaskets to protrude slightly out of channel to eliminate dirt and moisture pockets.

3.07 PROTECTION AND CLEANING

A. Protect· exterior glass from breakage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to the glass surface. Remove nonpermanent labels, and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them

immediately as recommended by glass manufacturers.

C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for build-up of dirt, scurry, alkali deposits, or stains, and remove as recommended by glass manufacturer.

D. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents and vandalism, during construction period.

E. Wash glass on both faces in each area *of* Project not more than 4 days prior to date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturers.

PRODUCT DATA SHEET 1 - PRIMARY CLEAR TEMPERED FLOAT GLASS

A. Primary Clear Tempered Glass: Clear fully tempered float glass shall be used wherever so indicated on the Drawings.

B. Class: Class 1 (clear) fully tempered float glass.

C. Nominal Performance Characteristics are as indicated below:

   1. Visible Light Transmittance: 80% to 95%.

   2. Shading Coefficient: 0.90 to 0.95.

   3. Outdoor Visible Reflectance: 5% to 10%.

D. Available Manufacturers:

   1. Ford Glass.

   2. Guardian Industries Corp.

   3. Libbey Owens Ford.

   4. PPG.

PRODUCT DATA SHEET 2 - PRIMARY TINTED TEMPERED FLOAT GLASS

A. Primary Tinted Tempered Glass: Tinted fully tempered float glass shall be used wherever so indicated on the Drawings.

B. Class: Class 2 (tinted heat absorbing and light reducing) fully tempered float glass of tint color indicated below.

    1. Gray.

C. Nominal Performance Characteristics are as indicated below:

    1. Visible Light Transmittance: 40% to 50%.

    2. Shading Coefficient: 0.60 to 0.75.

    3. Outdoor Visible Reflectance: 5% to 7%.

D. Available Products:

    1. Ford Glass Sunglas Grey.

    2. Guardian Industries Corp. Gray.

    3. Libbey Owens Ford Grey Tint.

    4. PPG Solargray.

PRODUCT DATA SHEET 3 - LAMINATED GLASS

A. Clear Laminated Glass: Except as otherwise indicated, all interior glass shall be clear laminated glass.

B. Kind of Laminated Glass per ASTM C 1172: Kind LA (two lites of annealed Type I glass).

1. Clear Inner Lite: Class 1 (clear) float glass, with a thickness of 3.0 mm.

2. Clear Outer Lite: Class 1 (clear) float glass with a minimum thickness of 3.0 mm.

3. Thickness of Plastic Interlayer: 0.030 inch (8 mm).

4. Color of Plastic Interlayer: Clear.

5. Nominal Performance Characteristic of Laminated Units are as indicated below:

a. Visible Light Transmittance: 80% to 90%.

b. Summer Daytime U-Value: .98 to 1.00.

c. Winter Nighttime U-Value: 1.04 to 1.06.

d. Shading Coefficient: 0.90 to 0.95.

C. Available manufacturers:

1. Globe Amerada Glass Co.

2. Guardian Industries Corp.

3. Viracon, Inc.

4. Binswager Mirror Co.

PRODUCT DATA SHEET 4- LAMINATED GLASS

A. Tinted Laminated Glass: Except as otherwise, indicated all exterior glass shall be tinted laminated glass.

B. Kind of Laminated Glass per ASTM C 1172: Kind LA (two lites of annealed Type I glass).

   1. Clear Inner Lite: Class 1 (clear) float glass, with a thickness of 3.0 mm.

   2. Clear Outer Lite: Class 1 (clear) float glass with a minimum thickness of 3.0 mm.

   3. Thickness of Plastic Interlayer. 0.030 inch (8mm).

   4. Color of Plastic Interlayer: Gray.

   5. Nominal Performance Characteristics Of Laminated Units are as indicated below:

      a. Visible Light Transmittance: 40% to 50%

      b. Summer Daytime U-Value: .98 to 1.00

      c. Winter Nighttime U-Value: 1.04 to 1.06

      d. Shading Coefficient: 0.63 to 0.70

C. Available manufacturers:

   1. Globe Amerada Glass Co.

   2. Guardian Industries Corp.

   3. Binswanger Mirror Co.

PRODUCT DATA SHEET 5 - ELASOMETRIC GLAZING SEALANT.

A. Elastometric Glazing Sealant: Elastometric glazing sealant shall be used for all glass installations unless otherwise indicated.

B. Base Polymer: Neutral-curing silicone or urethane.

C. Type: S (single component) or M (multicomponent).

D. Grade: NS (non-sag).

E. Class: 25.

F. Additional Movement capability: Not less than 25 percent movement in extension and not less than 25 percent in compression for a total of not less than 50 percent movement.

G. Available Products:

1. Pecora 864, 895 or 985.

2. Tremco Proglaze II or Dymonic.

END OF SECTION

SECTION 09130 – ACOUSTICAL SUSPENSION CEILINGS

PART I – GENERAL

1.01 WORK INCLUDED

A. This Section includes acoustical ceiling suspension system, exposed grid and concealed grid, for support of acoustical panels included in another Section.

1.02 RELATED WORK

A. Related Work in Other Sections: 09510 Acoustical Ceilings

1.03 REFERENCES

A. Industry standards governing this work are of the latest issue at the date of this Specification release, except as otherwise noted:

1. American Society for Testing and Materials [ASTM]:

ASTM A 366	Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
ASTM C 635	Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
ASTM C 636	Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.

1.04 SYSTEM DESCRIPTION

A. Design Criteria:

1. Deflection: Acoustical suspension system including all components, hanger, and fastening devices shall be capable of supporting ceiling grilles, light fixtures, ceiling speakers, and finish ceiling without deflecting more than 1/360 of span length in inches when tested in accordance with ASTM C 635.

B. Tolerances: Finish ceiling shall be level within a tolerance of 1/8 inch in ten feet in all directions.

C. Qualification of Product:

1. Product shall be acceptable to manufacturer of the finish ceiling it supports. Refer to Section 09510.

2. Where a suspension system becomes a part of a rated assembly, it shall comply with rating provisions specified.

1.05 SUBMITTALS

A. Samples:

1. Linear Items: Two 12-inch lengths of each item.

2. Anchors and Fasteners: One of each type identified for each type of installation.

B. Shop Drawings shall indicate:

1. Hanger supports locations.

2. Framing and placement layout to produce finish ceiling in accordance with Design Professional of Record's reflected ceiling plan.

3. Location of items penetrating ceiling for which framing must be coordinated.

4. Framing and hangers in addition to the normal spacing for recessed items or items penetrating ceiling.

5. Special framing to support suspension system under wide ducts and other obstructions to normal hanger spacing.

6. Details of power-driven anchor system proposed.

C. Certification: Furnish certification from an acceptable independent testing laboratory that Shop Drawings provides system which will comply with the design criteria specified.

D. Manufacturer's standard installation instructions amended to comply with this project.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver in manufacturer's original packages, with seals unbroken, and with manufacturer's name and contents of package noted. Store in enclosed dry and ventilated areas and protect from dirt, grease, other contaminants or damage.

1.07 PROJECT/SITE CONDITIONS

A. Inspect job for conditions which would prevent execution of this work as specified. Do not proceed until unsatisfactory conditions are corrected.

1.08 SEQUENCING/SCHEDULING

A. Hanger support installation shall be coordinated with installation of work receiving them and work hangers' support.

B. Centerlines of areas to receive exposed grid systems shall be established and maintained so all trades can work to comparable established lines.

C. Verify ceiling height with installed plumbing, heating, air conditioning, ducts and electrical items to assure that clearances are provided for ceiling suspension system framing.

D. Coordinate ceiling suspension framing to receive recessed items and openings having finish frames furnished under other Sections.

PART II - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Acceptable Manufacturers Subject to Compliance with this Specification:

1. Roper Eastern Building Systems [referenced manufacturer].

2. National Rolling Mills, Inc.

3. Donn Corporation.

2.02 EXPOSED GRID SUSPENSION SYSTEM

A. Suspension System:

1. "Tablock Double Web" exposed grid system conforming to heavy duty classification of ASTM C 635.

2. "Firesafe Tablock" double web exposed grid system conforming to heavy duty classification of ASTM C 635, two-hour fire rated.

B. Grid Components: Conform to requirements of Heavy [16-pound minimum] Structural Classification ASTM C 635. Main beams shall be

double thickness web bulb section design of steel conforming to ASTM A 366 with web height of 1-1/2 inches and 1 5/1 6-inch bottom flange. Provide cross ties of double thickness bulb section with 15/16-inch bottom flange.

C. Hanger Support Attachment Devices: ASTM C 636.

D. Hanger Material: Galvanized soft annealed mild steel wire, pencil rods or flat steel straps. The strength of hangers shall be at least equivalent to No. 12 gauge steel wire.

E. Grid Types:

1. Type "A": Manufacturer's standard interlocking 24- inch by 24-inch grid, fire rated, "Firesafe Tablock".

2. Type "B": Manufacturer's standard interlocking 24- inch by 48-inch, non-fire rated, "Tablock Double Web".

F. Accessories: Manufacturer's standard for the system used except as otherwise indicated, including hold-down clips, where required, and "W" shaped wall molding providing a rabbetted off-set at junction of wall and ceiling.

G. Finish:

1. Manufacturer's standard high-bake white enamel paint on steel.

2. Manufacturer's standard etched and clear lacquer on natural aluminum.

3. See Finish Schedule for location of steel and aluminum grid systems.

2.03 CONCEALED GRID SUSPENSION SYSTEM

A. Referenced System: 'Tablock 281 ", double web concealed grid suspension system, conforming to heavy-duty classification of ASTM C 635 and rated as a two-hour assembly by Underwriters' Laboratories, Inc.

B. Grid Components: 0.019-inch steel, conforming to ASTM A 366. Main beams and cross ties shall be 1-1/2 inches high by 7/8-inch minimum width with double thickness webs.

C. Hanger Support Attachment Devices: Conforming to ASTM C 636.

D. Hanger Material: Galvanized soft annealed mild steel wire, pencil rods or flat steel straps with strength at least equivalent to No. 12 gauge steel wire.

E. Grid Types:

1. Type "A": Manufacturer's standard 12 inches by 12 inches.

2. Type "B": Manufacturer's standard 24 inches by 24 inches.

F. Accessories: Manufacturer's standard for the system used except as otherwise indicated, including channels, saddles, tee sections, splices, splines, clips, and molding specifically designed as integral parts of the system.

G. Finish:

1. Manufacturer's standard high-baked white enamel paint on galvanized steel.

2. Manufacturer's standard natural aluminum, etched with clear lacquer.

3. See Finish Schedule for location of steel and aluminum grid systems.

2.04 MAINTENANCE MATERIALS

A. At completion of the job, provide packaged components for the systems used equal to 2% of the quantity installed.

PART III – EXECUTION

3.01 INSTALLATION, GENERAL

A. Installation shall be in accordance with ASTM C 636 except as modified by this Specification.

B. Pattern: Ceiling grid pattern shall follow reflected ceiling plan and installed in straight line pattern.

C. Hangers:

1. For 48 Inch Carrying Channel or Main Runner Spacing: Attach to hanger supports not exceeding 48 inches On Center in direction at right angles to structural framing and 48 inches On Center in the other direction.

2. Hangers shall not be attached to ducts, pipes or conduit.

3. Secure hangers to supplementary channels wire-tied to supports where hangers do not occur on standard hanger support spacing or where other work prevents hanger from anchoring to standard support spacing.

4. No hanger shall be more than five degrees out of plumb.

5. In addition to hangers supporting the suspension system, provide hangers at all four corners of HVAC ceiling diffusers, return air grilles, and light fixtures when their area exceeds two square feet.

D. Suspension Systems:

1. Installation of suspension system shall be in accordance with manufacturer's instructions.

2. Install metal edge mold where suspended ceiling abuts vertical surfaces.

3. Fasten edge mold to wall not more than three inches from ends and not more than 16 inches On Center between end holes.

E. Workmanship:

1. Suspension system shall be straight and in alignment and exposed surface flush and level within tolerances specified.

2. Corners: Miter cut inside and outside corners of exposed grid.

3.02 GRID PATTERN

A. 24 Inches by 48 Inches Grid Parallel to Structural Framing:

1. Space main runners 48 inches On Center at right angles to structural framing.

2. Space 48 inches cross runners at right angles to main runners 24 inches on Center.

B. 24 Inches by 48 Inch Grid at Right Angles to Structural Framing:

1. Space main runner 48 inches On Center at right angles to structural framing.

2. Space 48-inch cross runners 48 inches On Center framing

between and at right angles to main runners.

3. Space 48-inch cross runners parallel to and at midpoint between main runners.

C. 24 Inch by 24 Inch Grid:

1. Space main runners 48 inches On Center at right angles to structural framing.

2. Space 48-inch cross runners 24 inches On Center at right angles to main runners.

3. Space 24-inch cross runners parallel to and at midpoint between main runners.

3.03 COORDINATION

A. Coordinate work, including layouts, with other trades. Mounts, clips, and other attachment devices for electrical, mechanical, heating, ventilating and air conditioning components are provided under the Mechanical Systems and Electrical Systems requirements.

3.04 RATED CEILING

A. Install suspension system for rated ceilings complying with requirements of agency establishing ratings specified.

END OF SECTION

SECTION 09220 – PORTLAND CEMENT PLASTER

PART I – GENERAL

1.01 RELATED DOCUMENTS

A. RFP Documents, Bridging Drawings, performance criteria and, after award, applicable Design-Build Contract provisions, including applicable general requirements, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. Metal lath and accessories.

2. Plastic accessories.

3. Portland cement plaster.

1.03 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and applicable General Requirements Sections.

B. Product Data for each product specified.

C. Material Certificates: Submit certificate signed by manufacturer for each kind of plaster aggregate certifying that materials comply with requirements.

1.04 QUALITY ASSURANCE

A. Mockups: Prior to installing plaster work, construct panels for each type of finish and application required to verify selections made under Sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.

1. Locate mockups on-site in the location and of the size indicated or, if not indicated, as directed by Design Professional of Record.

2. Erect mockups 48 by 48 inches (1200 by 1200 mm) by full thickness in presence of Design Professional of Record using materials, including lath, support system, and control joints, indicated for final Work.

3. Notify Design Professional of Record 7 days in advance of the dates and times when mockups will be constructed.

4. Demonstrate the proposed range of aesthetic effects and workmanship.

5. Obtain Design Professional of Record's approval of mockups before start of plaster Work.

6. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Portland Cement plaster Work.

    a. When directed, remove mockups from the Project site.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver cementitious materials to Project site in original packages, containers, or bundles, labeled with manufacturer's name, product brand name, and lot number.

B. Store materials inside, under cover, and dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes.

1.06 PROJECT CONDITIONS

A. Environmental Requirements, General: Comply with requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after plaster application.

B. Warm-Weather Requirements: Protect plaster against uneven and excessive evaporation and from strong flows of dry air, both natural and artificial. Apply and cure plaster as required by climatic and job conditions to prevent dry out during cure period. Provide suitable coverings, moist curing, barriers to deflect sunlight and wind, or combinations of these, as required.

C. Ventilation: Provide natural or mechanical means of ventilation to properly dry interior spaces after Portland Cement plaster has cured.

D. Protect contiguous work from soiling and moisture deterioration caused by plastering. Provide temporary covering and other provisions necessary to minimize harmful spattering of plaster on other work.

PART II – PRODUCTS

2.01 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Expanded-Metal Lath:

a. Alabama Metal Industries Corp. (AMICO).

b. California Expanded Metal Products Co.

c. Dale//lncor Industries, Inc.

d. Dietrich Industries, Inc.

e. National Gypsum Co.

f. Unimast, Inc.

g. United States Gypsum Co.

h. Western Metal Lath Co.

2. Plastic Accessories:

a. Alabama Metal Industries Corp. (AMICO).

b. Plastic Components, Inc.

c. Vinyl Corp.

2.02 METAL SUPPORTS FOR SUSPENDED AND FURRED CEILINGS

A. General: Size metal ceiling supports to comply with ASTM C 1063, unless otherwise indicated.

B. Cast-in-Place and Post-installed Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials, with holes or loops for attaching hanger wires; and with capability to sustain, without failure, a load equal to 5 times that imposed by ceiling construction, as determined by testing according to ASTM E 488 conducted by a qualified independent testing agency.

1. Cast-in-place type designed for attachment to concrete forms.

2. Expansion anchor.

C. Wire for Hangers and Ties: ASTM A 641 (ASTM A 641M), Class 1 zinc coating, soft

temper.

D. Rod Hangers: Mild steel, zinc coated.

E. Channels: Cold-rolled steel, minimum 0.0598-inch- (1.5-mm-) thick base (uncoated) metal and 7/16-inch- (11.1-mm-) wide flanges, and as follows:

1. Carrying Channels: 1-1/2 inches (38 mm) deep, 475 lb/1000 feet (0.7 kg/m).

2. Furring Channels: 3/4 inch (19 mm) deep, 300 lb/1000 feet (0.45 kg/m).

3. Finish: ASTM A 653, G60 (ASTM A 653M, 2180) hot-dip galvanized coating.

2.03 STEEL RUNNERS

A. General: Provide steel runners complying with the following requirements:

1. Protective Coating: ASTM A 653, G40 (ASTM A 653M, Z90) hot-dip galvanized coating.

2.04 LATH

A. Expanded-Metal Lath: Comply with ASTM C 847 for material, type, configuration, and other characteristics indicated below.

1. Material: Fabricate expanded-metal lath from sheet metal conforming to the following:

a. Galvanized Steel: Structural-quality, zinc-coated (galvanized) steel sheet complying with ASTM A 653, G60 (ASTM A 653M, Z180) minimum coating designation, unless otherwise indicated.

2. Rib Lath: Comply with the following requirements:

a. Configuration: Rib depth of 3/8 inch (9.5 mm).

1) Weight: 3.4 lb/sq. yd. (1.8 kg/sq. m).

2.05 ACCESSORIES

A. General: Comply with material provisions of ASTM C 1063 and the requirements indicated below; coordinate depth of accessories with thickness and number of plaster coats required.

1. Plastic Components: ASTM D 4216, high-impact polyvinyl chloride (PVC) for building products.

B. Cornerbeads: Small nose comer beads fabricated from the following, with expanded flanges of large-mesh diamond lath allowing full plaster encasement.

1. PVC Plastic: Minimum 0.035 inch (0.89 mm) thick.

C. Casing Beads: Square-edged style, with expanded flanges of the following material:

1. PVC Plastic: Minimum 0.035 inch (0.89 mm) thick.

D. Control Joints: Prefabricated, of material and type indicated below:

1. PVC Plastic: Minimum 0.035 inch (0.89 mm) thick.

2. Two-Piece Type: Pair of casing beads with back flanges formed to provide slip-joint action, adjustable for joint widths from 1/8 to 5/8 inch (3 to 16 mm).

a. Provide removable protective tape on plaster face of control joints.

E. Lath Attachment Devices: Material and type required by ASTM C 1063 for installations indicated.

2.06 PLASTER MATERIALS

A. Base-Coat Cements: Type as indicated below:

1. Portland cement, ASTM C 1SO, Type I.

B. Job-Mixed Finish-Coat Cement: Material as indicated below:

1. Portland cement, ASTM C 150, Type I.

C. Lime: Special hydrated lime for finishing purposes, ASTM C 206, Type S; or special hydrated lime for masonry purposes, ASTM C 207, Type S.

D. Sand Aggregate: ASTM C 897.

2.07 MISCELLANEOUS MATERIALS

A. Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, 1/2 inch (13 mm) long, free of contaminates, manufactured for use in Portland Cement plaster.

B. Water for Mixing and Finishing Plaster. Potable.

C. Bonding Agent: ASTM C 932.

D. Steel drill screws complying with ASTM C 1002 for fastening metal lath to wood or steel members less than 0.033 inch (0.84 mm) thick.

E. Steel drill screws complying with ASTM C 954 for fastening metal lath to steel members 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.

2.08 PLASTER MIXES AND COMPOSITIONS

A. General: Comply with ASTM C 926 for base- and finish-coat mixes as applicable to plaster bases, materials, and other requirements indicated.

B. Base-Coat Mixes and Compositions: Proportion materials for respective base coats in parts by volume per sum of cementitious materials for aggregates to comply with the following requirements for _each method of application and plaster base indicated. Adjust mixed proportions below within limits specified to attain workability.

C. Fiber Content: Add fiber to following mixes after ingredients have mixed at least 2 minutes. Comply with fiber manufacturer's written instructions but do not exceed 1 lb/cu. ft. (16 kg/cu. m) of cementitious materials. Reduce aggregate quantities accordingly to maintain workability.

D. Three-Coat Work over Metal Lath: Base-coat proportions as indicated below:

1. Scratch Coat: 1-part Portland Cement, Oto 3/4 parts lime, 2-1/2 to 4 parts aggregate.

2. Brown Coat: 1-part Portland Cement, 0 to 3/4 parts lime, 3 to 5 parts aggregate.

E. Two-Coat Work over Concrete Unit Masonry: Base-coat proportions as indicated below:

1. Base Coat: 1-part Portland Cement, 3/4 to 1-1/2 parts lime, 3 to 4 parts aggregate.

F. Job-Mixed Finish Coats: Proportion materials for finish coats in parts by volume for cementitious materials and parts by volume per sum of cementitious materials to comply with the following requirements:

1. Proportions using sand aggregates as indicated below:

a. 1-part Portland Cement, 3/4 to 1-1/2 parts lime, 3 parts sand.

2.09 MIXING

A. Mechanically mix cementitious and aggregate materials for plasters to comply with applicable referenced application standards and with recommendations of plaster manufacturer.

PART III – EXECUTION

3.01 INSTALLATION OF LATH AND FURRING, GENERAL

A. Standards: Comply with MUSFA 920, "Guide Specifications for Metal Lathing and Furring," and with requirements of ASTM C 1063.

B. Install supplementary framing, blocking, and bracing at terminations in work and for support of fixtures, equipment services, heavy trim, grab bars, handrails, furnishings, and similar work to comply with details indicated or, if not otherwise indicated, to comply with applicable written instructions of lath and furring manufacturer.

C. Isolation: Where lathing and metal support system abuts building structure horizontally, sufficiently isolate from structural movement to prevent transfer of loading from building structure. Install slip- or cushion-type joints to absorb deflections but maintain lateral support.

1. Frame both sides of control joints independently and do not bridge joints with furring and lathing or accessories.

D. Install additional framing, furring, runners, lath, and beads, as required to form openings and frames for other work as indicated. Coordinate support system for proper support of framed work that is not indicated to be supported independently of metal furring and lathing system.

3.02 INSTALLATION OF CEILING SUSPENSION SYSTEMS

A. Preparation and Coordination: Coordinate installation of ceiling suspension system with installation of overhead structural systems to ensure inserts and other structural anchorage provisions have been installed to receive ceiling hangers in a manner that will develop their full strength and at spacings required to support ceiling.

1. Furnish concrete inserts, and other anchorage devices indicated, to other trades for installations well in advance of time needed for coordination with other work.

B. Hanger Installation: Attach hangers to the structure above ceiling to comply with MUSFA 920, "Guide Specifications for Metal Lathing and Furring," and with referenced standards

C. Install ceiling suspension system components of sizes and spacings indicated, but not in smaller sizes or greater spacings than those required by referenced lathing and furring installation standards.

1. Wire Hangers: Space 0.16-inch- (4-mm-) diameter wire hangers not over 48 inches (1219 mm) o.c., parallel with and not over 36 inches (914 mm) perpendicular to direction of carrying channels, unless otherwise indicated, and within 6 inches (152 mm) of carrying channel ends.

2. Carrying Channels: Space carrying channels not over 36 inches (914 mm) o.c. with 48- inch (1219-mm) o.c. with hanger spacing.

3. Furring Channels to Receive Metal Lath: Space furring channels not over 24 inches (609 mm) o.c. for 3.4-lb/sq. yd. (1.8-kg/sq. m), 3/8-inch (9.5-mm) rib lath.

3.03 PREPARATIONS FOR PLASTERING

A. Clean plaster bases and substrates for direct application of plaster, removing loose material and substances that may impair the Work.

B. Apply bonding agent on concrete and concrete unit masonry surfaces indicated for direct plaster application; comply with manufacturer's written instructions for application.

C. Install temporary grounds and screeds to ensure accurate rodding of plaster to true surfaces; coordinate with scratch-coat work.

D. Refer to the applicable carpentry requirements for installing permanent wood grounds, if any.

3.04 INSTALLATION OF PLASTERING ACCESSORIES

A. General: Comply with referenced lathing and furring installation standards for provision and location of plaster accessories of type indicated. Miter or cope accessories at corners: install with tight joints and in alignment. Attach accessories securely to plaster bases to hold accessories in place and in alignment during plastering. Install accessories of type indicated at following locations:

1. External Corners: Install comer reinforcement at external corners.

2. Terminations of Plaster. Install casing beads, unless otherwise indicated.

3. Control Joints: Install at locations indicated or, if not indicated, at locations complying with the following criteria and approved by Design

Professional of Record:

a. Where an expansion or contraction joint occurs in surface of construction directly

behind plaster membrane.

b. Distance between Control Joints: Not to exceed 18 feet (5.4 m) in either direction or a length-to-width ratio of 2-1/2 to 1.

c. Wall Areas: Not more than 144 sq. ft. (13 sq. m).

d. Horizontal Surfaces: Not more than 100 sq. ft. (9 sq. m) in area.

e. Where plaster panel sizes or dimensions change, extend joints full width or height of plaster membrane.

3.05 PLASTER APPLICATION

A. Plaster Application Standard: Apply plaster materials, composition, and mixes to comply with ASTM C 926.

B. Do not use materials that are caked, lumpy, dirty, or contaminated by foreign materials.

C. Do not use excessive water in mixing and applying plaster materials.

D. Flat Surface Tolerances: Do not deviate more than plus or minus 1/8 inch in 10 feet (3 mm in 3 m) from a true plane in finished plaster surfaces, as measured by a 10-foot (3-m) straightedge placed at any location on surface.

E. Grout hollow-metal frames, bases, and similar work occurring in plastered areas, with base- coat plaster material. Except where full grouting is indicated or required for fire-resistance rating, grout at least 6 inches (152 mm) at each jamb anchor.

F. Sequence plaster application with installation and protection of other work so that neither will be damaged by installation of other.

G. Plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground, unless otherwise indicated. Where interior plaster is not terminated at metal frame by casing beads, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.

H. Corners: Make internal corners and angles square; finish external corners

flush with comer beads.

I. Number of Coats: Apply plaster of composition indicated, to comply with the following requirements:

1. Three Coats: Over the following plaster base:

a. Metal lath.

2. Two Coats: Over the following plaster bases:

a. Concrete unit masonry.

b. Concrete.

J. Finish Coats: Apply finish coats to comply with the following requirements:

1. Float Finish: Apply finish coat to a minimum thickness of 1/8 inch (3 mm) to completely cover base coat, uniformly floated to a true even plane with fine-textured sand finish matching Design Professional of Record's sample.

K. Moist-cure plaster base and finish coats to comply with ASTM C 926, including written instructions for time between coats and curing in "Annex A2 Design Considerations."

3.06 CUTTING AND PATCHING

A. Cut, patch, replace, repair, and point up plaster as necessary to accommodate other work. Repair cracks and indented surfaces. Point-up finish plaster surfaces around items that are built into or penetrate plaster surfaces. Repair or replace work to eliminate blisters. buckles, check cracking, dry-outs, efflorescence, excessive pinholes, and similar defects. Repair or replace work as necessary to comply with the required visual effects.

3.07 CLEANING AND PROTECTING

A. Remove temporary covering and other provisions made to minimize spattering of plaster on other work. Promptly remove plaster from door frames, windows, and other surfaces not to be plastered. Repair surfaces stained, marred or otherwise damaged during plastering work. When plastering work is completed, remove unused materials, containers, equipment, and plaster debris.

8. Provide final protection and maintain conditions, in a manner

acceptable to manufacturer and Installer, that ensure plaster work is without damage or deterioration at the time of Substantial Completion.

END OF SECTION

SECTION 09260 – GYPSUM WALLBOARD SYSTEMS

PART I – GENERAL

1.01 WORK INCLUDED

A. This Section includes metal framed gypsum drywall work and related accessories.

B. Refer to Mechanical and Electrical Work for items penetrating drywall work.

1.02 RELATED WORK

A. Related Work in Other Sections:

07920	Sealants and Caulkings
	Access Doors
09900	Painting

1.03 REFERENCES

A. Industry standards governing this work are of the latest issue at the date of this Specification release, except as otherwise noted:

1. American National Standards Institute [ANSI]:

ANSI A97.2	Installation of Steel Framing Members to Receive Screw Attached Gypsum Wallboard and Backing Board.

2. American Society for Testing and Materials [ASTM]:

ASTM C 36	Gypsum Wallboards.
ASTM D 3678	High Impact Rigid PVC Plastic Gypsum Sheathing Board.
ASTM C 79	Gypsum Sheathing Board.
ASTM C 442	Gypsum Backing Board.
ASTM C 474	Testing Joint Treatment Materials for Gypsum Wallboard Construction.

ASTM C 475 Joint Treatment Materials for Gypsum Wallboard Construction.

ASTM C 645 Non-Load [Axial] Bearing Steel Studs, Runners [Track] and Rigid Furring Channels for Screw Application of Gypsum Board.

ASTM C 646 Steel Drill Screws for the Application of Gypsum Board to Light-Gauge Steel Studs.

ASTM C 754 Installation of Steel Framing Members to Receive Screw-Attached Gypsum Wallboards, Backing Boards, or Water-Resistant Backing Board.

ASTM C 840 Application and Finishing of Gypsum Board.

3. Underwriters' Laboratories, Inc.

   Fire Resistance Index

   Building Materials Directory

1.04 SYSTEM DESCRIPTION

A. Allowable Tolerances:

1. Straight: 1/8 inch in 8'-0".

2. Plumb or Level: 1/8 inch in 8'-0".

3. Square: 1/8 inch within 8'-0" of corner, except where angles are indicated.

4. Planes at Abutting Board Edges: 1/32 inch.

5. Locate openings in drywall work within 1/2 inch of dimensioned locations on Drawings. Where studs, piping, conduit, or other minor obstructions occur, openings shall be not more than four inches from locations indicated.

B. Furnish framing members, boards, and accessories at the longest practical lengths to minimize job-made joints.

1.05 QUALITY ASSURANCE

A. Qualifications of Manufacturer: One listed in UL Building Materials Directory.

1.06 SUBMITTALS

A. Samples: None

B. Shop Drawings:

1. Detail drywall ceiling and wall support systems.

2. Indicate hanger layout for support of ceiling grillage system.

3. Detail anchorage of support systems to adjacent work.

4. Identify types of fasteners to be used in each condition detailed in sub-paragraphs 1 and 2 above.

5. Include details at openings, corners, partition intersections, and control joints

C. Manufacturer's storage and installation instructions.

D. Certificates from an acceptable independent testing agency certifying compliance with design criteria specified.

1.07 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver products in manufacturer's original unopened packages, containers or bundles with manufacturer's name and brand clearly legible.

B. Store products in dry areas, protect from damage and contamination, and comply with manufacturer's instructions.

1.08 PROJECT SITE CONDITIONS

A. Maintain uniform temperature between 55° F and 70° F for 24 hours before, during, and after installation of the work.

B. Provide ventilation to eliminate sweating and build-up of moisture, and to produce uniform drying-out of applied joint compound where work is in progress or has been completed.

C. Inspect job for conditions which would prevent execution of this work as specified. Do not proceed until unsatisfactory conditions are corrected.

1.09 SEQUENCING/SCHEDULING

A. Coordination:

1. Verify rough opening location and size with supplier of finished opening items furnished under other Sections.

2. Verify blocking and anchoring provisions with the supplier for items mounted on wall.

3. Locate studs to receive plumbing fixture mounting brackets furnished under the Plumbing Sections.

4. Cut runners and other drywall support members to allow concealed conduit and pipe furnished under Mechanical and Electrical Sections. Reinforce, block, or frame around unsatisfactory cutting to maintain integrity of support system.

5. Verify ceiling height with installed plumbing, air conditioning ducts, and electrical items to see that clearances provide for ceiling suspension system framing indicated.

6. Coordinate control and expansion joints in walls and ceilings to verify that they are located as indicated and have no obstructions.

PART II – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Acceptable manufacturers subject to compliance with this Section:

1. United States Gypsum (referenced).

2. Georgia Pacific.

3. Gold Bond Building Products.

2.02 SUPPORT SYSTEMS AND FASTENERS

A. Ceiling Grillage:

1. Hangers:

a. Not less than 8-gauge pre-straightened wire.

b. Threaded rods 3/8" diam. length as required, nuts and washers.

2. Main Runners:

a. 6 inches cold-rolled, 16 gauge, "C" purlins

b. 1-1/2 Inch Cold-Rolled Painted Steel Channels: 0.475 pounds/foot.

c. Drywall Studs: As specified in Article 3.01 Paragraph B.

3. Furring Channels (Cross Furring):

a. Depth: Approximately 7/8 inch.

b. Overall Width: Approximately 2-9/16 inches minimum.

c. Board Contact Surface Width: Not less than 1-1/4 inches.

d. Material: Galvanized steel.

e. Weight: Not less than 0.29 pounds/foot.

B. Wall Framing:

1. Furring channels: Hat shaped, roll-formed from two gauges of corrosion - resistant steel. Same as specified in article 2.02, paragraph 3.

2. Industry Standard: ASTM C 645.

C. Fasteners:

1. General:

a. Manufacturer's standards. Comply with drawings and these specifications as minimum requirements.

b. Hanger attachments shall be designed specifically to attach to structure indicated and capable of supporting 300 pounds each.

c. Screws: Self-drilling, self-tapping type designed to be power driven, ASTM C 646.

d. Hanger and Tie· Wire: Soft annealed wire, minimum gauge as follows: 8 gauge for hangers and 16 gauge for ties.

2. Metal Runners, Furring Channels and Bracing Members to Concrete or Masonry: 3/4- i n c h No. 8 case-hardened nail.

3. Light Gauge Metal to Metal Fastenings: 3/8- i n c h Type S pan-head screw, except where two strands of tie wire or wire clips are indicated by manufacturer in ceiling grillage framing.

4. Gypsum Panels to Metal Framing: Type S bugle head screw, length recommended by manufacturer for thickness and number of layers.

5. Other Fasteners, Including "Z" Clips, Staples, and Adhesive: Standard with manufacturer for type of installation.

2.03 BOARDS

A. Regular Gypsum Board: 1/2 inch and 5/8- inch thickness, four feet wide by lengths as long as practical, complying with ASTM C 36. Tapered edges and faced with paper suitable to receive job finishing.

B. Fire-Rated Board: Same as subparagraph A above and listed in UL's Fire Resistance Index. Board delivered to site shall bear UL classification marking.

2.04 ACCESSORY ITEMS

A. Trim Accessories:

1. Corner Beads: 1-1/4 inch by 1-1/4-inch-high impact rigid PVC with flanges designed to receive joint treatment.

2. Casing Bead Trim:

a. "U" "J" shape or "L" shape high impact rigid PVC trim to protect exposed edges of board, standard with manufacturer to receive joint treatment.

b. Dry-mount casing bead "U" shape high impact rigid PVC to protect edges of board, designed to be mounted dry without joint treatment.

3. Control Joint: High impact rigid PVC with a tape protected 1/4-inch opening and flanges to receive joint treatment.

B. Sealant: Specified in Section 07920.

2.05 JOINT TREATMENT

A. Joint Compound: Ready mixed, all-purpose compound specifically formulated for embedding and finishing joints and depressions in drywall work.

B. Tape: Paper fiber, fabricated specifically for finishing drywall joints, spark-perforated and lightly pre-creased.

C. Water: Potable.

D. Industry Standards: ASTM C 474 and C 475.

PART III – EXECUTION

3.01 CEILING GRILLAGE

A. Hanger Attachment: Set "C" purlins at maximum spacing of 6 feet and secure to overhead construction with threaded rods spaced at not more than 4 feet on centers and not more than six inches from channel ends. In no case shall a hanger support more than 16 square feet of ceiling.

B. Main Runners:

1. Space main runners within six inches of walls and as specified below for the remainder of space. Where ducts or other obstructions interfere with this spacing, use main runner spacing not to exceed 8'-0" on center.

2. 1-1/2 Inch Runner Channels: For 4'-0" main runner spacing.

3. 2-1/2 Inch Drywall Studs: For 4'-0" to 6'-0" main runner spacing.

4. 3-5/8 Inch Drywall Studs: For 6'-0" to 8'-0" main runner spacing.

C. Cross Furring:

1. Spacing: 16 inches on center for furring channels, 7/8 inches by 2-3/4 inches.

2. Where spans are wider than 4’-0” from runners are required, provide cross furring of sufficient strength for span.

D. Control Joints: Space joints as indicated. Do not extend grillage framing across joints. Coordinate joint locations with items penetrating ceiling and with joints in wall.

E. Fastenings: Manufacturer's standard furring channel clip or two strands of tie-wire. Cross furring studs shall be boxed twelve inches long at hangers.

F. No grillage framing shall contact masonry or concrete walls, which extend up past grillage system.

G. Building Expansion Joints: Frame to expansion joints and provide for joint covers or caulked joints as detailed.

H. Reinforce openings in ceiling suspension system which interrupts main carrying or furring channels with lateral channel bracing. Extend bracing 24 inches minimum past each end of opening.

3.02 PARTITION FRAMING

A. General: Install steel framing members in compliance with ASTM .C 754.

B. Layout:

1. Locate and align partitions within tolerances specified.

2. Verify that partition type, furring channels depth, height, control joints, and openings are as indicated.

C. Studs:

1. Gauges:

a. Interior Partitions to Structure Above: 20 gauge.

b. Other: 25 gauge.

2. Spacing: 16 inches on center, except where greater spacing is indicated.

3. Provide additional studs at:

a. Inside and outside corners.

b. Partition intersections.

c. Fixture brackets and hanger plates.

d. Control and expansion joints; one each side of open joint.

e. Horizontal locations to receive board ends.

4. Fastening:

a. Anchor studs to runners shall comply with manufacturer's instructions.

5. Splicing: Avoid splicing wherever possible. In conditions where splices are difficult to avoid, follow the manufacturer’s instructions.

6. Bracing: Brace opposite flanges of studs receiving boards only on one side, complying with manufacturer's instructions.

D. Furring:

1. Install furring channels vertically, spaced 16 inches on center horizontally.

2. Anchor channels to wall twelve inches on center staggered through alternate using flanges.

3. Provide additional channels at:

a. Openings and corners.

b. Four inches off floor, horizontally.

c. Line of finish ceiling, horizontally.

d. Expansion and control joints.

4. Nest furring channels eight inches at splices and anchor with two nails in each lapped flange.

E. Soffits: Frame soffits with drywall studs spaced 16 inches on center and complying with manufacturer's instructions.

F. Building Expansion Joints: Frame to expansion joints and provide for joint covers or caulked joints as detailed.

3.03 BOARD APPLICATION

A. Cutting and Fitting:

1. Cut board by scoring and breaking or by sawing, working from

a. face side.

2. Neatly cut board to fit around openings.

3. Smooth cut edges to obtain neat joint when erected.

4. Scribe board meeting projecting surfaces to fit.

B. Fasteners:

1. Screw-attach boards to supporting system as specified.

2. Slightly depress screw heads below surface of board but do not break face paper.

C. Boards: Bring adjacent boards into contact but do not force into place.

D. Ceilings:

1. Place boards with long edges at right angles to support members.

2. Board ends shall occur only over supporting members and staggered.

3. Attach boards to support framing with screws spaced twelve inches on center in field and at abutting ends.

E. Single Layer Walls: In accordance with ASTM C 840, System VIII.

1. Place boards with long edges parallel to support framing and all abutting ends and edges occurring over framing member surfaces.

2. Board ends shall be staggered.

3. Attach boards to support framing with screws spaced twelve inches on center in field and eight inches on center at abutting edges and top and bottom ends.

4. Stagger joints on opposite sides of partitions.

3.04 ACCESSORIES

A. Layout:

1. Install accessories to drywall work exposed to view plumb and level.

2. Where drywall extends up above ceiling suspension systems furnished under other Sections, extend accessories up four inches above finish ceiling, except where full partition extends to structure above.

3. Cover corners and exposed raw edges of boards with accessories.

B. Installation:

1. Fasteners and fastener spacing shall be in accordance with the manufacturer's instructions.

2. Joints shall be neat, flush, tight, in alignment, and matching approved sample.

3. Corner Beads: Provide at external corners.

4. Casing Beads: Provide at exposed edges of gypsum board.

5. Dry-set Casing Beads: Install at locations where differential movement occurs. These joints shall not receive tapes and joint treatment.

6. Control Joint: Provide control joint trim in opening left in drywall work for control joints. After joint treatment is complete, remove tape protecting open slot in trim.

3.05 RATED WORK

A. Where fire rating is required, comply with design criteria specified. This includes but is not necessarily limited to special requirements in the following:

1. Support system.

2. Board types and application.

3. Sealants.

3.06 FINISHING

A. Preliminary and Preparation Work:

1. Prefill tapered edges or open space between abutting drywall boards with joint compound.

2. Fill joint flush and wipe excess compound from face of board either side of joint.

3. Allow filled joints to dry before proceeding with joint treatment.

B. Joint Treatment:

1. First Coat [Embedding]:

a. Apply thin uniform layer approximately 1/32 inch to 1/16 inch thick of joint compound slightly wider than tape.

b. Immediately embed tape in compound centered over joint.

c. At internal angles fold tape and embed in compound to form true angle.

d. Apply a skim coat immediately to embed tape.

e. Allow the first coat, including the skim coat, to dry before applying second coat.

2. Second Coat [Fill]:

a. Apply joint compound over first coat.

b. Fill the board taper flush with board surface.

c. Do not apply this coat at interior angles unless tapered edges occur at corners.

d. Allow to dry before applying the next coat.

3. Third Coat [Finishing]:

a. Apply joint compound over and extend slightly beyond second coat.

b. Feather edges to smooth uniform finish.

c. *Over tapered edges do not extend finished joints beyond the* tapered plane of board surface.

d. Apply joint compound to interior angles to cover tape and form true angles.

C. Depression Treatment:

1. Apply minimum of three coats of joint compound over fastener and other depressions.

2. Allow each coat to dry before applying succeeding coats.

3. Level filled areas to plane of board surface.

D. Finishing Accessories:

1. Apply minimum of three coats of joint compound designed for joint treatment.

2. Featheredge each coat to plane of board surface.

3. Extend each coat out on the face of board past preceding coat.

4. Allow each coat to dry before applying succeeding coats.

E. Sanding:

1. Sand each coat of joint compound after it has dried to a smooth surface.

2. Avoid roughening gypsum board face paper and inflicting deep scratches in joint compound while sanding.

F. Workmanship: Finished joint treatment shall fill out depressions and irregularities at joints and accessories to be flush with wallboard surface and to match approved sample.

END OF SECTION

SECTION 09310 – CERAMIC TILE

PART I – GENERAL

1.01 RELATED DOCUMENTS

A. RFP Documents, Bridging Drawings, performance criteria and, after award, applicable Design-Build Contract provisions, including applicable general requirements, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. Ceramic mosaic tile.

2. Italian tile.

3. Glazed wall tile.

B. Related Sections include the following:

1. Requirements for cast-in-place concrete, including monolithic slab finishes specified for tile substrates.

2. Requirements for joint sealants, including sealing of expansion, contraction, control, and isolation joints in tile surfaces.

3. Requirements for portland cement plaster, including portland cement scratch coats over metal lath on wall surfaces.

1.03 DEFINITIONS

A. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.

B. Facial Dimension: Nominal tile size as defined in ANSI A137.1.

1.04 PERFORMANCE REQUIREMENTS

A. Static Coefficient of Friction: For tile installed on walkway surfaces, provide products with the following values as determined by testing identical products per ASTM C 1028:

1. Level Surfaces: Minimum 0.6.

B. Load-Bearing Performance: For ceramic tile installed on walkway surfaces, provide installations rated for the following load-bearing performance level

based on testing assemblies according to ASTM C 627 that are representative of those indicated for this Project:

1. Moderate: Passes cycles 1 through 10.

1.05 SUBMITTALS

A. Product Data: For each type of tile, mortar, grout, and other products specified.

B. Shop Drawings: For the following:

1. Tile patterns and locations.

2. Widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.

C. Tile Samples for Initial Selection: Manufacturers color charts consisting of actual tiles or sections of tiles showing the full range of colors, textures, and patterns available for each type and composition of tile indicated.

D. Grout Samples for Initial Selection: Manufacturers color charts consisting of actual sections of grout showing the full range of colors available for each type of grout indicated.

E. Samples for Verification: Of each item listed below, prepared on Samples of size and construction indicated. Where products involve normal color and texture variations, include Sample sets showing the full range of variations expected.

1. Each type and composition of tile and for each color and texture required, at least 12 inches (300 mm) square, mounted on braced cementitious backer units, and with grouted joints using product complying with specified requirements and approved for completed work in color or colors selected by Design Professional of Record.

2. Full-size units of each type of trim and accessory for each color required.

F. Master Grade Certificates: For each shipment, type, and composition of tile, signed by tile manufacturer and Installer.

G. Qualification Data: For firms and people specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names of architects and owners, and other information specified.

H. Tile Test Reports: Indicate and interpret test results for compliance of special-purpose tile with specified requirements.

I. Setting Material Test Reports: Indicate and interpret test results for compliance of tile-setting and -grouting products with specified requirements.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer who has completed tile installations similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

B. Source Limitations for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from one source with resources to provide products from the same production run for each contiguous area of consistent quality in appearance and physical properties without delaying the Work.

C. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.

D. Mockups: Before installing tile, construct mockups for each form of construction and finish required to verify selections made under Sample submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for completed Work.

1. Locate mockups in the location and of the size indicated or, if not indicated, as directed by Design Professional of Record.

2. Notify Design Professional of Record 7 days in advance of the dates and times when mockups will be constructed.

3. Demonstrate the proposed range of aesthetic effects and workmanship.

4. Obtain Design Professional of Record's approval of mockups before proceeding with final unit of Work.

5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

a. When directed, demolish and remove mockups from the Project site.

b. Approved mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

E. Preinstallation Conference: Conduct conference at Project site to comply with the General Requirements provisions governing Project Meetings.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with the requirements of ANSI A137.1 for labeling sealed tile packages.

B. Prevent damage or contamination of materials by water, foreign matter, and other causes.

1.08 PROJECT CONDITIONS

A. Environmental Limitations: Do not install tile until construction in spaces is completed and ambient temperature and humidity conditions are being maintained to comply with referenced standards and manufacturer's written instructions.

1.09 EXTRA MATERIALS

A. Deliver extra materials to ASEM/Owner. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.

1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size indicated.

PART II – PRODUCTS

2.01 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to the following:

1. Ceramic mosaic tile: Unglazed porcelain ceramic mosaics; 1” x 1·, 2" x 1" or 1" x 1·, as shown on the Drawings or directed; color or colors as selected by Design Professional of Record from manufacturer's lowest price group.

a. Available Manufacturers: Subject to compliance with requirements,

manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1) American Marrazzi Tile, Inc.

2) American Olean Tile Company.

3) Buchta! Corporation USA.

4) Cerim-Floor Gres Ceramiche.

5) Crossville Ceramics.

6) Dal-Tile Corporation.

7) Florida Tile Industries, Inc.

8) Graniti Fiandre.

9) lnterceramics, USA.

10) KPT, Inc.

11) Laufen International, Inc.

12) Lonestar Ceramics Company.

13) Mannington Ceramic Tile.

14) Metropolitan Ceramics.

15) Monarch Tile, Inc.

16) Quarry Tile Company.

17) Seneca Tiles, Inc.

18) Summitville Tiles, Inc.

19) United States Ceramic Tile Company.

2. Glazed wall tile:4" x 4" or 4 ¼" x 4 ¼"; matte, high gloss or crystalline finish as selected by Design Professional of Record; color or colors as selected by Design Professional of Record from manufacturer's lowest group.

   a. Available manufacturer's: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, those listed above for ceramic

mosaic tile.

3. Italian tile: Porcelain tile, 6" x 6" or 12 x 12", as shown on the Drawings; equal or similar as approved to Duraker Florida tile (6" x 6") and Duraker Colormassa (12" x 12"), both as manufactured by Ceramica Floor Gres, Fiorano Modenese, Italy; colors and finishes as selected by the Design Professional of Record from manufacturer's full range of colors and finishes.

B. Available manufacturers of Tile-Setting and Grouting Materials *offering* products that may be incorporated into the Work include, but are not limited to, the following:

1. American Olean Tile Company.
2. Atlas Minerals & Corporation, Inc.
3. Boiardi Products Corporation.
4. Bonsal: W.R. Bonsal Company.
5. Bostik.
6. C-Cure Corporation.
7. Custom Building Products.
8. Dal-Tile Corporation.
9. DAP, Inc.
10. Laticrete International, Inc.
11. Mapei Corporation.
12. Southern Grouts & Mortars, Inc.
13. Summitville Tiles, Inc.
14. TEC Incorporated.

2.02 PRODUCTS, GENERAL

A. ANSI Ceramic Tile.Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.

1. Provide tile complying with Standard Grade requirements, unless otherwise indicated, except as otherwise indicated.

2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting Materials" and "Grouting Materials" articles.

C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:

1. Provide Design Professional of Record's selections from manufacturer's full range of colors, textures, and patterns for products of type indicated.

2. Provide tile trim and accessories that match color and finish of adjoining flat tile.

D. Factory Blending: For tile exhibiting color variations within the ranges selected during Sample submittals, blend tile in the factory and package so tile units taken from one package show the same range in colors as those taken from other packages and match approved Samples.

E. Mounting: Where factory-mounted tile is required, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless another mounting method is indicated.

1. Where tile is indicated for installation in swimming pools, on exteriors, or in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturers specify in writing that this type of mounting is suitable for these kinds of installations and has a record of successful in-service performance.

2.03 TILE PRODUCTS

A. Unglazed Ceramic Mosaic Tile: Provide factory-mounted flat tile complying with the following requirements:

1. Composition: Porcelain.

2. Module Size: 1 by 1 inch (25.4 by 25.4 mm); 1 by 2 inches (25.4 by 50.8 mm); or 2 by 2 inches (50.8) by mm).

3. Nominal Thickness: 1/4 inch (6.35 mm).

4. Face: Plain with cushion edges.

B. Italian Floor Tile: Provide flat tile complying with the following requirements:

1. Composition: Porcelain.

2. Facial Dimensions: 6 by 6 inches (152 by 152 mm); or 11-13/16 by 11-13/16 inches (300 by 300mm).

3. Thickness: 3/8 inch (9.5 mm).

4. Face: Plain with square or cushion edges.

C. Glazed Wall Tile: Provide flat tile complying with the following requirements:

1. Module Size: 4-1/4 by 4-1/4 inches (108 by 108 mm).

2. Thickness: 5/16 inch (8 mm).

3. Face: Plain with modified square edges or cushion edges.

4. Mounting: Factory backmounted.

D. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with the following requirements:

1. Size: As indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.

2. Shapes: As follows, selected from manufacturer's standard shapes:

a. Base for Thin-Set Mortar Installations: Straight.

b. Wainscot Cap for Thin-Set Mortar Installations: Surface bullnose.

c. External Comers for Thin-Set Mortar Installations: Surface bullnose.

d. Internal Comers: Field-butted square comers, except with cap angle pieces designed to member with stretcher shapes.

2.04 SETTING MATERIALS

A. Water-Cleanable, Tile-Setting Epoxy Adhesive: ANSI A118.3.

2.05 GROUTING MATERIALS

A. Latex-Portland Cement Grout: ANSI A118.6 for materials described in Section H-2.4, composed as follows:

1. Mixture of Dry-Grout Mix and Latex Additive: Mixture of factory-prepared, dry-grout mix and latex additive complying with the following requirements:

a. Sanded Dry-Grout Mix: Commercial Portland Cement grout complying with ANSI A118.6 for materials described in Section H-2.1.

b. Latex Additive: Acrylic resin.

2. Provide Design Professional of Record's selections from manufacturer's full range of colors.

2.06 ELASTOMERIC SEALANTS

A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer and characteristics indicated that comply with applicable joint sealant requirements.

B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints, unless otherwise indicated.

C. One-Part, Mildew-Resistant Silicone Sealant: ASTM C 920; Type S; Grade NS; Class 25; Uses NT, G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and temperature extremes.

D. Available Products: Subject to compliance with requirements, products which may be incorporated into the Work include, but are not limited to, the following:

1. One-Part, Mildew-Resistant Silicone Sealants:

a. Dow Corning 786; Dow Corning Corporation.

b. Sanitary 1700; GE Silicones.

c. Pecora 898 Sanitary Silicone Sealant; Pecora Corp.

d. Rhodorsil 68 White; Rhone-Poulenc, Inc.

e. Tremsil 600 White; Tremco, Inc.

2.07 MISCELLANEOUS MATERIALS

A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland-cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.

B. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

2.08 MIXING MORTARS AND GROUT

A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

B. Add materials, water, and additives in accurate proportions.

C. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART III – EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Verify that substrates for setting tile are firm; dry; clean; free from oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 series of tile installation standards for installations indicated.

2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.

3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust later in consultation with Design Professional of Record.

B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Remove coatings, including curing compounds, and other substances that

contain soap, wax, oil, or silicone and are incompatible with tile-setting materials by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.

B. Provide concrete substrates for tile floors installed with dry-set or latex-portland cement mortars that comply with flatness tolerances specified in referenced ANSI A108 series of tile installation standards for installations indicated.

1. Use trowelable leveling and patching compounds per tile-setting material manufacturer's written instructions to fill cracks, holes, and depressions.

2. Remove protrusions, bumps, and ridges by sanding or grinding.

C. Blending: For tile exhibiting color variations within the ranges selected during Sample submittals, verify that tile has been blended in the factory and packaged so tile units taken from one package show the same range in colors as those taken from other packages and match approved Samples. If not, factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.03 INSTALLATION, GENERAL

A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 series of tile installation standards in "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.

B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.

C. Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and comers without disrupting pattern or joint alignments.

D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile close to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

E. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are the same size. Lay out tile work and center tile fields in both directions in each space or on

each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.

1. For tile mounted in sheets, make joints between tile sheets the same width as joints within tile sheets so joints between sheets are not apparent in finished work.

F. Lay tile wainscots to next full tile beyond dimensions indicated.

G. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

1. Locate joints in tile surfaces directly above joints in concrete substrates.

2. Prepare joints and apply sealants to comply with joint sealant requirements.

H. Grout tile to comply with the requirements of the following tile installation standards:

1. Comply with ANSI A108.10.

3.04 FLOOR TILE INSTALLATION

A. General: Install tile to comply with TCA installation methods and ANSI A108 series of tile installation standards.

B. Joint Widths: Install tile on floors with the following joint widths:

1. Ceramic Mosaic Tile: 1/16 inch (1.6 mm).

C. Back Buttering: For installations indicated, obtain 100 percent mortar coverage by complying with applicable special requirements for back buttering of tile in referenced ANSI A108 series of tile installation standards:

1. Exterior tile floors.

2. Tile floors in wet areas, including showers, tub enclosures, laundries, and swimming pools.

3. Tile floors are composed of rib-backed tiles.

3.05 WALL TILE INSTALLATION

A. Install types of tiles designated for wall installations to comply with TCA

installation methods and ANSI setting-bed standards.

B. Joint Widths: Install tile on walls with the following joint widths:

1. Wall Tile: 1/16 inch (1.6 mm).

C. Back Buttering: For installations indicated, obtain 100 percent mortar coverage by complying with applicable special requirements for back buttering of tile in referenced ANSI A108 series of tile installation standards:

1. Exterior tile wall installations.

2. Tile wall installations in wet areas, including showers, tub enclosures, laundries, and swimming pools.

3.06 CLEANING AND PROTECTING

A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

1. Remove latex-Portland Cement grout residue from tile as soon as possible.

2. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's written instructions, but no sooner than 1O days after installation. Protect metal surfaces, cast iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.

B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.

C. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure tile is without damage or deterioration at the time of Substantial Completion.

1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to complete tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.

2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.

D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION

SECTION 09320 - CERAMIC MOSAIC TILE

PART I – GENERAL

1.01 WORK INCLUDED

A. This section includes ceramic tile and marble thresholds.

1.02 RELATED WORK

A. Related work in other Sections:

07920 Sealants and Caulking

1.03 QUALITY ASSURANCE

A. Standards

1. "Handbook for Ceramic Tile Installation" latest edition, and TCA 137.1-76, Recommended Standard Specification for Ceramic Tile as published by the Tile Council of America.

2. Provide materials obtained from only one source for each type of tile and color to minimize variations in appearance and quality.

B. Acceptable Manufacturers

American Olean Tile Company

Dal-Tile

Florida Tile

1.04 DESCRIPTION

A. Color shall be or as selected by the Design Professional of Record from color samples submitted.

B. Tolerances: Finish surfaces shall not vary more than 1/8 inch above or 1/8 inch below the designed plane in any individual space; neither shall these be more than 3/16-inch variation within three feet.

1.05 SUBMITTALS

A. Manufacturer's Data

1. Submit two copies of manufacturer's technical information and

installation instructions for materials required, except bulk materials. Include certifications and other data to show compliance to standards. Transmit a copy of each instruction to the installer.

B. Samples

1. Tile: Submit two samples of each type and color of tile required, not less than 12 inches square on plywood or hardboard backing and grouted as required.

2. Threshold: Two 12-inch lengths of each size and profile indicated.

1.06 EXTRA STOCK

A. Provide 2 percent extra stock for each color and type used.

PART II – PRODUCTS

2.01 CERAMIC WALL TILE

A. Type

1. Tiles shall be standard grade, natural clay, glazed, with all purpose edges.

B. Size, Color, and Finish

1. Size: 4½ x 4½ x 1/4 inch

2. Color: Stock color and pattern selected by ASEM/Owner.

3. Finish: Matte

C. Shapes and Trim

1. Provide all required shapes, bull nose, angles, strips, and cove corners and bases as required.

2.02 MARBLE THRESHOLD

Not Used

2.03 SETTING MATERIALS

A. Portland cement: ASTM C150-78a, Type 1

B. Hydrated lime: ASTM C206-76 or C207-76, type "S".

C. Sand: ASTM C144-76.

D. Water

E. Shrinkage mesh: 2 x 2 inch, 16/16-gauge welded wire mesh.

2.04 MORTAR AND GROUT

A. Latex-Portland Cement mortar

1. Latex modified Portland Cement mortar ANSI A118.4-86 (R76)

2. Dry-set mortar ANSI A118.1-76

B. Commercial Portland Cement floor grout

1. Proprietary compound of Portland Cement and additives, factory blended to decrease shrinkage and increase moisture resistance. Use gray grout on floor.

2. Products:

a. Hydroment ceramic tile group: The Upco Company L & M Acid-R grout: L & M-Surco Company

C. Wall Grout

1. Proprietary compound composed of Portland Cement and additives formulated for the type of tile installed. Color of grout to be determined by ASEM/Owner.

2. Products offered by manufacturers to comply with the requirements for dry-set grout include the following:

Tile-mate grout: The Upco Company

Dry cure: L & M-Surco Company

2.05 BOND COAT

A. Portland cement paste on a plastic bed or dry-set mortar on a cured bed.

2.06 PROTECTIVE MATERIALS

A. Heavy-duty, nonstaining construction paper and compliant masking tape.

B. Cleaners and finishing treatment, American-Olean general purpose cleaner or

Hillyard Chemical Company "Super Shine-All".

PART III – EXECUTION

3.01 INSPECTION

A. Examine the substrate and the conditions under which ceramic tile is to be installed and notify the contractor in writing of unsatisfactory conditions. Proceed with the work when unsatisfactory conditions have been corrected in a manner acceptable to the installer.

3.02 INSTALLATIONS

A. Standards

1. Comply with ANSI standard installation specifications.

2. Comply with the installation methods specified herein, as per the Tile Council of America Inc. Handbook for Ceramic Tile Installation.

B. General

1. Handle, store, mix, and apply proprietary setting and grouting materials in compliance with the manufacturer's instructions.

2. For pre-grouted sheets, field grout perimeters of individual sheets, and other un-grouted joints using same elastomeric material as used in the factory.

3. Extend tile work into recesses and under equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges, and corners without disruption of pattern or joint alignment.

4. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind-cut edges of tile abutting trim, finish, or built-in items for straight, aligned joints. Fit tile closely to electrical outlets (if applicable), piping, and fixtures so that plates, collars, or cover overlap tile.

5. The following installation method numbers refer to the Tile Council of America, Inc. "Handbook for Ceramic Tile Installation", 1980 Edition, and shall govern the various installation methods to be used:

a. Walls: Method #B515 (wall detail only)

C. Setting Beds

1. Provide setting bed types as shown on the drawings and as follows:

    a. Use dry-set or latex-Portland Cement mortar setting beds (thin-set) for floors and walls.

D. Joining Pattern

1. Lay tile in grid pattern. Lay out tile work and center tile fields in both directions on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise shown.

3.03 ADJUST AND CLEAN

A. Cleaning

1. Clean grout and setting materials from face of tile while materials are workable. Leave tile face clean and free of foreign matter.

2. Tiles may be cleaned with acid solutions only when permitted by the tile and grout manufacturer's printed instructions, but not sooner than 14 days after installation. Protect metal surfaces, cast iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush the surface with clean water before and after cleaning.

B. Finish Tile Work

1. Leave finished installation clean and free of cracked, chipped, broken, unbonded, or otherwise defective tile work.

C. Protection

1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls.

2. Before final inspection, remove protective coverings and rinse neutral cleaner from all tile surfaces.

END OF SECTION

SECTION 09510 – ACOUSTICAL CEILINGS

PART I – GENERAL

1.01 WORK INCLUDED

A. This Section includes lay-in ceiling panels for the suspension system included in Section 09130.

1.02 RELATED WORK

A. Related Work in Other Sections:

09130 Acoustical Suspension Systems

1.03 REFERENCES

A. Industry standards governing this work are of the latest issue at the date of this Specification release, except as otherwise noted:

1. American Society for Testing and Materials [ASTM]:

ASTM C 636	Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
ASTM E 84	Surface Burning Characteristics of Building Materials.

2. Federal Specification [FSJ:

FS SS-S-118	Sound Controlling Blocks and Boards [Acoustical Tiles and Panels, Prefabricated].

3. Underwriters' Laboratories, Inc. [UL]:

a. Requirements for Fire Resistance Classification.

1.04 QUALITY ASSURANCE

A. Installer: Representative of the materials manufacturer or an installer approved by the materials manufacturer and the Design Professional of Record.

1.05 SUBMITTALS

A. Samples: Two of each pattern and size of unit specified.

B. Certification from an acceptable independent testing laboratory substantiating characteristics and classification of panels specified.

C. Manufacturer's installation instructions.

D. Manufacturer's maintenance instructions.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site in manufacturer's original packages, with seals unbroken and with manufacturer's name and contents indicated.

B. Store in enclosed areas with the same temperature and humidity conditions as areas in which material is to be installed.

1.07 PROJECT SITE CONDITIONS

A. Environmental Conditions:

1. Temperature and Ventilation: Install this work only when normal temperatures and humidity conditions can be maintained at least to 90% of interior conditions anticipated for finished building.

2. Glazing shall be in place and exterior openings closed.

3. Concrete, masonry, plastering, and ceramic tile work shall be completed and dry.

4. Provide heat and ventilation to maintain above conditions before, during, and after acoustical work is begun.

B. Inspect job for conditions which would prevent execution of this work as specified. Do not proceed until unsuitable conditions are corrected.

1.08 SEQUENCING/SCHEDULING

A. Coordination:

1. With suspension system supporting it.

2. With mechanical, electrical, and other recessed items.

PART II – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Acceptable Manufacturers Subject to Compliance with this Specification:

1. Armstrong World Industries, Inc. [referenced manufacturer].

2. United States Gypsum Company.

3. The Celotex Corporation.

2.02 LAY-IN UNITS

A. Type "A": Non-combustible mineral fiber board panels.

1. Pattern: "Bold face", over-punched.

2. Size: 24 inches by 24 inches by 3/4 inch with rabbetted tegular edges to form a recess with a lay-in exposed grid system.

3. Flame Spread Classification: 25 or less complying with ASTM E 84 and FS SS-S-118A, Class 25. Each panel shall carry label certifying classification.

4. NRC: 0.70 - 0.80.

5. STC: 40-44.

6. Finish: White, with LR-2 of 70-75%.

B. Type "B": "Minaboard", mineral fiber lay-in panels.

1. Pattern: Fissured "Minaboard" 7558.

2. Size: 24 inches by 48 inches by 5/8 inch with square edges for lay-in installation.

3. Flame Spread Classification: 25 or less complying with ASTM E 84 and 25 or less complying with Class **"A",** FS SS-S-1188.

4. NRC: 0.50 - 0.60.

5. STC: 35 - 39.

6. Finish: White, with LR-1 of over 75%.

C. Type "C": "Ceramaguard" moisture resistant acoustical lay-in panel.

1. Pattern: "Ceramaguard" 602.

2. Size: 24 inches by 48 inches by 5/8 inch, with square edges for lay-in installation.

3. Flame Spread Classification: 25 or less complying with ASTM E 84 and 25 or less complying with Class A, FS SS-S-118B.

4. NRC: 0.55 - 0.65

5. STC: 40-44.

6. . Light Reflectance: LR-1, over 75%.

7. Finish: Factory applied white, capable of withstanding 1000 scrub cycles when tested according to AIMA IB Specification No. 7.

2.03 MAINTENANCE MATERIALS

A. At completion of the Project, provide packaged acoustical panels equal to 1% of quantity installed for each pattern and unit size.

2.04 CEILING ACCESS

A. Provide access identification in lay-in ceiling below items requiring accessibility, including dampers, valves, and similar items. A 3/4-inch diameter identification plate of 16-gauge metal, painted to match the ceiling panel and stamped "AP", shall be securely attached to the face of the panel near one corner.

PART III – EXECUTION

3.01 INSTALLATION

A. Install panels to rest on flanges of grid system with border units supported on edge molding and in a uniform plane surface free from warp, twist and dents.

B. Neatly cut panels which are pierced to receive items furnished under other Sections.

C. Install hold-down clips for lay-in units adjacent to recessed troffer lights and edge mold, except omit where access is specifically indicated in such areas. Install four clips per panel at midpoint of

each side. In areas where excessive panel movement is caused by differences in room pressure from HVAC system, hold-down clips should be installed throughout the ceiling except at access points.

3.02 CLEAN-UP PROTECTION

A. Clean exposed surfaces of ceiling panels and suspension systems in accordance with manufacturer's instructions. Remove and replace units and members which are damaged or cannot be cleaned.

B. Protect ceilings from damage or deterioration after installation and until acceptance of the work.

END OF SECTION

SECTION 09660 – RESILIENT TILE FLOORING

PART I – GENERAL

1.01 WORK INCLUDED

A. This Section includes resilient tile floor, base, and related items.

1.02 REFERENCES

A. Industry standards governing this work are of the latest issue at the date of this Specification release, except as otherwise noted:

1. Federal Specifications [FS]:

FSSS-T-312	Tile, Floor: Asphalt., Rubber, Vinyl. Vinyl Composition.
FSSS-W-40	Wall Base: Rubber and Vinyl Plastic.

1.03 SUBMITTALS

A. Samples: Two of each type and color of tile and accessory.

B. Manufacturer's installation instructions.

C. Manufacturer's maintenance instructions.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's original unopened containers marked with manufacturer's brand name, color and pattern numbers, and production color code.

B. Exercise care to prevent damage and freezing during shipping, handling, and storage.

C. Store products at job site complying with manufacturer's directions and recommendations.

1.05 PROJECT/SITE CONDITIONS

A. Environmental Requirements:

1. Maintain temperature of not less than 70deg. F and not more than 85deg. F in building day and night while resilient work is being installed and for a period of at least 48 hours before and after installation. Thereafter, maintain a minimum temperature of 60deg. F.

2. Store materials at site for at least 48 hours before installation, at same temperature as area where resilient work is to be installed.

3. Installation shall not begin until all other trades, including painting, have been completed.

4. Spaces in which resilient flooring is being laid shall be closed to traffic and to other work until flooring is firmly set

B. Inspect job for conditions which would prevent execution of this work as specified. Do not proceed until such conditions are corrected.

C. It is the responsibility of this Design-Build Entity to verify that liquid curing agent used to cure concrete floor slab will be compatible with resilient tile and adhesive. If it is found that curing agent is not compatible with flooring materials, consult ASEM/Owner's Representative and do not apply resilient flooring until unsatisfactory conditions are corrected.

PART II – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Acceptable Manufacturers Subject to Compliance with this Specification:

1. Resilient Tile:

a. Armstrong Cork Company/"Excelon" Series, "Imperial Texture".

b. Azrock Floor Products/"Custom Cortina".

c. GAF Corporation/"Gafstar Architectural Regency".

d. Kentile Floors/Solid Vinyl Tile- Antique Marble".

2. Stair Treads, Rubber Risers and Landing Tile:

a. RC. Musson Rubber Co.

b. The Biltrite Corp.

c. RCA Rubber Co.

2.02 MATERIALS- GENERAL

A. Materials shall be uniform in thickness and size, with straight cut square edges; pre-molded edges shall be uniform and straight

B. Materials within each area shall be from one production run as indicated by cartons bearing same manufacturer's color code.

C. Colors shall match approved samples.

2.03 TILE

A. Material Vinyl composition

B. Referenced Tile: Armstrong "Excelon" "Imperial Texture".

C. Standard: FSSS-T-312, Type IV.

D. Size: Twelve inches by twelve inches.

E. Thickness: 1/8 inch.

F. Colors: As selected from manufacturer's standard colors.

2.04 ACCESSORIES

A. Base:

1. Material: (Vinyl).
2. Standard: FSFS-W-40.
3. Thickness: 1/8 inch.
4. Height
5. Type: (Cove).
6. Color: As Selected from manufacturer's standard colors.
7. Corners: Pre-molded external and internal comers matching base types.

B. Edge Strip:

1. Material: Vinyl
2. Type: One inch wide, beveled or flat, as required.
3. Thickness: Same as tile.
4. Color: As selected from manufacturer's standard colors.

C. Stair Treads:

1. Material: Molded rubber.
2. Referenced Type: R.C Musson No. 612, Molded Rubber Diamond Safety Design. with a curved nose.
3. Thickness: 3/16 inch at nosing edge wearing surface.
4. Turned Down Depth: Not less than 1-1/2inches.
5. Color: As selected from manufacturer's standard colors.

D. Stair Risers:

1. Material: Molded rubber.
2. Referenced Type: RC. Musson No. SOSCR with 5/8-inch toe.
3. Thickness: 1/8 inch.
4. Color: As selected from manufacturer's standard colors.

E. Landing Tile:

1. Referenced Tile: R.C.Musson No. 1000Tsmooth rubber tile.
2. Standard.: FSS> T-312B.
3. Size: Twelve inches by twelve inches.
4. Thickness: 1/8 inch.
5. Color: As selected from manufacturer's standard colors.

2.05 PRIMERS, ADHESIVES, CLEANER, AND WAX

A. Primers: Comply with adhesive manufacturer's instructions.

B. Adhesive= Comply with manufacturer's instructions for a waterproof asphalt emulsion non-flammable type, containing no organic solvents, and suitable for use with slabs on grade.

C. Cleaner: Neutral cleaning material, acceptable to floor tile manufacturer.

D. Wax: High grade water emulsion, non-slip type, acceptable to floor manufacturer.

2.06 PATCHING COMPOUND

A. Material: Water resistant, non-shrinking, non-crumbling compound recommended by ·tile manufacturer.

2.07 MAINTENANCE MATERIALS

A. Maintenance Materials: Provide packaged maintenance materials of each type and color of resilient tile products used, and adhesive, in amount of 2% of quantity installed.

B. Stair Treads: Provide maintenance treads and adhesive in the amount of 5% of quantity installed.

PART III – EXECUTION

3.01 PRELIMINARY WORK

A. Floors shall be cleaned of foreign material smooth and dry.

B. Moisture test concrete floors on which resilient work is to be applied as follows: After concrete floor has been cleaned, spread small patches of adhesive over small primed areas in several locations in each area and allow to dry overnight If adhesive can be peeled from sub-floor, indicating no bond, test shall be repeated at intervals until adhesive bonds to floor. Do not install tile until adhesive adheres to concrete floor.

C. Prime cement surfaces complying with manufacturer's instructions.

3.02 APPLICATION OF ADHESIVE

A. Mix and apply adhesive complying with manufacturer's instructions. Spread adhesive evenly and only over area which can be covered with resilient material within working time of adhesive. Remove adhesive that dries or films over.

B. Apply adhesive with a notched trowel. Clean and rework trowel notches to achieve even distribution of adhesive. Spread adhesive in quantity to provide uniform coverage and bonding of resilient product laid without rising through joints.

C. Do not soil adjacent materials or areas with adhesive. Promptly remove all spillage.

3.03 LAYOUT

A. Arrange tile symmetrically about centerlines of area. Edge tiles of field on opposite sides of area shall be of uniform width and not less than 1/2 tiles

except where irregularly shaped spaces make it impossible.

B. Lay tile fields in checkerboard fashion with grain reversed in alternate tile.

C. Extend flooring into toe spaces, door reveals, closets, and recesses.

D. Provide base at walls, columns, pilasters, returns, casework, and other permanent fixtures in rooms and areas where base is scheduled.

E. Provide edge strips at exposed edges of resilient flooring.

3.04 WORKMANSHIP

A. Lay resilient work with uniform hairline joints and aligned.

B. Cut resilient work to fit around pipes and projections.

C. Resilient work that does not sit in a level plane may have heat applied locally and rolled to level of surrounding floor; otherwise, the out of level work shall be replaced.

D. Resilient work showing broken comers, fracture lines, warps, and buckles shall be warmed and removed, and work of same color, thickness, and size shall be substituted.

3.05 INSTALLATION OF ACCESSORIES

A. General:

1. Install in as long lengths as practicable.

2. Joints shall be uniform tight joints.

3. Embed accessory items in an even application of adhesive to achieve uniform bond.

B. Base:

1. Use pre-molded units at external and internal corners.

2. Scribe base at abutting projections to provide a uniform hairline joint

3. Base shall align on top each side of joint.

C. Edge Strip:

1. Strip shall flush with adjacent resilient flooring.

2. At door openings, unless otherwise noted, locate strip centered under door.

D. Stair Treads:

1. If joints are necessary, locate in a symmetrical manner and with center rails or other stair features.

2. Flush treads at landings and floors with adjacent finish floor.

3.06 PROTECTION, CLEANING, AND WAXING

A. Allow no traffic on freshly laid floors until adhesive has set

B. Protect new floors with heavy paper where walking over floor is unavoidable.

C. Clean floors of adhesive smears and dirt with neutral cleaner.

D. Rinse, dry and apply one coat of wax.

E. 48 hours after first waxing, dry or damp mop floors and base, apply another coat of wax and . buff with power machine.

3.07 ADJUSTMENT

A. Approximately 30 days after installation, inspect floor and base and replace damaged material

B. Ensure that tile and base is properly seated.

C. Clean, wax and polish replaced tile and base.

END OF SECTION

SECTION 09900 – PAINTING

PART I – GENERAL

1.01 WORK INCLUDED

A. This Section includes paints, coatings, primers, sealers, and other related materials necessary for application of painting systems shown on drawings, Finish Schedules, and specified.

B. This Section also includes preparation of surfaces to receive specified painting systems and application of paint and finish materials.

1.02 WORK EXCLUDED

A. The following items and surfaces are excluded from the work covered under this Section:

1. Non-ferrous metals, except as noted otherwise.

2. Walls and ceilings in areas scheduled as unpainted.

3. Resilient tile.

4. Pre-finished metal surfaces.

5. Concrete floors, unless otherwise scheduled.

6. Warning: Do not paint moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, contacts, linkages, sensing devices, motor and fan shafts, and fire sprinkler heads. Provide covering and tape in place during spray painting operations unless otherwise indicated.

7. Do not paint over code-required labels such as Underwriters' Laboratories, Inc. and Factory Mutual, or equipment identification, performance rating, name, or nomenclature plates.

B. Work to be done by others under appropriate Sections:

1. Patching and filling defects in drywall.

1.03 QUALITY ASSURANCE

A. The Painting Schedule in *this* Section is intended to list the various types of coating systems to be applied to specific materials. The coating Design-Build Entity shall be responsible for using applicable coating

systems as listed, conforming to coatings or finishes shown on Finish Schedule of Drawings.

B. Proper surface preparation, manner and technique of application, adherence to manufacturer's stated spreading rate, and number of coats applied shall be the painting Design-Build Entity's responsibility. Compliance with these spreading rates will be checked on the Project with a dry mil thickness gauge by ASEM/Owner's Representative.

C. Field Sample Panels: Prior to beginning painting application, prepare and obtain from ASEM/Owner's Representative approval of a sample panel of each color to be used.

1. Apply sample coatings on representative areas of actual job surfaces and locate as directed by the ASEM/Owner's Representative. Leave sample panels in place until painting work is completed and accepted. Refinishing sample panels after painting work is accepted.

2. Sample Panel Size: Minimum of four feet square.

3. Panels will be checked for texture, color, mil thickness, and conformity with this Section.

4. Approved field samples shall serve as minimum acceptable standards for finished painting work.

D. Qualifications of Applicator: An authorized representative of the materials manufacturer or an applicator approved by ASEM/Owner's Representative and materials manufacturer.

E. Field Inspections: A representative of materials manufacturer shall be on jobsite before and during a portion of application for consultation and to inspect surfaces to which materials are being applied and way in which materials are being applied.

F. Finish Schedules: The Design Professional of Record will furnish Finish Schedules to the Design-Build Entity before starting painting work. Color and Finish Schedules will indicate locations and surface types where painting materials are to be applied.

G. The Design-Build Entity shall provide every facility for inspection of the work by ASEM/Owner's Representative, whenever required.

1.04 SUBMITTALS

A. Color Chips: Reviewed by ASEM/Owner's Representative before materials are

ordered.

1. Submit two color chips of each color, representative of finish of actual colors to be used.

B. Materials Proposed: Submit for review by Design Professional of Record/Engineer, before award of Contract, a list showing the manufacturer's name, brand name, and types of painting materials proposed, the type of surface to receive each coating and showing the quantities per square foot which will be used on the complete project. The quantity of materials used on this Project shall not be less than as specified or as recommended by materials manufacturer and approved by Design Professional of Record.

1. Review of submittals shall not relieve Design-Build Entity of his responsibility to fulfill the requirements of the Specifications and Drawings, unless the Design-Build Entity enumerates deviations and obtains written approval from Owners Representative to use those deviations.

2. No substitution of material will be permitted, except by written authority from the ASEM/Owner's Representative.

C. Manufacturer’s Specifications: Furnish the painting Design-Build Entity with painting specifications including detailed instructions for application of types of painting materials to be used.

1. Manufacturer's specifications shall be furnished after the proposed materials have been reviewed by Design Professional of Record and ASEM/Owner.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Delivery:

1. Deliver painting materials to the Project site in manufacturer's original labeled and sealed containers, bearing manufacturer's name, brand designations, and printed application instructions.

2. Maintain seals unbroken until after inspection and acceptance of materials by ASEM/Owner's Representative.

3. Do not deliver materials until color chips are reviewed by ASEM/Owner's Representative.

B. Storage and Handling:

1. Provide suitable storage for exclusive use of paint storage and paint mixing. No space will be allowed inside the building for these purposes.

2. Store materials in a suitable dry and ventilated area, and protect from damage, deterioration, and contamination.

3. Store materials in manufacturer's original unopened containers until ready for use at minimum ambient temperature of 45 deg. F.

4. Comply with regulations for storage, mixing, and use of paint. Post necessary safety signs required by local and state codes and in conformity with good practice.

1.06 ENVIRONMENTAL CONDITIONS

A. Painting will not be permitted while dust, lint, or a harmful number of insects are in the air.

B. Apply paint materials under conditions favorable to drying, with no moisture present, no moisture expected within the following 48 hours, and a relative humidity of less than 85%.

C. Apply paint materials to dry and cured surfaces.

D. Provide adequate ventilation to areas in which paint materials are being applied.

1.07 SCHEDULING

A. Deliver materials in ample quantities sufficiently in advance of the time of need in order to avoid delays or interruptions in the work due to lack of proper materials.

PART II – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. The referenced manufacturer, unless otherwise specified, is BLP Mobile Paints, Inc., and is named to establish a standard of quality acceptable.

B. Other manufacturers furnishing equivalent materials considered acceptable:

1. Mobile Paints

2. Glidden

3. Sherwin Williams

4. Duochem, Inc. (acceptable)

C. Provide paint materials from one source unless otherwise approved by Design Professional of Record/Engineer.

2.02 PAINTING MATERIALS

A. Painting materials shall be the type as specified in the Painting Schedule, Article 3.10.

1. Provide paints well ground and easily mixed with no hard settling or caking in containers.

2. Paints shall be readily broken up with a paddle to a smooth uniform paint of good brushing consistency and shall dry hard to a smooth finish without streaking, running, or sagging.

3. Provide primers, sealers, and undercoating's for paint work of same manufacturer as brand of paint used in this Section, unless specified otherwise.

4. Colors: As shown on the Finish Schedule and matching approved color chips and field sample panels.

5. The Design Professional of Record reserves the right to vary color or finish of various surfaces to obtain desired effect without increasing cost to ASEM/Owner.

PART III - EXECUTION

3.01 INSPECTION

A. Before starting to paint or finish a room, space, or area, thoroughly examine underlying and adjoining work and conditions. Report in writing to ASEM/Owner's Representative conditions which might adversely affect the work. Do not apply paint materials until defective conditions are rectified.

1. No "Waiver of Responsibility" for incomplete, inadequate, or defective underlying or adjoining work will be considered unless notice of unsatisfactory conditions has been filed and agreed upon, in writing, by 0\,\111er's Representative before the painting Design-Build Entity begins the work in question.

2. Application of first field coat will be construed as evidence that painting

Design-Build Entity accepts such underlying surfaces as being in proper condition for the application of this work.

B. Where there is question of dryness of surfaces, test surfaces in the presence of ASEM/Owner's Representative. No paint shall be applied to masonry or concrete surfaces when moisture content exceeds 8% as indicated by a reliable electronic moisture meter.

3.02 SAFETY PRECAUTIONS AND CONTRACTOR'S EQUIPMENT

A. Safety: Perform painting under conditions and in a manner dictated by safe practice, using materials, tools, and rigging of safe character.

1. Comply with recognized safety rules and practices necessary to permit safe working conditions for workmen and prevent hazards to others who may be in the vicinity of the work.

2. Do no painting on or in a vicinity of energized electrical lines or rotating equipment apparatus, without the approval of the ASEM/Owner's Representative, and then only in accordance with applicable laws, rules, or regulations.

B. Ladders, Scaffolding, and Staging: Furnish, erect, maintain, and promptly remove, necessary ladders, scaffolding, and staging required under this Section, upon completion of the painting and finishing work. Arrangements shall be made to cause the least possible interference with the work of other trades. -

1. Be responsible for damage caused by the erection or removal of above-mentioned equipment.

2. Should it become necessary to remove scaffolding, staging, ladders, or other similar equipment to permit installation of work of other trades, these items shall be moved as required without additional expense to ASEM/Owner. Coordinate work to avoid conflict with other trades.

C. Combustible Materials:

1. Store paint, varnish, enamel, oil, turpentine, and other combustible or flammable materials within building, in receptacles with tightly dozed covers each night or after each work period. Limit storage of paint materials inside the building to quantity used in one day's work

2. Remove oil or paint saturated cloths, rags, or waste from building after each day's work.

3. Refer to Article 1.05 for paint material storage.

3.03 SURFACE PREPARATION

A. Sand interior work and trim smooth with the grain, and never across it. Correct surface blemishes and dean room and wood surface of dust before proceeding with finishing coats. After the priming coat has been applied, fill nail holes, breaks and crevices with putty.

B. Scrape knots and pitch streaks, then coat with shellac before priming coat is applied. Fill nail holes or small openings with putty.

C. Wire-brush masonry surfaces and remove loose materials and extraneous matter. Use solvents to remove grease and oil. Exercise care to prevent application of paint to surfaces where free lime has not been neutralized. Where necessary, surfaces may be washed down with a solution composed of three pounds of zinc sulphate per gallon of water. Brush off crystalline residue after the surface has thoroughly dried.

D. Prepare metal surfaces for *final* painting in accordance with paint manufacturer's recommendations and Design Professional of Record's specifications.

1. Clean painted cast metal surfaces of detrimental foreign matter such as oil, grease, soil, and cutting compounds by use of solvents.

2. Clean unpainted cast metal surfaces by wire-brushing. Repair surface defects with an iron filler.

3. Clean unprimed steel, such as miscellaneous rolled shapes, bulk purchased floor plates, and field-fabricated shapes for painting by wire-brushing. Shop-primed metal surfaces, except as noted below, shall be inspected to determine the adhesion of primer to steel before cleaning. If the bond is poor, clean surface thoroughly. Where bond is satisfactory, clean surface by wire-brushing or by solvent cleaning.

4. Treat galvanized metal surfaces that are to be painted as specified in the Painting Schedule, under Galvanized Metals.

E. Remove mildew by scrubbing with solution of bi-sodium phosphate and bleach. Rinse with clean water and allow surface to dry completely before paint material application.

3.04 MIXING AND THINNING PAINT MATERIALS

A. Mixing: Mix paint materials only at Project site, with exception of factory-

mixed materials. Provide new non-rusting containers of suitable size for mixing of painting materials at Project. Mixing will not be permitted outside of these containers.

1. Thoroughly mix and stir paint materials, both before and during use, to obtain uniformity of color and finish.

B. Thinning of Paint Materials, if Required: Conform to manufacturer's directions, using only thinning agents in quantities recommended. Adulteration will not be permitted. If excess thinning is done and finished work using the number of coats specified is not satisfactory, the painting Design-Build Entity shall apply additional coats as required, to meet approval of ASEM/Owner's Representative without additional cost to ASEM/Owner.

3.05 PAINTING APPLICATION

A. General: Apply paint materials in accordance with paint materials manufacturer's specifications and this Specification.

1. Do not exceed the spread per gallon specified or recommended by paint manufacturer.

2. Film thicknesses, where indicated, are expressed in dry film thickness (DFT).

B. Apply painting finishes of the highest grade, executed by skilled, experienced' workmen. Careless or incompetent persons will not be allowed on the job.

C. Apply painting materials by spray, roller, or brush in accordance with the manufacturer's recommendation for type of surfaces to receive painting materials.

D. Maintain brushes, rollers, and spray equipment clean and in proper condition.

E. Apply materials to completely cover surfaces evenly and to dry uniformly to color and sheen specified, free from runs, sags, wrinkles, shiners, streaks, and brush marks. Apply each coat smoothly, work out evenly, and allow them to dry before the subsequent coat is applied.

F. Paint shall not be floated on, that is, not applied in thick heavy coats.

G. Thoroughly brush the priming coat into pores and crevices.

H. Make edges of paint adjoining other materials or colors, sharp and clean without overlapping.

I. Between succeeding coats, notify ASEM/Owner's Representative before proceeding with the work so that it may be inspected, if necessary, and credited as an applied coat. Failure to do so may result in recoating and painting Design-Build Entity's expense.

J. Before applying each coat, make certain the previous coat is ready to receive the next specified coat. Previous coating shall be thoroughly cured. Allow suggested drying time and check film with fingernail to be certain that it is cured. Remove noncompatible and non-adherent materials from the previous coat. Surface and ambient temperature shall be within minimum and maximum recommended by manufacturers. Stop exterior work sufficiently early to perm.it film to set up before condensation and moisture caused by night temperature drops occur.

K. Sand enamel and varnish undercoats smooth prior to recoating.

L. Paint top and bottom of doors. Paint cutouts for hardware.

M. Painting or finish surfaces left purposely unfinished to meet the requirements of other trades as part of the work under this Section, only after previous work requiring unfinished surfaces is completed and approved.

N. Apply painting systems in number of coats at the rate and for a minimum dry film thickness specified under the Painting Schedule.

O. Where prime coats are not compatible with special coatings or finish paint coats, apply a proper barrier coating prior to application of special coatings or finish paint coats, as recommended by the materials' manufacturer. An example of this condition occurs when any epoxy paint is to be applied over an alkyd primer. The alkyd paint is not compatible with the strong solvents in epoxy pa.int. Also, sprayed fireproofing is sometimes not compatible with prime coats.

3.06 PROTECTION DURING APPLICATION

A. Take necessary precautions for protection from pa.int spattering and droppings on installed plumbing fixtures, hardware, electrical switchgear, transformers, bus ducts, panel boards, factory painted equipment, lighting fixtures, fittings, glass, doors, equipment, instruments, and similar items to the extent of removing and replacing those parts as necessary.

B. Furnish, hang or spread, and maintain necessary drop cloths, tarpaulins,

and other means of protecting work and work of other trades, either installed or in process of installation. Remove such protection at completion of work. Be responsible for damage resulting from the work under this Section and arrange with involved trades to restore such damaged work to its original condition at their own expense.

C. Hang tarpaulins over openings to spaces being painted or finished, in spaces that are not otherwise enclosed, and which are subject to excessive dust conditions due to adjacent operations or other trades. When and where it becomes necessary for the painting Design-Build Entity to remove coverings placed by other trades, he shall replace them in the original position after he has executed the work which required removal.

3.07 CLEAN-UP AND REPAIR

A. Clean-Up: During construction and up to completion of the construction work, clean-up and remove from the premises, as may be necessary or directed by ASEM/Owner's Representative, surplus materials, tools, appliances, empty cans, cartons, and rubbish resulting from the painting and finishing work. Leave rooms and spaces clean. Remove paint and oil spattering, drippings, and stains resulting from painting work from painted surfaces and from work of other trades.

B. Repair: Repair paint work which has become damaged or defaced during course of construction and completion of the Project, and leave painting and finishing in clean, neat, and perfect condition, as acceptable to ASEM/Owner's Representative. Replace broken glass and damaged material directly attributed to painting work under this Section.

3.08 PROTECTION OF COMPLETED WORK

A. Protect coated surfaces until the Project has been accepted by the ASEM/Owner.

3.09 MAINTENANCE PAINTING SCHEDULE

A. Furnish to ASEM/Owner's Representative, after completion of painting work, a Maintenance Painting Schedule for ASEM/Owner's use in maintenance painting, indicating description (type, color, mil thickness, etc.) of each type of paint material used and location where used.

3.10 PAINTING SCHEDULE

A. Surfaces to be painted, painting systems, and the number of coats to be applied shall be in accordance with the Painting Schedule as outlined below

and the manufacturer's printed instructions. Spread rates indicated are theoretical.

B. Coating Systems:

1. Exposed Structural Steel and Miscellaneous Metals, Steel Channel Door, and Wall Opening Frames:

   a. Touch-up or one coat Prymall 22 Red Lead Primer, spread rate 487 square feet per gallon, 2.0 mils DFT.

   b. Two coats10 Series Rus-Kill Enamel, spread rate 400 square feet per gallon, 1.5 mils per coat DFT.

2. Handrails, Stairs, Ladders, Cages and Pipe Guards:

   a. Touch-up or one coat Prymall 22 Red Lead Primer, spread rate 487 square feet per gallon, 2.0 mils DFT.

   b. Two coats10 series Rus-Kill Enamel, spread rate 400 square feet per gallon, 1.5 mils per coat DFT.

3. Hollow Metal Doors and Frames:

   a. Touch-up or one coat Prymall 22 Red Lead Primer, spread rate 487 square feet per gallon, 2.0 mils DFT.

   b. Two coats 10 Series Rus-Kill Enamel Gloss Finish, spread rate 400 square feet per gallon, 1.5 mils per coat DFT.

4. Hollow metal doors [on rooms with epoxy painted walls].

   a. One coat Mopoxy HB Primer Doors

   b. Two coats Mopoxy HB Gloss Epoxy 40-AW-B spread rate 395 sq. ft. per gal.8.0 mils DFT.

5. Exposed Piping [Uninsulated, not subject to condensation):

   a. Carbon steel:

      1) One coat QD 58 Quick Dry Modified Alkyd Primer, spread rate 320 square per gallon,.2.0 mils DFT.

      2) Two coats 58 Series Acrylic Enamel Gloss Finish, spread rate 302 square feet per gallon, 2.0 mils per coat DFT.

b. Cast Iron:

1) One coat QD 58 Quick Dry Modified Alkyd Primer, spread rate 320 square feet per gallon, 2.0 mils DFT.

2) Two coats 58 Series Acrylic Enamel Gloss Finish spread rate 302 square feet per gallon, 2.0 mils per coat DFT.

6. Exposed Structural Steel Columns, Girts and Miscellaneous Metals:

a. Gloss finish:

1) Touch-up Prymall 22 Red Lead Alkyd Primer.

2) Two coats 10 Series Rus-Kill Enamel spread rate 400 square feet per gallon, 1.5 mils per coat DFT.

7. Exposed Galvanized Steel [Other than Roof Deck]:

a. Gloss Finish:

1) One coat Series 9-42 Vinyl Wash Metal Primer, spread rate 252 square feet per gallon, 0.5 mils DFT.

2) Two coats 10 Series Rus-Kill Enamel spread rate 400 square feet per gallon, 2.0 mils per coat DFT.

8. Gypsum Drywall:

a. Semi-Gloss Finish:

1) One coat Series Stop Stain Primer/Sealer White 19-15, spread rate 361 square feet per gallon, 1.5 mils OFT.

2) Two coats 1335 Series Coventry Latex Semi-Gloss Enamel spread rate 345 square feet per gallon, 1.5 mils per coat DFT.

9. Gypsum drywall [on areas to receive epoxy paint]:

a. One coat series stop primary Sealer White 19-15, Spread Rate 361sq. ft./ga1., 2.0 mils DFT.

b. Two coats Mopoxy, HB Epoxy Gloss 40-AW-13, Spread Rate 395 sq. ft./gal., 8.0 mils DFT.

c. Antibacterial additives shall be used on Surgical & Delivery Rooms.

10. Concrete Unit Masonry (New Construction):

    a. Semi-Gloss Finish:

        1) One coat 60-07 Block-Fill Latex Block Filler spread rate 85-100 square feet per gallon.

        2) Two coats 135 Series Coventry Latex Semi-Gloss Enamel spread rate 345 square feet per gallon, 2.0 mils per coat DFT.

10a. Concrete Unit Masonry (on areas to receive epoxy paint):

    b. One coat series stop primary sealer white 19-15, spread rate 361 sq. ft./gal., 2.0 mils DFT.

    c. Two coats Mopoxy, HB Epoxy Gloss 40-AW-13, spread rate 395 sq. ft/gal., 8.0 mils DFT.

    d. Antibacterial additives shall be used on Surgical & Delivery Rooms.

11. Pressed Metal Frames, and Steel Channel Frames:

    a. Gloss Finish:

        1) Touch-up or one coat Prymall 22 Red Lead Primer, spread rate 487 square feet per gallon, 2.0 mils DFT.

        2) Two coats 10 Series Rus-Kill Enamel Gloss spread rate 400 square feet per gallon, 2.0 mils per coat DFT.

12. Fire Sprinkler System (Painted Red):

    a. One coat Prymall 22 Red Lead Primer, spread rate 487 square feet per gallon, 2.0 mils DFT.

    b. Two coats 10 Series Rus-Kill Gloss Enamel, spread rate 400 square feet per gallon, 2.0 mils DFT.

13. Steel Pipe Guards:

    a. One coat Mopoxy HB Epoxy Primer 40-DR-5.

    b. Two coat Mopoxy HB Epoxy Gloss Epoxy 40-AW-13 spread rate 395 square feet per gallon, 6.0 mils DFT

14. Galvanized Conduit and Galvanized Carbon Steel Pipe: [Exposed and as per color coding]

a. One coat 9-42 Vinyl Wash Primer, spread rate 485square feet per gallon, 2.0 mils DFT.

b. One coat 10 Series Rus-Kill Enamel Gloss Finish, spread rate 400 square feet per gallon, 2.0 mils per coat DFT.

15. Exposed Piping [Uninsulated] [Carbon Steel, Ductile Iron, and Copper] [as per color coding]:

a. One coat 10 Prymall 22 Red Lead Primer, spread rate 487square feet per gallon, 2.0 mils DFT.

b. Two coats 10 Series Rus-Kill Enamel Gloss spread rate 400 square feet per gallon, 2.0 mils per coat DFT.

16. Exposed piping insulated with Aluminum Jacket]: unpainted.

17. Interior Safety Area Stripes: Located as directed by ASEM/Owner and required by OSHA:

a. One coat White or yellow Traffic Paint, spread rate 300 square feet per gallon. Color and location as directed by ASEM/Owner.

C. Piping Color: unless otherwise noted, Paint exposed piping, conduit, etc., the same color as the substrate to which it is attached. Use paint systems as defined in this Section for interior and exterior piping.

END OF SECTION

SECTION 10260 – CORNER GUARDS, JAMB GUARDS, AND COLUMN COVERS

PART I – GENERAL

1.01 WORK INCLUDED

A. This Section includes corner guards, jamb guards and column covers.

1.02 RELATED WORK

A. Related Work in Other Sections:

04220	Concrete Unit Masonry
	Structural Steel
	Standard Steel Frames
09260	Gypsum Drywall System

1.03 REFERENCES

A. Industry standards governing this work are of the latest issue at the date of this Specification release, except as otherwise noted.

1. American Society for Testing and Materials [ASTM]:

ASTM A - 167	Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
ASTM A - 269	Seamless and Welded Austenitic Stainless-Steel Tubing for General Services.
ASTM A - 512	Specification for Seamless Stainless Steel Mechanical Tubing

1.04 SUBMITTALS

A. Submit manufacturer's product literature including materials and installation instructions.

B. Submit two samples of material with finish as selected.

PART II – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Comer Guards:

1. Kydex by GE (referenced manufacturer)
2. Life Science Products, Inc.
3. Tubular Specialties Mfg., Inc.
4. Wilkinson Company, Inc.

B. Jamb Guards:

1. We Science Product, Inc.

C. Column Covers:

1. Construction Specialties, Inc. [referenced manufacturer]
2. Custom Enclosures, Inc.
3. Pittcon Industries, Inc.

D. Wall Guards:

1. Pawling Corporation (referenced manufacturer)
2. Balco, Inc.

2.02 MATERIALS

A. Comer Guards:

1. Type 304stainless steel in minimum 16 gauge with No.4 finish.
    a. Size: 4 inch by 4 inch by 6 foot 8 inches high unless otherwise indicated on drawings.
2. Attachment:
    a. Masonry: Silicone adhesive and drive pins.

B. Jamb Guard:

1. Inner Tube: 7/8 inch outside diameter, 18 gage wall, roundd mechanical

tubing, type ClOl0/1020, ASTM A-513.

2. Outer Tube: One inch outside diameter, 18 gage wall, type 304 stainless steel, ASTM A-269 in No. 4 finish.

3. Bracket Three, 1/8 inch thick by 1 inch by 1-inch right angles with two 1/4 inch diameter through holes on each side of 18-8 stainless steel type 302 - 304, annealed condition in No. 4 finish.

4. Each guard shall be six feet long with plastic cap at each end of tube.

C. Column Covers:

1. Custom formed covers from 16 gage, type 304stainless steel with No. 4 finish.

   a. Fabricate in 2 or more sections with ceiling, intermediate horizontal and base reveal type joints, and vertical joints to be butt joints.

2. All exposed accessories shall be stainless steel with finish to match covers.

3. All concealed support structure and accessories shall be galvanized steel.

D. Wall Guard:

1. Pro-Tek bumper guard 8" x ¾" rigid PVC Model WG-8.

2. Install with aluminum retainer and screw system at 2'-0" O.C. and 3'-6" AFF.

PART III – EXECUTION

3.01 Installation

A. Install corner guards, jamb guards and wall guards in accordance with manufacturer's instructions.

B. Install column covers and accessories in accordance with manufacturer's instructions.

1. Install column covers plumb and level.

2. Protect from damage by other trades after installation.

END OF SECTION

SECTION 10800 – TOILET AND BATH ACCESSORIES

PART I – GENERAL

1.01 WORK INCLUDED

A. This Section includes toilet accessories and related hardware

1.02 SUBMITTALS

A. Shop Drawings shall include:

1. Installation details.

2. Elevations.

3. Mounting heights. Conform to Building Code requirements for unit mounting heights for the handicapped.

4. Gauges.

5. Anchoring details.

B. Manufacturer's literature for each item.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Deliver accessories in manufacturer's original unopened protective packaging.

B. Store to protect items from damage.

C. Handle items to prevent damage to finish surfaces.

D. Protection:

1. Maintain protective covers on all items until installation is complete.

2. Remove protective covers at final clean-up of installation.

1.04 PROJECT/SITE CONDITIONS

A. Verify:

1. That spacing of plumbing fixtures and toilet partitions is satisfactory for installation of accessories.

2. That room door and toilet compartment door swings do not interfere with the location of accessories indicated.

B. Inspect job for conditions which would prevent execution of this work as specified. Do not proceed until such conditions are corrected.

PART II – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Acceptable Manufacturers Subject to Compliance with this Specification:

1. Bobrick Washroom Equipment, Inc. [referenced manufacturer].

2. Bradley Corporation.

3. Accessory Specialties, Inc.

2.02 FASTENINGS AND ANCHORS

A. Use concealed fasteners wherever possible.

B. Fasteners and Anchors: Stainless steel.

C. Anchor type shall be suitable for substrate fastened to as indicated.

2.03 KEYS AND LOCKS

A. Locks for a given item shall be keyed alike; coin locks shall be keyed separately.

B. Turn over to ASEM/Owner four keys for each type of lock.

2.04 LIST OF ACCESSORIES

A. See the Toilet Accessories Schedule.

PART III – EXECUTION

3.01 INSTALLATION

A. Install complying with reviewed Shop Drawings and manufacturer's instructions.

B. Remove protective coverings from accessory surfaces and clean exposed surfaces.

C. Check hinged, latched, and locked items to see that they operate properly. Verify that coin dispensers operate as indicated.

END OF SECTION

2.0 CIVIL PRELIMINARY TECHNICAL SPECIFICATIONS

CIVIL PRELIMINARY TECHNICAL SPECIFICATIONS

RFP / DESIGN-BUILD USE NOTICE

These civil technical specifications are issued as RFP/Design-Build bridging performance criteria for selection of the Design-Build Entity for the New Puerto Rico Trauma Hospital. They establish the Owner's minimum civil, site-development, utility-infrastructure, durability, quality, performance, and coordination requirements. They communicate design intent and minimum standards only and are not final permit documents or construction specifications.

The selected Design-Build Entity shall, through its Puerto Rico-licensed Civil Engineer of Record and other required professionals, complete all investigations and final civil design. Responsibilities include a certified existing-conditions and topographic survey; utility location and verification; supplemental geotechnical investigation as required; final demolition, grading, drainage, roadway, pavement, water, sanitary, stormwater, excavation-support, dewatering, erosion-control, and site-utility design; signed and sealed permit and construction documents; agency coordination; and all approvals required to construct a complete and operational Project.

References to "Contractor" or "Design-Build Entity" mean the selected Design-Build Entity after award. "Civil Engineer of Record" means the Design-Build Entity's Puerto Rico-licensed civil engineer responsible for the final design, calculations, signed and sealed documents, and construction-phase professional services. "ASEM/Owner" and "ASEM/Owner's Representative" mean the Owner and its designated reviewers. ASEM review, comment, acceptance, or lack of comment does not transfer design responsibility from the Design-Build Entity or its professionals of record.

The Project will be executed within the active ASEM Puerto Rico Medical Center campus. The Design-Build Entity shall protect adjacent institutions, occupied facilities, emergency and ambulance access, circulation, and utilities to remain. Staging, phasing, shutdowns, tie-ins, and access restrictions require ASEM's written approval. Named products, materials, and methods are minimum benchmarks to be retained or exceeded in the final project-specific specifications.

CIVIL TABLE OF CONTENTS - RFP / DESIGN-BUILD BRIDGING CRITERIA

For RFP use, Sections identify minimum design-build performance criteria to be advanced, coordinated, signed and sealed by the selected Design-Build Entity's licensed design professionals of record.

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SECTION 01 50 50 - MOBILIZATION AND CLEANUP

PART 1 GENERAL

3.01 WORK INCLUDED

A. This Section establishes minimum requirements for mobilization, staging, temporary facilities, protection, cleanup, and restoration within the active ASEM campus. Maintain hospital operations, emergency and ambulance access, circulation, adjacent-facility access, and utilities designated to remain.

PART 2 PRODUCTS

3.02 GENERAL

A. Provide all materials and equipment required to accomplish the Work as specified.

B. Provide approved containers for material disposal.

C. The Design-Build Entity shall enforce quality-control criteria consistent with the RFP Bridging Documents and final Design-Build Agreement. Internal determinations do not limit ASEM/Owner's contractual rights.

D. Each Subcontractor is responsible to the Design-Build Entity for its materials, equipment, protection, installation, testing, and completion. The Design-Build Entity remains fully responsible to ASEM/Owner for the complete civil scope.

PART 3 EXECUTION

3.03 GENERAL

A. Clean equipment, vehicles, tools, and materials before entering the ASEM campus. Prevent mud, debris, invasive vegetation, and pollutants from reaching campus roads, occupied areas, drainage systems, or public rights-of-way.

B. Submit mobilization, logistics, phasing, traffic-control, utility-protection, environmental, and safety plans to ASEM/Owner before affected Work. Identify approved staging, protected, contaminated, excavation, stockpile, dewatering, waste, emergency-access, and high-hazard areas. Do not exceed approved limits or disturb suspected contamination until required procedures are authorized.

C. Use only ASEM-approved staging areas. Bridging locations are preliminary and shall be verified by the Design-Build Entity. Licensed professionals shall locate borings, test pits, monitoring points, and exploratory work in coordination with ASEM to avoid active utilities, structures, access routes, and hospital operations.

D. Existing-condition information is not represented as complete. Before proposal and construction, inspect and survey the site, locate utilities, verify obstructions, and reconcile field conditions. Include required removal, relocation, protection, and restoration, with ASEM approval where existing facilities or utilities are affected.
E. Require subcontractor and supplier due diligence. Their failure to review available information does not relieve the Design-Build Entity or create entitlement against ASEM/Owner except as expressly stated in the Design-Build Agreement.

3.04 CLEANUP OF CONSTRUCTION AREAS

A. Avoid contamination of the project area. Do not dump waste oil, rubbish, or other hazardous or non-hazardous materials on the ground. Restore site, as nearly as possible, to original condition.
B. After Work in each area, remove temporary facilities, unused materials, waste, and debris; restore disturbed surfaces; and leave the area safe. Contain waste and prohibit liquid discharge except by an authorized method approved by ASEM. Repair damage and obtain ASEM/Owner acceptance of restoration.
C. Upon leaving the site at the completion of the Work, the applicable Subcontractor shall decontaminate any equipment that requires it.

3.05 WASTE DISPOSAL

A. The Design-Build Entity is responsible for lawful characterization, segregation, handling, transport, recycling, and disposal of waste. Use authorized facilities and maintain records for ASEM/Owner.
B. Manage potentially contaminated material under a qualified professional’s environmental work plan. Use approved containers, required secondary containment, complete labels, and secure weather-protected storage.
C. The Design-Build Entity shall prevent contaminated liquids, sediment-laden water, concrete washout, fuels, and other pollutants from entering surface water, drainage channels, existing storm systems, or occupied campus areas.
D. A qualified environmental professional shall sample, classify, and document potentially contaminated material under applicable regulations and disposal-facility criteria. Obtain agency approval when required.
E. Remove characterized waste promptly within regulatory limits. Storage shall not interfere with campus operations, emergency access, drainage, or progress.

PART 4 PERSONNEL

3.06 PERSONNEL REQUIREMENTS

A. Provide at all times, during the performance of Work, experienced and competent crews. Additional personnel shall be provided as required during all operations to support the type of Work being conducted.

END OF SECTION

SECTION 31 20 10 - SUBSURFACE INVESTIGATION

PART 1 GENERAL

3.07 SUBSURFACE DATA:

A. Engage a Puerto Rico-licensed geotechnical engineer to review available data, perform required supplemental investigation and testing, and issue project-specific recommendations coordinated with the Civil and Structural Engineers of Record.

B. Treat ASEM-provided preliminary geotechnical information as reference data. Before final design and earthwork, verify its adequacy and complete supplemental investigation required for foundations, excavation, shoring, dewatering, pavements, utilities, and site design.

3.08 USE OF DATA:

A. Available reports establish conditions only at the investigated locations and dates. They do not warrant uniform conditions or replace the Design-Build Entity's responsibility for investigation, interpretation, final design, or means and methods.

B. Incorporate verified geotechnical criteria into final signed and sealed documents and construction procedures. Submit coordinated revisions to the bridging concept to ASEM/Owner under the RFP and Design-Build Agreement.

3.09 REPRESENTATIONS:

A. ASEM/Owner and the preparers of reference investigations do not warrant uniform subsurface or groundwater conditions.

B. The Design-Build Entity and its professionals of record are responsible for interpretations, assumptions, design values, and conclusions, subject to the final Design-Build Agreement.

3.10 PRECEDENCE OF DOCUMENTS:

A. Apply the order of precedence in the RFP and Design-Build Agreement. Read the Bridging Documents as complementary and identify conflicts or omissions before final design or construction.

B. Where subsurface data conflict with these criteria or field conditions, the geotechnical and Civil/Structural Engineers of Record shall resolve and document the condition and submit the resolution to ASEM/Owner before affected Work proceeds.

END OF SECTION

SECTION 31 20 50 – DEMOLITION

PART 1 GENERAL

3.11 GENERAL

A. The RFP Bridging Drawings identify preliminary civil demolition intent and may not show every pavement, structure, utility, foundation, obstruction, or appurtenance requiring removal, relocation, abandonment, or protection. During proposal due diligence and final design, the Design-Build Entity shall survey and verify conditions, coordinate with ASEM, and prepare a complete signed and sealed demolition plan and sequence for the Project.

3.12 SUBMITTALS

A. Demolition plan and schedule identifying full and selective demolition, sequencing, temporary protection, utility cutovers, shutdowns, traffic and pedestrian controls, salvage, debris routes and storage, environmental controls, and restoration. Coordinate the plan with the overall Design-Build schedule and ASEM campus operations.

1. Methods, equipment, temporary supports, monitoring, dust/noise/vibration controls, and protection measures proposed for each demolition activity, including measures for adjacent occupied healthcare facilities and utilities to remain.
2. Copies of any authorizations and permits required to perform Work.

PART 2 EXECUTION

3.13 PREPARATION

A. Utilities:

1. Do not interrupt, disconnect, cap, relocate, or abandon any utility until the service has been positively identified, the final disposition is shown in the coordinated Design-Build documents, and the shutdown or cutover has been approved in writing by ASEM and the serving utility or authority. Provide temporary services and contingency measures where required to maintain hospital operations.
2. Remove utility lines exposed by demolition excavation.
3. Remove only electrical, communications, water, sanitary, storm-drainage, and other utilities specifically verified and designated for removal in the final coordinated demolition documents. Protect and maintain all utilities designated to remain, including services to adjacent institutions.

4. Excavate utility lines serving buildings to be demolished and provide a permanent leak-proof closure for water and gas lines.
5. Plug sewer lines at locations shown or at limits of excavation if not shown with concrete length of plug, to prevent groundwater infiltrating sewer systems.

B. Existing Pavement:
1. Work will be done in accordance with the requirements of the authorities having jurisdiction, including trimming, line cutting and all other incidental work required for the installation of pipelines and other utilities, construction of structures, road widening, etc.
2. Restore pavement disturbed by demolition or utility work to the lines, grades, drainage, structural capacity, surface quality, and traffic loading established in the final Design-Build documents and required by the authority having jurisdiction. Temporary and permanent repairs shall maintain safe campus circulation and emergency access.

C. Provide temporary repairs, decking, barriers, detours, and traffic-control measures as required to maintain safe circulation. Coordinate work affecting public rights-of-way with DTOP or the applicable authority and work affecting the ASEM campus with ASEM/Owner before implementation.

D. Removal and Storage of Equipment for Reuse:

E. Do not remove, dispose of, relocate, or reuse equipment or materials identified for possible salvage until ASEM/Owner issues written disposition instructions.

F. Properly store and maintain equipment and materials in same condition as when removed.

G. Except for items designated by ASEM/Owner for salvage, reuse, return, or regulated disposal, removed materials become the Design-Build Entity’s responsibility upon removal and shall be legally transported, recycled, or disposed of offsite.

H. The RFP Bridging Drawings define minimum demolition intent. The Design-Build Entity shall establish final limits and use controlled removal methods that avoid damage beyond those limits. Repair unauthorized over-demolition and damage to retained work at no additional cost to ASEM/Owner.

I. Core drill floor slabs, catch basins, and other concrete improvements to remain in place below ground, or break holes at structure's lowest point to allow water to freely migrate through.

J. Remove piping from areas to be backfilled. Pipe, valves, and fittings adjacent to those to be removed may also be removed as salvage.
K. Remove all materials associated with existing equipment that is to be removed or relocated.
L. Cut off concealed or embedded conduit, boxes, or other materials a minimum of 3/4 inch below final finished surface.
M. Extract existing piling, which conflict with new piles, prior to driving new piles.

3.14 DISPOSAL

A. Dispose of debris and other non-salvaged materials as specified in Section 31 21 00, SITE PREPARATION.

3.15 BACKFILLING

A. Backfill Demolition areas to existing ground level.
B. Conform to Section 31 22 20, FILL AND BACKFILL.
C. Do not use demolition debris as backfill material.

END OF SECTION

SECTION 31 21 00 - SITE PREPARATION

PART 1 GENERAL

3.16 DEFINITIONS

A. Interfering or Objectionable Material: Trash, rubbish, and junk; vegetation and other organic matter, whether alive, dead, or decaying; topsoil.
B. Clearing: Removal of interfering or objectionable material lying on or protruding above ground surface.
C. Grubbing: Removal of vegetation and other organic matter including stumps, buried logs, and roots greater than 2 inches caliper to a depth of 6 inches below sub-grade.
D. Scalping: Removal of sod without removing more than upper 3 inches of topsoil.
E. Stripping: Removal of topsoil remaining after applicable scalping is completed.
F. Project Limits: Areas, as shown or specified, within which Work is to be performed, however some work may be required to be performed outside the project limits.

3.17 SUBMITTALS

A. Shop Drawings: Drawings clearly showing clearing, grubbing, and stripping limits.

3.18 QUALITY ASSURANCE

A. Obtain Civil Engineer of Record's approval of staked clearing, grubbing, and stripping limits, prior to commencing clearing, grubbing, and stripping.

3.19 SCHEDULING AND SEQUENCING

A. Prepare site only after adequate erosion and sediment controls are in place. Limit areas exposed uncontrolled to erosion during installation of temporary erosion and sediment controls to maximum of 1 acre.
B. The Design-Build Entity shall identify, obtain, and comply with all permits, authorizations, environmental plans, notifications, and agency conditions required for clearing, grubbing, earth disturbance, vegetation removal, erosion and sediment control, waste handling, and work in public rights-of-way before beginning affected Work.

PART 2 EXECUTION

3.20 GENERAL

A. Clear, grub, and strip areas actually needed for waste disposal, borrow, or site improvements within limits shown or specified.
B. Do not injure or deface vegetation that is not designated for removal.

3.21 LIMITS

A. As follows, but not to extend beyond Project limits.
   1. Excavation: Excluding Trenches: 5 feet beyond top of cut slopes.
   2. Trench Excavation: 4 feet from trench centerline, regardless of actual trench width.
   3. Fill:
      a. Clearing and Grubbing: 5 feet beyond toe of permanent fill.
      b. Stripping and Scalping: 2 feet beyond toe of permanent fill.
   4. Waste Disposal:
      a. Clearing: 5 feet beyond perimeter.
      b. Scalping and Stripping: Not required.
      c. Grubbing: Around perimeter as necessary for neat finished appearance.
   5. Structures: 15 feet outside of new structures.
   6. Roadways: Clearing, grubbing , scalping, and stripping 30 feet from roadway shoulders.
   7. Overhead Utilities:
      a. Clearing and Grubbing: Entire width of easements and rights-of-way.
      b. Scalping and Stripping: Wherever grading is required.
   8. Other Areas: As shown on drawings.

B. Remove rubbish, trash, and junk from entire area within Project limits.

3.22 TEMPORARY REMOVAL OF INTERFERING PLANTINGS

A. Remove and store, as specified in the Reforestation Plan shrubs and trees that are not designated for removal but do interfere with construction or could be damaged by construction activities.

B. Photograph and document plants prior to their removal if not included in the Reforestation Plan.

3.23 CLEARING

A. Clear areas within limits shown or specified.

B. Fell trees so that they fall away from facilities and vegetation not designated for removal.

C. Cut stumps not designated for grubbing flush within 6 inches of ground surface.

D. Cut off shrubs, brush, weeds, and grasses to within 2 inches of ground surface.

3.24 GRUBBING

A. Grub areas within limits shown or specified.

3.25 SCALPING

A. Do not remove sod until after clearing and grubbing is completed and resulting debris is removed.

B. Scalp areas within limits shown or specified.

3.26 STRIPPING

A. Do not remove topsoil until after scalping is completed.
B. Strip areas within limits to minimum depths shown or specified. Do not remove subsoil with topsoil.
C. Stockpile strippings for topsoil, separately from other excavated material.

3.27 TREE REMOVAL OUTSIDE CLEARING LIMITS

A. Remove Within Project Limits:
    1. Dead, dying, leaning, or otherwise unsound trees that may strike and damage Project facilities in falling.
    2. Trees designated by the Civil Engineer of Record
B. Cut stumps off flush with ground, remove debris, and if disturbed, restore surrounding area to its original condition.

3.28 TREE TOPPING

A. Top trees designated by adjacent to Project rights-of-way and easements for overhead utilities so remaining portion will not strike facilities in falling. Where topping will remove more than 1/2 of a tree's crown, remove entire tree.
B. Consult project arborist to treat wounds resulting from topping.

3.29 SALVAGE

A. Logs, timber, and other potentially salvageable material shall be inventoried and submitted to ASEM/Owner for written disposition instructions. No sale, reuse, or removal for private benefit is permitted without ASEM authorization.
B. Sod or vegetation with potential reuse value shall be protected, stockpiled, transplanted, or disposed of as directed in the final landscape/site plan and approved by ASEM/Owner.

3.30 DISPOSAL

A. Clearing and Grubbing Debris:
    1. Dispose of debris offsite.
    2. Do not bury clearing, grubbing, demolition, or construction debris onsite. Remove material to an authorized recycling or disposal facility unless a specifically engineered and permitted reuse is shown in the final Design-Build documents and approved in writing by ASEM/Owner.
    3. Burning of debris onsite will not be allowed.
    4. Open burning is prohibited on the Project site. Remove combustible debris promptly using legal transport and disposal or approved recycling methods.
    5. Limit temporary debris stockpiles to approved locations and durations. Protect stockpiles from fire, wind, runoff, pests, and unauthorized access, and do not obstruct emergency routes, drainage, utilities, or campus operations.
    6. Dispose of unburned and noncombustible debris offsite.

7. Remove noncombustible debris offsite for legal recycling or disposal. Onsite burial is prohibited unless expressly included in the final permitted design and authorized in writing by ASEM/Owner.
8. Woody debris may be chipped for approved landscape reuse only when clean, suitable, and incorporated into the final landscape plan. Obtain ASEM/Owner approval for onsite reuse; remove excess or unsuitable chips to an authorized facility.
9. Limit offsite disposal of clearing and grubbing debris to locations that are approved by federal, Puerto Rico, and local authorities, and that will not be visible from Project.

B. Scalping: As specified for clearing and grubbing debris.

C. Stripping:
1. Dispose of stripped material unsuitable for reuse, or in excess of Project needs, at authorized offsite facilities. Stockpile reusable topsoil only in approved locations and protect it from contamination and erosion.
2. Stockpile topsoil in sufficient quantity to meet Project needs. Dispose of excess stripping as specified for clearing and grubbing.

END OF SECTION

SECTION 31 21 60 - EXCAVATION SUPPORT SYSTEMS

PART 1 GENERAL

3.31 SUBMITTALS

A. Shop Drawings:
   1. Excavation support plan.
   2. Movement monitoring plan.
   3. Trench excavation Plan

B. Quality Control Submittals: Movement measurement and data and reduced results indicating movement trends.

3.32 QUALITY ASSURANCE

A. Provide a preconstruction condition survey and an engineered movement-monitoring program for adjacent buildings, utilities, roadways, and other critical facilities. Establish baseline readings before excavation and submit monitoring data, trends, threshold exceedances, and corrective actions to the Civil and Structural Engineers of Record and ASEM/Owner.

PART 2 EXECUTION

3.33 GENERAL

A. The Design-Build Entity shall design, permit, install, monitor, maintain, and remove excavation support and dewatering systems for the approximately 22- to 28-foot-deep basement excavation and related utility trenches. Systems shall be engineered and signed and sealed by Puerto Rico-licensed professionals and shall prevent instability, settlement, vibration damage, groundwater impacts, or interruption of adjacent occupied ASEM facilities, access routes, utilities, and completed Work.

3.34 EXCAVATION SUPPORT PLAN AND TRENCH EXCAVATION PLAN

A. Prepare coordinated excavation-support, dewatering, trench-safety, and monitoring plans addressing the following topics and incorporating the geotechnical report, structural design, construction sequence, adjacent-facility protection, and emergency response procedures:
   1. Details of shoring, bracing, sloping, or other provisions for worker protection from hazards of caving ground.
   2. Design assumptions and calculations.
   3. Methods and sequencing of installing excavation support.
   4. Proposed locations of stockpiled excavated material.
   5. Minimum lateral distance from the crest of slopes for vehicles and stockpiled excavated materials.
   6. Anticipated difficulties and proposed resolutions.

3.35 MOVEMENT MONITORING PLAN

A. Prepare movement monitoring plan addressing following topics:
   1. Survey control.
   2. Locations of monitoring points.
   3. Plots of data trends.
   4. Monitoring frequency, alert and action thresholds, notification protocol, stop-work criteria, emergency stabilization measures, and reporting format. Increase monitoring when trends approach established thresholds or when directed by the responsible professional.

3.36 REMOVAL OF EXCAVATION SUPPORT

A. Remove excavation support in manner that will maintain support as excavation is backfilled or leave voids in backfill.

B. Do not remove or abandon excavation-support elements until the responsible licensed professional verifies that permanent construction and backfill can safely carry all loads and that removal will not damage adjacent facilities, utilities, completed Work, or property. Obtain ASEM approval before work affecting campus operations or retained facilities.

3.37 TRENCHES

A. Provide adequate safety system meeting requirements of applicable Puerto Rico and local construction safety orders, and federal requirements, specially current OSHA requirements.

END OF SECTION

SECTION 31 22 05 – EXCAVATION

PART 1 GENERAL

3.38 DEFINITIONS

A. Common Excavation: Removal of material not classified as rock excavation.

B. Rock Excavation:

1. General: Removal of solid material which by actual demonstration cannot, in Civil Engineer of Record's opinion, be reasonably loosened or ripped by single-tooth, hydraulically operated ripper mounted on crawler tractor in good condition and rated at minimum 300 flywheel horsepower; and which must be systematically drilled and blasted or broken by power-operated hammer, hydraulic rock breaker, expansive compounds, or other similar means prior to removal.
2. Trench: Removal of solid material which by actual demonstration cannot, in Civil Engineer of Record's opinion, be reasonably excavated with minimum 135 hp backhoe in good condition and equipped with manufacturer's standard boom, two rippers, and rock points or similar approved equipment; and which must be systematically drilled and blasted or broken by power-operated hammer, hydraulic rock breaker, expansive compounds, or other similar means prior to removal.
3. Term "rock excavation" indicates removal of solid material, as specified above, and does not necessarily correspond to "rock" as implied by names of geologic formations.
4. Removal of boulders larger than 1/2 cubic yard will be classified as rock excavation, if drilling and blasting or breaking them apart with power-operated hammer, hydraulic rock breaker, expansive compounds, or other similar means is both necessary and actually used for their removal.

3.39 SUBMITTALS

A. Shop Drawings:

1. Excavation Plan, Detailing:
   a. Methods and sequencing of excavation.
   b. Proposed locations of stockpiled excavated material.
   c. Proposed onsite and offsite spoil disposal sites.

3.40 QUALITY ASSURANCE

A. Provide adequate survey control to avoid unauthorized over-excavation.

3.41 WEATHER LIMITATIONS

A. Material excavated during inclement weather shall not be used as fill or backfill until after material drains and dries sufficiently for proper compaction.

3.42 SEQUENCING AND SCHEDULING

A. Clearing, Grubbing, and Stripping: Complete applicable Work specified in Section 31 21 00, SITE PREPARATION, prior to excavating.

B. Dewatering: The Design-Build Entity shall have its geotechnical and Civil/Structural Engineers of Record design and coordinate a dewatering and groundwater-control plan before excavation. Address discharge permitting, settlement risk, adjacent foundations and utilities, monitoring, standby capacity, storm events, and uninterrupted campus operations.

C. Excavation Support: Design, install, monitor, and maintain systems specified in Section 31 21 60, EXCAVATION SUPPORT SYSTEMS, and coordinate them with excavation sequencing, dewatering, foundations, utilities, temporary access, and protection of adjacent occupied facilities.

PART 2 EXECUTION

3.43 GENERAL

A. Excavate to the lines, grades, dimensions, tolerances, working clearances, and temporary slopes established in the final signed and sealed Design-Build documents. Coordinate excavation with foundations, waterproofing, utilities, dewatering, support systems, survey control, and geotechnical verification. Do not rely on preliminary bridging dimensions as final excavation limits.

B. Do not over-excavate beyond final design limits without written direction from the Civil or Structural Engineer of Record. Document the condition and provide an engineered repair or replacement procedure before proceeding.

3.44 UNCLASSIFIED EXCAVATION

A. Excavation is unclassified. Complete all excavation regardless of the type, nature, or condition of the materials encountered.

3.45 CLASSIFIED EXCAVATION

A. Excavation is classified; see Article DEFINITIONS for classifications. Notify Civil Engineer of Record whenever rock is encountered.

B. Before beginning rock excavation, comply with following requirements:

1. Remove overlying material as common excavation and expose rock surface for examination by Civil Engineer of Record.

2. Demonstrate that removal of remaining material classifies as rock excavation unless waived by Civil Engineer of Record.
3. Document rock elevations, quantities, methods, photographs, and survey data for the Design-Build Entity's quality records and for any contractual consideration expressly permitted by the final Design-Build Agreement.

C. Blasting is prohibited unless the Design-Build Entity demonstrates that nonexplosive methods are impracticable, obtains all permits and written ASEM approval, and submits a signed and sealed blasting, vibration-monitoring, protection, and emergency plan. Where approved, establish the top-of-rock line and method by a controlled test program acceptable to the geotechnical and Civil/Structural Engineers of Record.
   1. Pre-drill, blast, and excavate initial 100-foot long test section.

D. Excavate minimum of two 20-foot long trenches to apparent rock line immediately adjacent to predrilled section for comparison.

E. Where rock limits are uncertain, perform additional correlation trenches as directed by the geotechnical engineer. Stop pre-drilling or blasting when accurate limits cannot be established or monitoring indicates unacceptable risk. Contractual treatment of differing conditions is governed solely by the Design-Build Agreement.

3.46 TRENCH WIDTH

A. Minimum Trench Width: As established in the final Design-Build construction documents and required for pipe installation, compaction, worker safety, and excavation support. The Design-Build Entity shall determine and include required widths during final design and proposal development.

B. Maximum Trench Width: Unlimited, unless otherwise shown or specified, or unless excess width will cause damage to existing facilities, adjacent property, or completed Work.

3.47 PIPE BEDDING GROOVES FOR NONPERFORATED DRAIN LINES

A. Semicircular, trapezoidal, or 90-degree-V.

B. Excavated or plowed into trench bottom. Forming groove by compaction will not be acceptable.

3.48 EMBANKMENT AND CUT SLOPES

A. Shape, trim, and finish cut slopes to conform with lines, grades, and cross-sections shown, with proper allowance for topsoil or slope protection, where shown.

B. Remove stones and rock that exceed 3-inch diameter and that are loose and may roll down slope. Remove exposed roots from cut slopes.

C. Round tops of cut slopes in soil to not less than a 6-foot radius, provided such rounding does not extend offsite or outside easements and right-of-ways, or adversely impacts existing facilities, adjacent property, or completed Work.

3.49 STOCKPILING EXCAVATED MATERIAL

A. Stockpile excavated material that is suitable for use as fill or backfill until material is needed.

B. Post signs indicating proposed use of material stockpiled. Post signs that are readable from all directions of approach to each stockpile. Signs should be clearly worded and readable by equipment operators from their normal seated position.

C. Confine stockpiles to approved work areas and lawful easements or rights-of-way. Do not obstruct emergency access, ambulance routes, campus roads, sidewalks, drainage, fire department access, utilities, or access to adjacent institutions.

D. Do not stockpile excavated material adjacent to trenches and other excavations unless excavation side slopes and excavation support systems are designed, constructed, and maintained for stockpile loads.

E. Do not stockpile excavated materials near or over existing facilities, adjacent property, or completed Work, if weight of stockpiled material could induce excessive settlement.

3.50 DISPOSAL OF SPOIL

A. Dispose of excavated materials, which are unsuitable or not needed for fill or backfill, in designated spoil disposal areas.

B. Dispose of debris resulting from removal of organic matter, trash, refuse, and junk as specified in Section 31 21 00, SITE PREPARATION, for clearing and grubbing debris.

END OF SECTION

SECTION 31 22 10 - BORROW PITS

PART 1 GENERAL

3.51 SUBMITTALS

A. Source Plan: Identify proposed permitted offsite borrow sources, material classifications, testing, hauling routes, environmental approvals, and source-reclamation obligations. Onsite borrow pits are prohibited unless expressly authorized in writing by ASEM/Owner and included in the final permitted Design-Build documents.

3.52 WEATHER LIMITATIONS

A. Except as approved by Civil Engineer of Record, do not operate borrow pits when borrow is too wet to achieve required compaction.

3.53 SEQUENCING AND SCHEDULING

A. Demolition: Complete applicable Work specified in Section 31 20 50, DEMOLITION, prior to borrow pit development.

B. Clearing, Grubbing, and Stripping: Complete applicable Work specified in Section 31 21 00, SITE PREPARATION, prior to borrow pit development.

C. Install and operate dewatering systems.

PART 3 EXECUTION

3.54 BORROW PIT OPERATION

A. The Civil Engineer of Record and geotechnical engineer shall review and accept each borrow source and material before use. Obtain required agency approvals and submit changes in source, operation, or material characteristics before implementation.

B. Always keep borrow pits neat and orderly, and work them in systematic manner. Continuously keep borrow pits graded to drain, and take necessary precautions to control erosion and prevent offsite sediment releases. Dewater as necessary to develop, operate, and reclaim each borrow pit.

C. Do not excavate more borrow material than required for Work. Leave surplus material in place.

D. Limit excavations at borrow pits to depth, which will permit completed area to drain to surrounding area after completion of Work.

3.55 OBSTRUCTIONS

A. Consult the Civil Engineer of Record prior to removing or protecting any obstructions.

3.56 RECLAMATION

A. Grade borrow pits and replace topsoil to drain without ponding surface water and to blend graded surfaces neatly with surrounding terrain at completion of borrow operations.
B. Final Slopes:
    1. Maximum: Two horizontal to one vertical.
    2. Minimum: 2 percent.
C. Do not use borrow pits for disposal, unless otherwise specified or shown.
D. Consult project arborist to prepare topsoil and reestablish vegetation.

END OF SECTION

SECTION 31 22 15 - SUBGRADE PREPARATION

PART 1 GENERAL

3.57 REFERENCES

A. The following is a list of standards which may be referenced in this section:
   1. American Society for Testing and Materials (ASTM):
      a. D698, Standard Test Methods for Moisture-Density Relations of Soils and Soil Aggregate Mixtures Using 5.5-pound (2.49 kg) Rammer and 12-inch (305 mm) Drop.
      b. D1557, Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-pound (4.54 kg) Rammer and 18-inch (457 mm) Drop.

3.58 DEFINITIONS

A. Optimum Moisture Content: As defined in Section 31 22 20, FILL AND BACKFILL.
B. Prepared Ground Surface: Ground surface after completion of clearing and grubbing, scalping of sod, stripping of topsoil, excavation to grade, and scarification and compaction of sub-grade.
C. Relative Compaction: As defined in Section 31 22 20, FILL AND BACKFILL.
D. Relative Density: As defined in Section 31 22 20, FILL AND BACKFILL.
E. Sub-grade: Layer of existing soil after completion of clearing, grubbing, scalping of topsoil prior to placement of fill, roadway structure or base for floor slab.
F. Proof-Rolling: Testing of sub-grade by compactive effort to identify areas that will not support the future loading without excessive settlement.

3.59 SEQUENCING AND SCHEDULING

A. Complete applicable Work specified in Sections 31 21 00, SITE PREPARATION; and 31 22 05, EXCAVATION, prior to sub-grade preparation.

3.60 QUALITY ASSURANCE

A. Notify Civil Engineer of Record when sub-grade is ready for compaction or proof-rolling or whenever compaction or proof-rolling is resumed after a period of extended inactivity.

PART 2 EXECUTION

3.61 GENERAL

A. Keep sub-grade free of water, debris, and foreign matter during compaction or proof-rolling.

B. Bring sub-grade to proper grade and cross-section and uniformly compact surface.
C. Do not use sections of prepared ground surface as haul roads. Protect prepared sub-grade from traffic.
D. Maintain prepared ground surface in finished condition until next course is placed.

3.62 COMPACTION

A. Under Earthfill: Two passes with three-wheeled power roller weighing approximately 10 tons.
B. Under Pavement Structure Compact the upper 6 inches to minimum of 95 percent relative as determined in accordance with ASTM D1557

3.63 MOISTURE CONDITIONING

A. Dry Sub-grade: Add water, then mix to make moisture content uniform throughout.
B. Wet Sub-grade: Aerate material by blading, discing, harrowing, or other methods, to hasten drying process.

3.64 TESTING

A. Proof-roll sub-grade with equipment specified in Article COMPACTION to detect soft or loose sub-grade or unsuitable material, as determined by Civil Engineer of Record.

3.65 CORRECTION

A. Soft or Loose Sub-grade:
    1. Adjust moisture content and re-compact, or
    2. Over excavate as specified in Section 31 22 05, EXCAVATION, and replace with suitable material from the excavation, as specified in Section 31 22 20, FILL AND BACKFILL.
B. Unsuitable Material: Over excavate as specified in Section 31 22 05, EXCAVATION, and replace with suitable material from the excavation, as specified in Section 31 22 20, FILL AND BACKFILL.

END OF SECTION

SECTION 31 22 20 - FILL AND BACKFILL

PART 1 GENERAL

3.66 REFERENCES

A. The following is a list of standards which may be referenced in this section:
B. American Society for Testing and Materials (ASTM):
C. C117, Standard Test Method for Materials Finer Than 75-□m (No. 200) Sieve in Mineral Aggregates by Washing.
D. C136, Standard Method for Sieve Analysis of Fine and Coarse Aggregates.
E. D75, Standard Practice for Sampling Aggregates.
F. D1556, Standard Test Method for Density of Soil in Place by the Sand-Cone Method.
G. D1557, Standard Test Methods for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-pound (4.54 kg) Rammer and 18-inch (457 mm) Drop.
H. D2922, Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods.
I. D4253, Standard Test Methods for Maximum Index Density of Soils Using a Vibratory Table.
J. D4254, Standard Test Methods for Minimum Index Density of Soils and Calculation of Relative Density.

3.67 DEFINITIONS

A. Relative Compaction:
B. Ratio, in percent, of as-compacted field dry density to laboratory maximum dry density as determined in accordance with D1557.
C. Apply corrections for oversize material to either as-compacted field dry density or maximum dry density, as determined by Civil Engineer of Record.
D. Optimum Moisture Content:
E. Determined in accordance with ASTM Standard specified to determine maximum dry density for relative compaction.
F. Determine field moisture content on basis of fraction passing 3/4-inch sieve.
G. Relative Density: Calculated in accordance with ASTM D4254 based on maximum index density determined in accordance with ASTM D4253 and minimum index density determined in accordance with ASTM D4254.
H. Prepared Ground Surface: Ground surface after completion of required demolition, clearing and grubbing, scalping of sod, stripping of topsoil, excavation to grade, and sub-grade preparation.
I. Completed Course: A course or layer that is ready for next layer or next phase of Work.

J. Lift: Loose layer of material.
K. Well-Graded:
L. A mixture of particle sizes with no specific concentration or lack thereof of one or more sizes.
M. Does not define numerical value that must be placed on coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters.
N. Used to define material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids.
O. Influence Area: Area within planes sloped downward and outward at 60-degree angle from horizontal measured from:
P. 1-foot outside outermost edge at base of foundations or slabs.
Q. 1-foot outside outermost edge at surface of roadways or shoulder.
R. 0.5-foot outside exterior at spring line of pipes or culverts.
S. Borrow Material: Material from required excavations or from designated borrow areas on or near site.
T. Selected Backfill Material: Materials available onsite that Civil Engineer of Record determines to be suitable for specific use.
U. Imported Material: Materials obtained from sources offsite, suitable for specified use.
V. Structural Fill: Fill materials as required under structures, pavements, and other facilities.
W. Embankment Material: Fill materials required to raise existing grade in areas other than under structures.

3.68 SUBMITTALS

A. Quality Control Submittals:
B. Catalog and manufacturer's data sheets for compaction equipment.
C. Certified test results from independent testing agency.

3.69 QUALITY ASSURANCE

A. Notify Civil Engineer of Record when:
B. Soft or loose sub-grade materials are encountered wherever embankment or site fill is to be placed.
C. Fill material appears to be deviating from Specifications.

3.70 SEQUENCING AND SCHEDULING

A. Complete applicable Work specified in Sections 31 21 00, SITE PREPARATION; 31 22 05, EXCAVATION; and 31 22 15, SUBGRADE PREPARATION, prior to placing fill or backfill.
B. Backfill against concrete structures only after concrete has attained the applicable CAST-IN-PLACE CONCRETE requirements. Obtain Civil Engineer of Record’s acceptance of concrete work and attained strength prior to placing backfill.
C. Do not place granular base, sub-base, or surfacing until after sub-grade has been prepared as specified in Section 31 22 15, SUBGRADE PREPARATION.

PART 2 PRODUCTS

3.71 SOURCE QUALITY CONTROL

A. Gradation Tests:
B. As necessary to locate acceptable sources of imported material.
C. During production of imported material, test as follows:
D. Granular Fill:
E. Sand:
F. Granular Drain Material:
G. Base Course Rock:
H. Samples: Collected in accordance with ASTM D75:
I. During production of imported material, provide Samples as follows:
J. Granular Fill:
K. Sand:
L. Granular Drain Material:
M. Base Course Rock:
N. Clearly mark to show source of material and intended use.

3.72 EARTHFILL

A. Excavated material from required excavations and designated borrow sites, free from rocks larger than 3 inches, from roots and other organic matter, ashes, cinders, trash, debris, and other deleterious materials.
B. Provide imported material of equivalent quality, if required to accomplish Work

3.73 GRANULAR FILL

A. 1-inch minus crushed gravel or crushed rock.
B. Free from dirt, clay balls, and organic material.
C. Well-Graded from coarse to fine and containing sufficient fines to bind material when compacted, but with maximum 8 percent by weight passing No. 200 sieve.

3.74 SAND

A. Free from clay, organic matter, or other deleterious material.
B. Gradation as determined in accordance with ASTM C117 and C136:

Sieve Size	**Percent Passing by Weight**
1/4 inch	100
No. 4	95—100
No. 200	0—8

3.75 GRANULAR DRAIN MATERIAL

A. As specified in Section 31 22 25, TRENCH BACKFILL.

3.76 WATER FOR MOISTURE CONDITIONING

A. Free of hazardous or toxic contaminates, or contaminants deleterious to proper compaction.

3.77 BASE COURSE ROCK

A. As specified in Section 31 22 36, BASE COURSES.

PART 3 EXECUTION

3.78 GENERAL

A. Keep placement surfaces free of water, debris, and foreign material during placement and compaction of fill and backfill materials.
B. Place and spread fill and backfill materials in horizontal lifts of uniform thickness, in a manner that avoids segregation, and compact each lift to specified densities prior to placing succeeding lifts. Slope lifts only where necessary to conform to final grades or as necessary to keep placement surfaces drained of water.
C. During filling and backfilling, keep level of fill and backfill around each structure.
D. If pipe,or conduit, is to be laid within fill or backfill:
E. Fill or backfill to an elevation 2 feet above top of item to be laid.
F. Excavate trench for installation of item.
G. Install bedding, if applicable, as specified in Section 31 22 25, TRENCH BACKFILL.
H. Install item.
I. Backfill envelope zone and remaining trench, as specified in Section 31 22 25, TRENCH BACKFILL, before resuming filling or backfilling specified in this section.
J. Tolerances:
K. Final Lines and Grades: Within a tolerance of 0.1-foot unless dimensions or grades are shown or specified otherwise.
L. Grade to establish and maintain slopes and drainage as shown. Reverse slopes are not permitted.
M. Settlement: Correct and repair any subsequent damage to structures, pavements, curbs, slabs, piping, and other facilities, caused by settlement of fill or backfill material.

3.79 BACKFILL UNDER AND AROUND STRUCTURES

A. Consult with the Geotechnical Civil Engineer of Record for other compaction requirements specify herein with, as determined in the subsoil investigation study
B. Under Facilities: Within influence area beneath structures, slabs, pavements, curbs, piping, conduits, and other facilities, backfill with granular fill, unless otherwise shown. Place granular fill in lifts of 6-inch maximum thickness and compact each lift to minimum of 95 percent relative compaction as determined in accordance with ASTM D1557
C. Subsurface Drainage: Backfill with granular drain material, where shown. Place granular drain material in lifts of 6-inch maximum thickness and compact each lift to minimum of 90 percent relative density.

D. Other Areas: Backfill with earth fill to lines and grades shown, with proper allowance for topsoil thickness where shown. Place in lifts of 6-inch maximum thickness and compact each lift to minimum percent relative compaction as determined in accordance with ASTM D1557
E. Outside Influence Areas Beneath Structures, Pavements, Curbs, Slabs, Piping, and Other Facilities: Unless otherwise shown, place earthfill as follows:
F. Allow for 6-inch thickness of topsoil where required.
G. Maximum 8-inch thick lifts.
H. Place and compact fill across full width of embankment.
I. Compact to minimum 95 percent relative compaction as determined in accordance with ASTM D1557. Method based on average of most recent four tests on like material. If any two of the four most recent tests falls below 95 percent or any one of the four preceding tests falls below 93 percent, additional compactive effort will be required.
J. Dress completed embankment with allowance for topsoil, crest surfacing, and slope protection, where applicable.

3.80 SITE TESTING

A. Gradation:
B. One sample from each 1,500 tons of finished product or more often as determined by Civil Engineer of Record, if variation in gradation is occurring, or if material appears to depart from Specifications.
C. If test results indicate material does not meet Specification requirements, terminate material placement until corrective measures are taken.
D. Remove material placed in Work that does not meet Specification requirements.
E. Consult with the geotechnical Civil Engineer of Record regarding In-Place Density Tests: In accordance with ASTM D2922. During placement of materials, test as follows:
F. Granular Fill:
G. Sand:
H. Granular Drain Material:
I. Base Course Rock:

3.81 GRANULAR BASE, SUBBASE, AND SURFACING

A. Place and Compact as specified in Section 31 22 36, BASE COURSES.

3.82 PLACING OVEREXCAVATED MATERIAL

A. Replace excavation carried below grade lines shown or established by Civil Engineer of Record as follows:
B. Beneath Fill or Backfill: Same material as specified for overlying fill or backfill.
C. Beneath Slabs-On-Grade: Granular fill.
D. Trenches:

E. Unauthorized Over-excavation: Either trench stabilization material or granular pipe base material, as specified in Section 31 22 25, TRENCH BACKFILL.
F. Authorized Over-excavation: Trench stabilization material, as specified in Section 31 22 25, TRENCH BACKFILL.
G. Permanent Cut Slopes (Where Overlying Area is Not to Receive Fill or Backfill):
H. Flat to Moderate Steep Slopes (3:1, Horizontal Run: Vertical Rise or Flatter): Earthfill.
I. Steep Slopes (Steeper than 3:1):
J. Correct over-excavation by transitioning between overcut areas and designed slope adjoining areas, provided such cutting does not extend offsite or outside easements and right-of-ways, or adversely impacts existing facilities, adjacent property, or completed Work.
K. Backfilling over-excavated areas is prohibited unless, in Civil Engineer of Record's opinion, backfill will remain stable, and over-excavated material is replaced as compacted earth fill.

3.83 SUBSTATION SITE SURFACING

A. Finish Grade:
B. A 3-inch layer.
C. Installed over base course.
D. Finish grade layer shall not be compacted..

3.84 ACCESS ROAD SURFACING

A. Place and compact as specified in Section 31 22 36, BASE COURSES.

END OF SECTION

SECTION 31 22 25 - TRENCH BACKFILL

PART 1 GENERAL

3.85 REFERENCES

A. The following is a list of standards which may be referenced in this section:
B. American National Standards Institute (ANSI): Z53.1, Safety Color Code.
C. American Public Works Association (APWA): Uniform Color Code for Temporary Marking of Underground Utility Locations.
    1. American Society for Testing and Materials (ASTM):
        a. C33, Standard Specification for Concrete Aggregates.
        b. C94, Specification for Ready-Mixed Concrete.
D. C117, Standard Test Method for Materials Finer than 75 micrometer (No. 200) Sieve in Mineral Aggregates by Washing.
E. C136, Sieve Analysis of Fine and Coarse Aggregates.
    1. C150, Portland Cement.
F. C618, Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.
G. D422, Method for Particle-Size Analysis of Soils.
H. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil using Standard Effort (12,400 ft-lbf/cubic ft)(600 Kn-m/cubic m).
I. D1140, Amount of Material in Soils Finer than the No. 200 (75 micrometer) Sieve.
J. D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil using Modified Effort (56,000 ft-lbf/cubic ft)(2,700 Kn-mm/cubic m).
K. D3776, Mass per Unit Area (Weight) of Woven Fabric.
L. D3786, Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics: Diaphragm Bursting Strength Tester Method.
M. D4253, Standard Test Methods for Maximum Index Density of Soils Using a Vibratory Table.
N. D4254, Standard Test Methods for Minimum Index Density of Soils and Calculation of Relative Density.
    1. D4318, Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
        a. D4533, Trapezoid Tearing Strength of Geotextiles.
O. D4832, Preparation and Testing of Soil-Cement Slurry Test Cylinders.
P. D4991, Leakage Testing of Empty Containers by Vacuum Method.
Q. D5034, Breaking Force and Elongation of Textile Fabrics (Grab Test).

3.86 DEFINITIONS

A. Base Rock: Granular material upon which manhole bases and other structures are placed.
B. Bedding Material: Granular material upon which pipes, conduits, cables, or duct banks are placed.
C. Imported Material: Material obtained by the Design-Build Entity from source(s) offsite.
D. Lift: Loose (uncompacted) layer of material.
E. Pipe Zone: Backfill zone that includes full trench width and extends from prepared trench bottom to an upper limit above top outside surface of pipe, conduit, cable or duct bank.
F. Prepared Trench Bottom: Graded trench bottom after stabilization and installation of bedding material.
G. Relative Compaction: The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D1557 or ASTM D698. Corrections for oversize material may be applied to either the as-compacted field dry density or the maximum dry density, as determined by the Civil Engineer of Record.
H. Relative Density: As defined by ASTM D4253 and ASTM D4254.
I. Selected Backfill Material: Material available onsite that the Civil Engineer of Record determines to be suitable for a specific use.
J. Well-Graded: A mixture of particle sizes that has no specific concentration or lack thereof of one or more sizes producing a material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids. Well-Graded does not define any numerical value that must be placed on the coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters.

3.87 SUBMITTALS

A. Shop Drawings: Manufacturer's descriptive literature for marking tapes.
B. Samples:
    1. Trench stabilization material.
    2. Bedding and pipe zone material.
    3. Granular drain.
    4. Granular backfill.
    5. Earth backfill.
    6. Sand(s).
C. Quality Control Submittals: Catalog and manufacturer's data sheets for compaction equipment.
    1. Certified Gradation Analysis: Submit not less than 30 days prior to delivery for imported materials or anticipated use for excavated materials, except for trench stabilization

material that will be submitted prior to material delivery to site.

2. Controlled Low Strength Material: Certified mix design and test results. Include material types and weight per cubic yard for each component of mix.

PART 2 PRODUCTS

3.88 MARKING TAPE

A. Plastic:
   1. Inert polyethylene, impervious to known alkalis, acids, chemical reagents, and solvents likely to be encountered in soil.
   2. Thickness: Minimum 4 mils.
   3. Width: 12 inches.
   4. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length.
   5. Manufacturers and Products:
      a. Reef Industries; Terra Tape.
      b. Allen; Markline.

B. Metallic:
   1. Solid aluminum foil, visible on unprinted side, encased in a protective high visibility, inert polyethylene plastic jacket.
   2. Foil Thickness: Minimum 5.5 mils.
   3. Width: 12 inches.
   4. Identifying Lettering: Minimum 1-inch high, permanent black lettering imprinted continuously over entire length.
   5. Joining Clips: Tin or nickel-coated, furnished by tape manufacturer.
   6. Manufacturers and Products:
      a. Reef Industries; Terra ”D”.
      b. Allen; Detectatape.

C. Color: In accordance with APWA Uniform Color Code for Temporary Marking of Underground Facilities.

Color[a]	Facility
Red	Electric power lines, cables, conduit, and lightning cables
Orange	Communicating alarm or signal lines, cables, or conduit
Yellow	Gas, oil, steam, petroleum, or gaseous materials
Green	Sewers and drain lines
Blue	Water, irrigation, and slurry lines

[a]As specified in ANSI Z53.1, Safety Color Code.

3.89 TRENCH STABILIZATION MATERIAL

A. Base Rock:
   1. Clean, hard, durable 3-inch minus crushed rock or gravel, or pit run, free from clay balls, other organic materials, or debris.
   2. Uniformly graded from coarse to fine, less than 8 percent by weight passing the 1/4-inch sieve.

B. Granular Backfill:
   1. Clean gravel or crushed rock, reasonably well-graded from coarse to fine.
   2. Maximum Particle Size: 1 inch
   3. Dry sand, accepted by Civil Engineer of Record, may be provided for trenches above maximum groundwater level.

3.90 BEDDING MATERIAL AND PIPE ZONE MATERIAL

A. Friable, and no clay balls, roots, or other organic material.

B. Clean or gravelly sand with less than 5 percent passing No. 200 sieve, as determined in accordance with ASTM D1140, or gravel or crushed rock within maximum particle size and other requirements as follows unless otherwise specified.
   1. Duct Banks: 3/4-inch maximum particle size.
   2. PVC Irrigation System Piping, and Ductile Iron Pipe with Polyethylene Wrap: 3/8-inch maximum particle size.
   3. Pipe Under 18 Inches Diameter: 3/4-inch maximum particle size, except 1/4-inch for stainless steel pipe, copper pipe, tubing, and plastic pipe under 3 inches diameter.
   4. Pipe Greater than 18 Inches Diameter: 1-1/2-inch maximum particle size for ductile iron pipe, concrete pipe, welded steel pipe, and pretensioned or prestressed concrete cylinder pipe.
   5. Perforated Pipe: Granular drain material.
   6. Conduit and Direct-Buried Cable:

C. Sand, clean or clean to silty, less than 12 percent passing the No. 200 sieve.

D. Individual Particles: Free of sharp edges.
   1. Maximum Size Particle: Pass a No. 4 sieve.

E. If more than 5 percent passes No. 200 sieve, the fraction that passes No. 40 sieve shall be nonplastic as determined in accordance with ASTM D4318.

3.91 EARTH BACKFILL

A. Soil, loam, or other excavated material suitable for use as backfill.

B. Free from roots or organic matter, refuse, boulders and material larger than 1/2 cubic foot, or other deleterious materials.

3.92 GRAVEL SURFACING ROCK

A. As specified in Section 31 22 36, BASE COURSE.

3.93 TOPSOIL

A. As specified in the applicable SOIL PREPARATION requirements.

3.94 SOURCE QUALITY CONTROL

A. Perform gradation analysis in accordance with ASTM C136 for:
   1. Earth backfill, including specified class(es).
   2. Trench stabilization material.
   3. Bedding and pipe zone material.

B. Certify Laboratory Performance of Mix Designs:
   1. Controlled low strength fill.
   2. Concrete.

PART 3 EXECUTION

3.95 TRENCH PREPARATION

A. Water Control:
   1. Promptly remove and dispose of water entering trench as necessary to grade trench bottom and to compact backfill and install manholes, pipe, conduit, direct-buried cable, or duct bank. Do not place concrete, lay pipe, conduit, direct-buried cable, or duct bank in water.
   2. Remove water in a manner that minimizes soil erosion from trench sides and bottom.
   3. Provide continuous water control until trench backfill is complete.

B. Remove foreign material and backfill contaminated with foreign material that falls into trench.

3.96 TRENCH BOTTOM

A. Firm Subgrade: Grade with hand tools, remove loose and disturbed material, and trim off high areas and ridges left by excavating bucket teeth. Allow space for bedding material if shown or specified.

B. Soft Subgrade: Where unsuitable subgrade is encountered, notify the Civil Engineer of Record and geotechnical engineer. They shall determine the required limits of overexcavation, stabilization, replacement material, and compaction before pipe installation proceeds.

3.97 TRENCH STABILIZATION MATERIAL INSTALLATION

A. Rebuild trench bottom with trench stabilization material.

B. Place material over full width of trench in 6-inch lifts to required grade, providing allowance for bedding thickness.

C. Compact each lift so as to provide a firm, unyielding support for the bedding material prior to placing succeeding lifts.

3.98 BEDDING

A. Furnish imported bedding material where, in the opinion of the Civil Engineer of Record, excavated material is unsuitable for bedding or insufficient in quantity.

B. Place over the full width of the prepared trench bottom in two equal lifts when the required depth exceeds 8 inches.
C. Hand grade and compact each lift to provide a firm, unyielding surface.
D. Minimum Thickness: As follows, except increase depths listed by 2 inches in areas of rock excavation:
    1. Pipe, 15-inch and Smaller: 4 inches.
    2. Pipe, 18-inch to 36 inch: 6 inches.
    3. Pipe, 42-inch and Larger: 8 inches.
E. Check grade and correct irregularities in bedding material. Loosen top 1 to 2 inches of compacted bedding material with a rake or by other means to provide a cushion before laying each section of pipe,
F. Install to form continuous and uniform support except at bell holes, if applicable, or minor disturbances resulting from removal of lifting tackle.
G. Bell or Coupling Holes: Excavate in bedding at each joint to permit proper assembly and inspection of joint and to provide uniform bearing along barrel of pipe

3.99 BACKFILL PIPE ZONE

A. Upper limit of pipe zone shall not be less than following:
    1. Pipe:12 inches, unless shown otherwise.
B. Restrain pipe, as necessary to prevent their movement during backfill operations.
C. Place material simultaneously in lifts on both sides of pipe and, if applicable, between pipes, installed in same trench.
    1. Pipes 10 Inches and Smaller Diameter: First lift less than or equal to 1/2 pipe-diameter.
    2. Pipes Over 10 Inches Diameter: Maximum 6-inch lifts.
D. Thoroughly tamp each lift, including area under haunches, with handheld tamping bars supplemented by “walking in” and slicing material under haunches with a shovel to ensure that voids are completely filled before placing each succeeding lift.
E. After the full depth of the pipe zone material has been placed as specified, compact the material by a minimum of three passes with a vibratory plate compactor only over the area between the sides of the pipe and the trench walls.
F. Do not use power-driven impact compactors to compact pipe zone material.

3.100 MARKING TAPE INSTALLATION

A. Continuously install marking tape along centerline of all buried piping, on top of last lift of pipe zone material. Coordinate with piping installation drawings.
    1. Metallic Marking Tape: Install with nonmetallic piping and waterlines.
    2. Plastic Marking Tape: Install with metallic piping.

3.101 BACKFILL ABOVE PIPE ZONE

A. General:
   1. Process excavated material to meet specified gradation requirements.
   2. Adjust moisture content as necessary to obtain specified compaction.
B. Do not allow backfill to free fall into the trench or allow heavy, sharp pieces of material to be placed as backfill until after at least 2 feet of backfill has been provided over the top of pipe.
C. Do not use power driven impact type compactors for compaction until at least 4 feet of backfill is placed over top of pipe.
D. Backfill to grade with proper allowances for topsoil, crushed rock surfacing, and pavement thicknesses, wherever applicable.
E. Backfill around structures with same class backfill as specified for adjacent trench unless otherwise shown or specified.
F. Class A Backfill:
   1. Place in lifts of suitable thickness.
   2. Mechanically compact each lift prior to placing succeeding lifts.
G. Determine proper lift thickness, type of compaction equipment, method to use, and amount of compaction necessary to prevent settlement.
H. Class C Backfill:
I. Backfill with earth backfill.
J. Leave trench with backfill material neatly mounded across the entire trench width, but not more than 6 inches above the adjacent ground surface.
K. In lawn, garden, or similar type areas, maintain trench level with the existing adjacent grade.
L. At Other Locations:
M. Estimate and provide amount of backfill material required so that after normal settlement, the settled surface will match the adjacent ground surface.
N. Neatly windrow material over trench, and remove excess.
O. Correct excess or deficiency of backfill material apparent after settlement and within correction period by regrading, and disposing of excess material or adding additional material where deficient.
P. Class E Backfill:
Q. Backfill trench above pipe zone with granular backfill to a depth of 9 inches below original ground surface.
R. Fill remainder of trench with gravel surfacing rock over entire trench width.
S. Compact gravel surfacing rock by at least five passes with the wheels of a loaded 10-yard dump truck or other approved

equipment over entire trench surface as necessary to prevent settlement.

T. Finish completed backfilled surface at same level as original surface.
U. Concrete Backfill:
V. Place above bedding.
W. Minimum Concrete Thickness: 6 inches on top and sides of pipe.
X. Do not allow dirt or foreign material to become mixed with concrete during placement.
Y. Allow sufficient time for concrete to reach initial set before additional backfill material is placed in trench.
    1. Prevent flotation of pipe.
Z. Begin and end concrete backfill within 4 inches of a pipe joint on each end.
AA. Do not encase pipe joints except within the limits of the concrete backfill.
BB. Controlled Low Strength Fill:
    1. Discharge from truck mounted drum type mixer into trench.
CC. Place in lifts as necessary to prevent uplift (flotation) of new and existing facilities.

3.102 REPLACEMENT OF TOPSOIL

A. Replace topsoil in top 12 inches of backfilled trench.
B. Maintain the finished grade of topsoil even with adjacent area and grade as necessary to restore drainage.

3.103 MAINTENANCE OF TRENCH BACKFILL

A. After each section of trench is backfilled, maintain the surface of the backfilled trench even with the adjacent ground surface until final surface restoration is completed.
B. Gravel Surfacing Rock: Add gravel surfacing rock where applicable and as necessary to keep the surface of the backfilled trench even with the adjacent ground surface, and grade and compact as necessary to keep the surface of backfilled trenches smooth, free from ruts and potholes, and suitable for normal traffic flow.
C. Topsoil: Add topsoil where applicable and as necessary to maintain the surface of the backfilled trench level with the adjacent ground surface.
D. Other Areas: Add excavated material where applicable and keep the surface of the backfilled trench level with the adjacent ground surface.

3.104 SETTLEMENT OF BACKFILL

A. Settlement of trench backfill, or of fill or facilities constructed over trench backfill will be considered a result of defective compaction of trench backfill.

END OF SECTION

SECTION 31 22 36 - BASE COURSE

PART 1 GENERAL

3.105 REFERENCES

A. The following is a list of standards which may be referenced in this section:
B. American Association of State Highway and Transportation Officials (AASHTO):
   1. T 89, Standard Method for Determining the Liquid Limit of Soils.
C. T 90, Determining the Plastic Limit and Plasticity Index of Soils.
D. T 96, Standard Method for Resistance to Abrasion, of Small Size Course Aggregate by Use of the Los Angeles Machine.
E. T 99, Standard Methods of Test for the Moisture-Density Relations of Soils Using a 5.5 pound (2.5 kg) Rammer and a 12-inch (305 mm) Drop.
F. T 180, Standard Methods of Test for the Moisture-Density Relations of Soils Using a 10 pound (4.54 kg) Rammer and an 18-inch (457 mm) Drop.
G. T 191, Standard Method of Test for Density of Soil In-Place by the Sand-Cone Method.

3.106 DEFINITIONS

A. Completed Course: Compacted, unyielding, free from irregularities, with smooth, tight, even surface, true to grade, line, and cross-section.
B. Completed Lift: Compacted with uniform surface reasonably true to cross-section.

3.107 SUBMITTALS

A. Samples: Submit for specified materials 20 days prior to delivery to site.
B. Quality Control Submittals:
C. Certified Test Results on Source Materials: Submit copies from commercial testing laboratory 20 days prior to delivery of materials to project.
   1. Certified Results of In-Place Density Tests from independent testing agency.

PART 2 PRODUCTS

3.108 BASE COURSE ROCK

A. Maximum Size: 1-1/2 inches, containing enough fines to bind material when compacted.
B. Clean, hard durable, pit run gravel or crushed stone graded from course to fine.
C. Physical Qualities:
   1. Abrasion, AASHTO T 96: 35 percent maximum wear.
   2. Fractured Face: 75 percent minimum particles.

3. Liquid Limit, AASHTO T 89: Maximum 30 percent.
4. Plasticity Index, AASHTO T 90: Maximum 6 percent.

3.109 LEVELING COURSE, TOP COURSE AND GRAVEL SURFACING ROCK

A. Maximum Size: 3/4-inch.
B. Clean, tough, uniform quality, durable fragments of crushed rock, free from flat, elongated, soft or disintegrated pieces, or other objectionable matter occurring either free or as coating on stone.
C. Gradation: As shown above.
D. Physical Qualities: Same as for base course.

3.110 SOURCE QUALITY CONTROL

A. Design-Build Entity: Perform tests necessary to locate acceptable source of materials meeting specified requirements.
B. Final approval of aggregate material will be based on material's test results on installed materials.
C. Should separation of coarse from fine materials occur during processing or stockpiling, immediately change methods of handling materials to correct uniformity in grading.

PART 3 EXECUTION

3.111 GENERAL

A. As specified in Section 31 22 20, FILL AND BACKFILL.
B. Obtain Civil Engineer of Record's acceptance of sub-grade before placement of base course rock.

3.112 EQUIPMENT

A. Compaction Equipment: Adequate in design and number to provide compaction and obtain the specified density for each layer.

3.113 HAULING AND SPREADING

A. Hauling and Spreading: As specify by the Civil Engineer of Record
B. Hauling Materials:
    1. Do not haul over surfacing in process of construction.
    2. Loads: Of uniform capacity.
    3. Measure capacity of truck to determine vehicle load and quantity.
    4. Maintain consistent gradation of material delivered; loads of widely varying gradations will be cause for rejection.
C. Spreading Materials:
    1. Distribute material to provide required density, depth, grade and dimensions with allowance for subsequent lifts.
    2. Produce even distribution of material upon roadway without segregation.
    3. Should segregation of coarse from fine materials occur during placing, immediately change methods of handling materials to correct uniformity in grading.

3.114 CONSTRUCTION OF COURSES

A. General: Complete each lift in advance of laying succeeding lift to provide required results and adequate inspection.
B. Base Course:
    1. Maximum Completed Lift Thickness: 6 inches
    2. Completed Course Total Thickness: As shown.
    3. Spread lift on preceding course to required cross-section.
    4. Lightly blade and roll surface until thoroughly compacted.
    5. Add keystone to achieve compaction and as required when aggregate does not compact readily due to lack of fines or natural cementing properties, as follows:
        a. Use leveling course or surfacing material as keystone.
        b. Spread evenly on top of crushed base course, using spreader boxes or chip spreaders.
C. Roll surface until keystone is worked into interstices of crushed base course without excessive displacement.
D. Continue operation until course has become thoroughly keyed, compacted, and will not creep or move under roller.
    1. Blade or broom surface to maintain true line, grade, and cross-section.
E. Top Course:
    1. Maximum Completed Lift Thickness 2 inches
    2. Completed Course Total Thickness: As shown.
F. Spread on roadway or preceding course to depth, grade, and cross-section shown.
G. Lightly blade surface and roll until thoroughly compacted to line and grade shown.
H. Provide water as necessary to achieve compaction and to prevent loss of fines during processing.
I. Gravel Surfacing:
    1. Maximum Completed Lift Thickness: 6 inches.
    2. Completed Course Total Thickness: As shown.]
    3. Spread on preceding course in accordance with cross-section shown.
    4. Blade lightly and roll surface until material is thoroughly compacted.

3.115 ROLLING AND COMPACTION

A. Commence rolling at outer edges of surfacing and continue toward center; do not roll center of road first.
B. Apply water as needed to obtain densities.
C. Place and compact each lift to required density before succeeding lift is placed.
D. Bind up preceding course before placing leveling course. Remove floating or loose stone from surface.

E. Blade or otherwise work surfacing as necessary to maintain grade and cross-section at all times, and to keep surface smooth and thoroughly compacted.
F. Surface Defects: Remedy surface defects by loosening and re-rolling. Re-roll entire area, including surrounding surface, until thoroughly compacted.
    1. Finished Surface: True to grade and crown before proceeding with surfacing.

3.116 SURFACE TOLERANCES
A. Finished Surface of Base Course and Leveling Course: Within plus or minus 0.04-foot of grade shown at any individual point.
B. Compacted Surface of Leveling Course: Within 0.04-foot from lower edge of 10-foot straightedge placed on finished surface, parallel to centerline.

3.117 DRIVEWAY RESURFACING
A. Replace gravel surfacing on driveways, which were gravel surfaced prior to construction.
B. Provide compacted gravel surfacing to depth equal to original, but not less than 6 inches.
C. Leave each driveway in as good or better condition as it was before start of construction.

3.118 FIELD QUALITY CONTROL
A. In-Place Density Tests:
    1. Construct base course so areas shall be ready for testing.
    2. Allow reasonable length of time for testing laboratory to perform tests and obtain results during normal working hours.
    3. Show proof that areas meet specified requirements before requesting that Civil Engineer of Record identify density test locations

3.119 CLEANING
A. Remove excess material; clean stockpile areas of aggregate.

END OF SECTION

SECTION 31 22 40 - SOIL EROSION STABILIZATION

PART 1 GENERAL

3.120 REFERENCES

A. The following is a list of standards which may be referenced in this section:
   1. American Society for Testing and Materials (ASTM):
      a. D1682, Breaking Load and Elongation of Textile Fabrics.
      b. D3776, Mass Per Unit Area (Weight) of Woven Fabric.
      c. D3786, Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics-Diaphragm Bursting Strength Tester Method.
      d. D4355, Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus).
      e. D4632, Grab Breaking Load and Elongation of Geotextiles.

3.121 DEFINITIONS

A. Maintenance Period: Begin maintenance immediately after each area is planted and continues for a period of 8 weeks after all planting under this section is completed.
B. Satisfactory Stand: Grass or section of grass that has:
   1. No bare spots larger than 3 square feet.
   2. Not more than 10 percent of total area with bare spots larger than 1 square foot.
   3. Not more than 15 percent of total area with bare spots larger than 6 square inches.

3.122 SUBMITTALS

A. Administrative Submittal: Sub-schedule of drainage, erosion, and sedimentation control.
B. Shop Drawings:
   1. Product Data: Commercial products.
C. Quality Control Submittals:
   1. Construction Period Drainage and Erosion/Sedimentation Control Plan and Procedures.
   2. Manufacturer's Installation Instructions: Commercial products.
   3. Seed certifications.
   4. Copies of delivery invoices or other proof of quantities of mulch and fertilizer.

3.123 DELIVERY, STORAGE, AND PROTECTION

A. Seed:
   1. Furnish in standard containers with seed name, lot number, net weight, percentages of purity, germination,

and hard seed and maximum weed seed content, clearly marked for each container of seed.

2. Keep dry during storage.

3.124 SEQUENCING AND SCHEDULING

A. The Design-Build Entity's Civil Engineer of Record shall prepare or approve the construction-period drainage and erosion/sediment-control plan. Obtain all required permits and ASEM acceptance before earth disturbance, and maintain controls continuously through stabilization and closeout.

B. Prepare topsoil as specified in the applicable SOIL PREPARATION requirements, before starting Work of this section.

C. Complete soil preparation, seeding, fertilizing, mulching, and matting within 10 days after final grades have been reached.

D. Notify Civil Engineer of Record at least 3 days in advance of:

1. Materials delivery.
2. Start of planting activity.

E. Seeding: Perform under favorable weather conditions during seasons that are normal for such Work as determined by accepted local practice.

3.125 MAINTENANCE

A. Operations:

1. Inspect, repair, and replace as necessary all erosion control measures during the time period from start of construction to completion of construction.

PART 2 PRODUCTS

3.126 FERTILIZER

A. Commercial, uniform in composition, free-flowing, suitable for application with equipment designed for that purpose.

3.127 SEED

A. Fresh, clean new-crop seed that complies with the tolerance for purity and germination established by Official Seed Analysts of North America.

3.128 MULCH

A. Wood Cellulose Fiber Mulch:

1. Specially processed wood fiber containing no growth or germination inhibiting factors.
2. Dyed a suitable color to facilitate inspection of material placement.
3. Manufactured such that after addition and agitation in slurry tanks with water, the material fibers will become uniformly suspended to form a homogenous slurry.
4. When hydraulically sprayed on ground, material will allow absorption and percolation of moisture.

B. Straw:
   1. Suitable for spreading with mulch blower equipment.
   2. Average Stalk Length: 6 inches.
   3. Seasoned before baling or loading.

3.129 EROSION CONTROL MATTING

A. Excelsior mat or straw blanket; staples as recommended by matting manufacturer.

3.130 REINFORCED PLASTIC COVERING

A. Co-extruded, copolymer laminate reinforced with a no woven grid of high strength nylon cord submersed in a permanently flexible adhesive media allowing for equal tear resistance in all directions.
B. Black in color and ultraviolet stabilized.
C. Physical Requirement (Minimum Average Roll Values):
   1. Tear Strength: 130 pounds.
   2. Elongation: 620 percent.
D. Manufacturers:
   1. Reef Industries, Inc., Houston, TX.
   2. Griffolyn Co., Houston, TX.

3.131 CLEARING LIMIT FENCE

A. Ultraviolet stabilized polyethylene or polypropylene safety fence, 3 feet in height, and yellow or orange in color.
B. Pervious Sheet: Polyester, polypropylene, or nylon filaments, woven into a uniform pattern, distinct and measurable openings.
   1. Filaments: Resistant to damage from exposure to ultraviolet rays and heat.
   2. Material Edges: Finish so that filaments retain their relative positions under stress.
C. In accordance with requirements of Table No. 1:

Table No. 1 - Filter Fence

Physical Property	Required Value	Test Method
Weight, pz/sq yd, min.	4	ASTM D3776
Equivalent Opening Size, max.	50-70	U.S. Standard Sieve
Grab Tensile Strength, lb, min.	160	ASTM D4632
Elongation, % max.	25	ASTM D1682
Mullen Burst Strength, psi, min.	350	ASTM D3786

Ultraviolet Radiation Resistance, % Strength Retention	70	ASTM D4355

D. Manufacturers:
   1. Polyfelt, Evergreen, AL.
   2. Dupont Co., Wilmington, DE.
   3. Mirafi, Inc., Charlotte, NC.

3.132 STRAW BALES

A. Machine baled clean salt hay or straw of oats, wheat, barley, or rye, free from seed of noxious weeds, using standard baling wire or string.

PART 3 EXECUTION

3.133 SOIL PREPARATION

A. Before start of hydro-seeding, and after surface has been shaped and graded, and lightly compacted to uniform grade, scarify soil surface to minimum depth of 1 inch.

3.134 SEEDING

A. Prepare 1-inch depth seed bed; obtain Civil Engineer of Record's acceptance prior to proceeding.
B. Apply by hydro-seeding method on moist soil, but only after free surface water has drained away. Prevent drift and displacement of mixture into other areas.

3.135 REINFORCED PLASTIC COVERING

A. Place on areas where hydro-seeding and erosion control matting have not controlled erosion.
B. Install in single thickness, strips parallel to direction of drainage.
C. Maintain tightly in place by using sand bags on ropes with a maximum 10-foot grid spacing in all directions.
D. Tape or weight down full length, overlap seams at least 12 inches.
E. Remove temporary covering when permanent stabilization is established and removal is authorized by the Civil Engineer of Record and ASEM/Owner. Restore disturbed areas and dispose of materials legally.

3.136 CLEARING LIMIT FENCE

A. Install in accordance with manufacturer's standard instructions and before beginning clearing and grubbing operations.

3.137 SOIL STOCKPILES

A. Protect from erosion with geotextile and support fence.

3.138 FIELD QUALITY CONTROL

A. At completion of the maintenance period, the Design-Build Entity's Civil Engineer of Record shall inspect and document whether the specified satisfactory stand and permanent

stabilization have been achieved and shall submit the determination to ASEM/Owner.

B. Where stabilization is deficient, the Design-Build Entity shall repair, reseed, and maintain affected areas until the Civil Engineer of Record verifies compliance and ASEM/Owner accepts the completed restoration.

END OF SECTION

SECTION 31 22 72 - GABION WALL CONSTRUCTION

PART 1 GENERAL

3.139 REFERENCES

A. The following is a list of standards which may be referenced in this section:
   1. American Association of State Highway and Transportation Officials:

B. ASTM D698-78, Moisture-Density Relations of Soils and Soil Aggregate Mixtures Using 5.5-pound (2.49 kg) Rammer and 12-inch (305 mm) Drop.

3.140 WORK INCLUDED

A. This section covers the work necessary for the gabion wall construction, complete.

PART 2 PRODUCTS

3.141 GABIONS

A. Heavy-duty wire mesh galvanized gabions as manufactured by Maccaferri Gabions, Inc., New York, NY, or equivalent. Sizes shall be as shown on the Drawings.

3.142 BINDING WIRE

A. U.S. 13-1/2-gauge galvanized wire or as recommended by the manufacturer.

3.143 GABION FILL MATERIAL

A. Clean, hard cobbles or crushed rock; 8-inch maximum particle size, 3-inch minimum particle size.

3.144 EARTH BACKFILL

A. Material from the excavations or designated borrow site, free from roots, debris, organic material, or other deleterious materials.

3.145 TOPSOIL

A. As specified on drawings

3.146 UNCLASSIFIED EXCAVATION

A. All excavation is unclassified. Complete all excavation, regardless of the type, nature, or condition of the materials encountered. The Design-Build Entity shall make

B. own estimate of the kind and extent of the various materials to be excavated in order to accomplish the work.

PART 3 EXECUTION

3.147 STRUCTURAL EXCAVATION

A. Perform all excavation, regardless of the type, nature, or condition of the material encountered. The method of excavation used is optional; however, no equipment shall be operated within 5 feet of existing structures or newly completed construction.

B. Excavation that cannot be accomplished without endangering existing or new structures shall be done with hand tools.

3.148 LIMITS OF EXCAVATION

A. Excavate to the depths and widths required to accomplish the construction. Cuts below grade shall be corrected by replacing with compacted earth backfill, compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM D698. The Design-Build Entity shall bear all costs for correcting over-excavated areas.

3.149 GABION ASSEMBLY

A. Place the first layer of gabion to the line and grades shown on the Drawings. Gabion edges shall be continuously wired together, using binding wire specified hereinbefore. Adjoining gabions shall be wired together along their vertical edges. Empty gabions shall be stretched and held in place while filling as recommended by the manufacturer. Empty gabions stacked on filled gabions shall be wired to the filled gabions at the front and back.

3.150 GABION CONSTRUCTION

A. Place gabion fill in layers not thicker than 1 foot. Along all exposed gabion faces, place the outer layer of stone by hand in order to provide a neat, compact, square surface. In addition to the gabion fill, within 1 foot from the exposed face, the rock interstitial voids shall be filled with topsoil to permit establishing a vegetative cover. After each 1-foot lift is completed, one binding wire connecting tie shall be placed in each direction, across the fill surface, connecting opposite faces. The connecting wire shall be looped at least twice around two nonadjacent meshes of the gabion wall, then the free end wrapped back around the standing end of the wire to form a snug connection. At no time allow any gabion to be filled to a depth of more than 1 foot above the adjoining gabions. After the gabion is filled to the top and leveled off, fold the lid shut and wire it to the ends, sides, and diaphragms using binding wire.

3.151 SHORING, SHEETING, AND BRACING

A. Furnish and install all shoring, sheeting, and bracing required to support adjacent earth banks and structures, and for the protection and safety of all personnel working in the excavations. All shoring, sheeting, and bracing shall conform to the requirements of the federal, Puerto Rico, and local authorities having jurisdiction having jurisdiction over such matters.

B. Remove shoring, sheeting, and bracing in a manner that will protect or prevent caving of banks or damage to property as the excavations are backfilled.

3.152 EARTH BACKFILL

A. Remove all form materials and trash from the excavation prior to placing any backfill. Place earth backfill in all areas not designated on Drawings to be backfilled with other materials. Deposit material in horizontal layers and compact each lift to a minimum of 90 percent of the maximum dry density as determined by ASTM D698. Backfill to the specified grade.

3.153 TOLERANCE

A. The following tolerances shall be maintained for the gabion wall construction:
   1. Horizontal alignment plus or minus 4 inches, not to exceed 2 inches in any 5-foot length.
   2. Slope face tilt not to deviate by more than 1 inch per foot when measured at the top and bottom gabion edges.

END OF SECTION

SECTION 32 25 21 - CONCRETE CURBS & SIDEWALKS

PART 1 GENERAL

3.154 REFERENCES

A. The following is a list of standards which may be referenced in this section:
   1. American Society for Testing and Materials (ASTM):
      a. C94, Ready Mixed Concrete.
      b. C309, Liquid Membrane-Forming Compounds for Curing Concrete.
   B. D994, Preformed Expansion Joint Filler for Concrete (Bituminous Type).
   C. American Association of State Highway and Transportation Officials (AASHTO): T 99, The Moisture-Density Relations of Soils Using a
      1. **5.5 pound (2.5 kg) Rammer and a 12-inch (305 mm) Drop.**
      2. American Concrete Institute (ACI): ACI 304R, Guide for Measuring, Mixing, Transporting, and Placing Concrete.
      3. Standard Specification: State of Puerto Rico

3.155 SUBMITTALS

A. Shop Drawings:
   1. Form Material: Information on metal forms, if used, including type, condition, surface finish, and intended function.
   2. Complete data on concrete mix, including aggregate gradations and admixtures in accordance with requirements of ASTM C94.
B. Quality Control Submittals:
   1. Curing Compound: Manufacturer's Certificate of Compliance and application instructions.
   2. Ready-mix delivery ticket for each truck in accordance with ASTM C94.

3.156 QUALITY ASSURANCE

A. Regulatory Requirements: Conform to the Puerto Rico Standard Specifications for Highway Construction.

PART 2 PRODUCTS

3.157 MATERIALS

A. Conform to the requirements of the referenced Standard Specification.

3.158 EXPANSION JOINT FILLER

A. 1/2-inch thick, preformed asphalt-impregnated, expansion joint material meeting ASTM D994.

3.159 CONCRETE

A. Ready-mixed meeting ASTM C94, Option A, with compressive strength of 3,000 psi at 28 days.
B. Maximum Aggregate Size: 1-1/2-inch.
C. Slump: 2 to 4 inches.

3.160 CURING COMPOUND

A. Liquid membrane-forming, clear or translucent, suitable for spray application and meeting ASTM C309, Type 1.

PART 3 EXECUTION

3.161 INSTALLATION

A. Perform Work in accordance with the referenced Standard Specification.

3.162 FORMWORK

A. Lumber Materials:
   1. 2-inch dressed dimension lumber, or metal of equal strength, straight, free from defects that would impair appearance or structural quality of completed curb and sidewalk.
   2. 1-inch dressed lumber or plywood may be used where short-radius forms are required.
B. Metals: Steel in new undamaged condition.
C. Setting Forms:
   1. Construct forms to shape, lines, grades, and dimensions.
   2. Stake securely in place.
D. Bracing:
   1. Brace forms to prevent change of shape or movement resulting from placement.
   2. Construct short-radius curved forms to exact radius.
E. Tolerances:
   1. Do not vary tops of forms from gradeline more than 1/8-inch when checked with 10-foot straightedge.
   2. Do not vary alignment of straight sections more than 1/8-inch in 10 feet.

3.163 PLACING CONCRETE

A. Prior to placing concrete, remove water from excavation and debris and foreign material from forms.
B. Place concrete as soon as possible, and within 1-1/2 hours after adding cement to mix without segregation or loss of ingredients, and without splashing.
C. Place, process, finish, and cure concrete in accordance with applicable requirements of ACI 304, and this section. Wherever requirements differ, the more stringent shall govern.
D. To compact, vibrate until concrete becomes uniformly plastic.

3.164 CURB CONSTRUCTION

A. Construct ramps at pedestrian crossings.

B. Expansion Joints: Place at maximum 45-foot intervals and] at the beginning and end of curved portions of curb and at connections to existing curbs. Install expansion joint filler at each joint.
C. Curb Facing: Do not allow horizontal joints within 7 inches from top of curb.
D. Contraction Joints:
    1. Maximum 15-foot intervals in curb.
    2. Provide open joint type by inserting thin, oiled steel sheet vertically in fresh concrete to force coarse aggregate away from joint.
    3. Insert steel sheet to full depth of curb.
    4. Remove steel sheet with sawing motion after initial set has occurred in concrete and prior to removing front curb form.
    5. Finish top of curb with steel trowel and finish edges with steel edging tool.
E. Front Face:
    1. Remove front form and finish exposed surfaces when concrete has set sufficiently to support its own weight.
    2. Finish formed face by rubbing with burlap sack or similar device to produce uniformly textured surface, free of form marks, honeycomb, and other defects.
    3. Remove and replace defective concrete.
    4. Apply curing compound to exposed surfaces of curb upon completion of finishing.
    5. Continue curing for minimum of 5 days.
F. Backfill curb with earth upon completion of curing period, but not before 7 days has elapsed since placing concrete.
G. Backfill shall be free from rocks 2 inches and larger and other foreign material.
    1. Compact backfill firmly.

3.165 SIDEWALK CONSTRUCTION

A. Thickness:
    1. 4 inches in walk areas.
    2. 6 inches in driveway areas.
B. Connection to Existing Sidewalk:
    1. Remove old concrete back to an existing contraction joint.
    2. Clean the surface.
    3. Apply a neat cement paste immediately prior to placing new sidewalk.
C. Expansion Joints: Place in adjacent curb, where sidewalk ends at curb, and around posts, poles, or other objects penetrating sidewalk. Install expansion joint filler at each joint.
D. Contraction Joints:
    1. Provide transversely to walks at locations opposite contraction joints in curb.
    2. Dimensions: 3/16-inch by 1-inch weakened plane joints.

3. Construct straight and at right angles to surface of walk.

E. Finish:
   1. Broom surface with fine-hair broom at right angles to length of walk and tool at edges, joints, and markings.
   2. Mark walks transversely at 5-foot intervals with jointing tool; finish edges with rounded steel edging tool.
   3. Apply curing compound to exposed surfaces upon completion of finishing.
   4. Protect sidewalk from damage and allow to cure for at least 7 days.

END OF SECTION

SECTION 32 25 55 - ASPHALT CONCRETE PAVEMENT

PART 1 GENERAL

3.166 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Standard of Testing Materials (ASTM):
   a. D1559, Standard Test Method for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus.
   b. D2041, Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures.
   c. E699, Criteria for Evaluation of Agencies Involved in Testing, Quality Assurance, and Evaluating Building Components in Accordance with Test Methods Promulgated by ASTM Committee (1984).

3.167 DEFINITIONS

A. Combined Aggregate: All mineral constituents of an asphalt concrete mix, including mineral filler and separately sized aggregates.

3.168 SUBMITTALS

A. Shop Drawings: Job-mix formula for pavements.

B. Samples:

1. Mix Constituents: Representative Samples of materials to be incorporated into Work.
   a. Adequate in Quantity for Job-Mix Design Tests:
      1) Aggregate: 110 pounds.
      2) Asphalt Cement: 3 gallons.
      3) Antistripping Additive: 1 pint.

C. Quality Control Submittals:

1. Manufacturer's Certificate of Compliance for the following materials:
   a. Aggregate: Gradation.
   b. Asphalt for Binder: Type and grade.
   c. Prime Coat: Type and grade of asphalt.
   d. Tack Coat: Type and grade of asphalt.
   e. Mixes: Conforms to job-mix formula.
2. Manufacturer's Certificate of Proper Installation.
3. Statement of qualification for independent testing laboratory.
4. Test Results:
   a. Mix Design:
      1) Aggregate gradation.
      2) Asphalt content.

3) Stability number.
4) Asphalt cement for binder

3.169 ENVIRONMENTAL REQUIREMENTS

A. Temperature Limitations:
1. Do not apply asphalt materials or place asphalt mixes when ground temperature is lower than 50 degrees F, air temperature is lower than 40 degrees F or application surface is wet
2. Measure ground and air temperature in shaded areas away from heat sources or wet surfaces

PART 2 PRODUCTS

3.170 AGGREGATE

A. As specified in Standard Specification for hot plant mix bituminous pavement of the Department of Public Works (DPW)

3.171 MINERAL FILLER

A. As specified in Standard of DPW Specifications.

3.172 PRIME COAT

A. Liquid asphalt, Grade conforming to Standard of DPW Specifications.
B. Emulsified asphalt, Grade conforming to Standard Of DPW Specifications.

3.173 TACK COAT

A. Conforming to Standard of DPW Specifications.

3.174 BLOTTER MATERIAL

A. As specified in Standard of DPW Specifications.

3.175 ASPHALT CONCRETE MIXTURE

A. Asphalt Concrete: as specified in Standard of DPW Specifications.

3.176 ASPHALT CEMENT

A. Asphalt cement to be used in the asphalt concrete mixture shall be Grade as specified in Standard of DPW Specifications.

PART 3 EXECUTION

3.177 GENERAL

A. Application Equipment: In accordance with Standard of DPW Specifications.
B. Shoulders: Construct to lines, grades, and cross-sections shown.
C. Traffic Control: Minimize inconvenience to traffic, but keep vehicles off freshly treated or paved surfaces to avoid pickup and tracking of asphalt. Keep at least one lane in each direction open to traffic at all times.
D. Traffic Control: Design-Build Entity shall be solely responsible for traffic control and for meeting all federal, Puerto Rico, and local requirements for such.

3.178 CONTROL OF LINE AND GRADE

A. Provide and maintain intermediate control, independent of the underlying base to meet finish surface grades and minimum thickness.

3.179 PRIME COAT

A. Do not apply when moisture content of upper 3 inches of base exceeds optimum moisture content of base, or if free moisture is present.
B. Application: Apply prime coat uniformly to base. Avoid overlapping of applications. Touch up missed or lightly coated surfaces. Remove or redistribute excess material.
C. Application Rate: Minimum 0.15 to maximum 0.40 gallons per square yard of surface area.
D. Curing: If cutback liquid asphalt is used, allow a minimum of 5 full days for curing before placing asphalt concrete over primed surface.
E. Maintenance:
    1. Sweep primed surface until free of dirt, dust, or other foreign matter immediately before placing asphalt concrete.
    2. Blot excess prime material with an approved clean sand prior to paving.
    3. Patch holes in primed surface with asphalt concrete before placing asphalt concrete.

3.180 SURFACE PREPARATION FOR OVERLAYS

A. Cleaning: Remove fatty asphalt, grease drippings, dust, and other deleterious matter.
B. Portland Cement Concrete Joints: Remove joint filler to minimum 1/2-inch below surface.
C. Tack Coat: As specified in Article TACK COAT.
D. Surface Depressions: Fill with asphalt concrete mix, and thoroughly compact.
E. Damaged Areas: Remove broken or otherwise deteriorated asphalt concrete and patch as specified in Article PATCHING.

3.181 TACK COAT

A. Do not apply more tack coat than necessary for the day's paving operation.
B. Application: Apply tack coat uniformly to clean dry surfaces. Avoid overlapping of applications. Touch up missed or lightly coated surfaces and remove excess tack coat.
C. Cutback Asphalt: Heat, as specified in Standard Specifications of the Department of Public Works for the type required, prior to application.

3.182 ASPHALT CONCRETE PAVEMENT PLACEMENT

A. Lay asphalt concrete over prepared base in Standard Specifications of the Department of Public Works for the type required
B. Collect and dispose of segregated aggregate from raking process. Do not scatter material over finished surface.
C. Apply tack coat to pavement surface prior to placing succeeding pavement lift.

3.183 CONNECTIONS WITH EXISTING FACILITIES

A. Where asphalt concrete pavement connects to an existing roadway surface, bridge, railway crossing, or other facility, modify existing roadway profile to produce a smooth riding connection to existing facility.
B. Modifying Existing Surfaces: Burn or chip existing paved surfaces to provide meet lines and surfaces. Allow for sufficient depth of removal to reinstall a minimum thickness of 1-inch of asphalt concrete.
C. Meet Lines: Lines straight and edges vertical.
D. Edges of Meet Line Cuts: Paint with tack coat prior to placing pavement.
    1. Sealing Meet Line: After placement of pavement, by painting with liquid asphalt or emulsified asphalt, cover immediately with clean, dry sand.
E. Paint edges of contact surfaces (curbs, manhole frames), before laying pavement, with tack coat or paving asphalt cement to provide watertight joints. Do not stain adjacent surfaces not intended to be coated.

3.184 PAVEMENT OVERLAY

A. Place and compact asphalt concrete in one or more layers.
B. Place the first layer to include widening of pavement and leveling of irregularities in the surface of adjacent existing pavement.
C. Place layers so final wearing layer is of uniform thickness and meets grades and cross-sections shown.

3.185 JOINTS

A. Offset edge of each layer a minimum of 6 inches so joints shall not be directly over those in underlying layer.
B. Offset longitudinal joints in roadway pavements, so longitudinal joints in wearing layer coincides with pavement centerlines and lane divider lines.
C. Form transverse joints by cutting back on previous day's run to expose full vertical depth of layer.

3.186 PATCHING

A. Patch Thickness: 3 inches or thickness of adjacent asphalt concrete, whichever is greater.
B. Preparation:

1. Remove damaged, broken, or unsound asphalt concrete adjacent to patches. Trim to straight lines exposing smooth, sound, vertical edges.
2. Prepare patch sub-grade as specified in Section 31 22 15, SUBGRADE PREPARATION.

C. Construction:
1. Place asphalt concrete mix across full width of patch in layers of equal thickness.
2. Spread and grade asphalt concrete with hand tools or mechanical spreader, depending on size of area to be patched.
3. Finished surface of patch shall be flush with adjacent surface and match grade, slope, and crown of adjacent surface.

D. Compaction:
1. Roll patches with power rollers capable of providing compression of 200 to 300 pounds per linear inch. Use hand tampers where rolling is impractical.

E. Begin rolling top course at edge of patches, lapping adjacent asphalt surface at least 1/2 the roller width. Progress toward center of patch overlapping each preceding track by at least 1/2 the width of roller. Make sufficient passes over entire area to remove roller marks and to produce desired finished surface.

F. Seal and Cover Coat:

G. Apply seal coat to patched surfaces.

H. Extend seal coat minimum 6 inches beyond edges of patches.

I. Surface Smoothness of Replaced Pavement: New pavement shall not deviate more than plus 1/4-inch or minus 0 inches when a straightedge is laid across patched area between edges of new pavement and surface of old surfacing.

3.187 ASPHALT CONCRETE DRIVEWAYS

A. Repave driveways from which pavement was removed. Leave driveways in as good or better condition than before start of construction.

3.188 COMPACTION

A. Uniformly compact each course until there is no further evidence of consolidation and roller marks are eliminated. When the placement rate exceeds 100 tons per hour, operate at least two rollers for compaction.

B. Roll until roller marks are eliminated and minimum percent compaction stated in referenced Standard DPW Specifications for the type required.

C. Compaction Control-Target Density Method:

D. Construct control strip approximately 400 square yards in area and at location that will become a portion of completed paved area.
E. Thickness of Strip: Typical of thicknesses to be paved on remainder of Project.
F. Select a test point located near center of a normal roller pass, but no closer than 2 feet from edge of mat and 50 feet from either end of control strip. Mat thickness at this point shall be at least the depth of finished pavement.
G. Rollers Used for Compaction:
H. Steel Wheel Rollers: Weight minimum 10 tons, and exert minimum 250 pounds of pressure per linear inch of width of drive or compression wheel, on bituminous surface.
I. Pneumatic Rollers: Capable of exerting pressure of 80 psi on bituminous surface.
J. Vibratory Rollers: Weight minimum 6 tons, equipped with amplitude and frequency control specifically designed for compaction of bituminous mixtures.
K. Compact bituminous mat, using a standard rolling pattern that covers entire control strip.
L. Continue rolling until no further compaction can be obtained as determined by field density testing.
M. Temperature and condition of bituminous mat must be considered workable when further compaction can no longer be obtained.
    1. Target Density: Final density at the test point.
    2. Establish new target density if a change is made in:
        a. Mix design.
        b. Nominal depth of mat being placed.
        c. Aggregate source or properties of material.

3.189 JOINT COMPACTION

A. Place top or wearing layer as continuously as possible.
B. Pass roller over unprotected end of freshly laid mixture only when laying of layer is discontinued long enough to permit mixture to become chilled.
C. Cut back previously compacted mixture when Work is resumed to produce a slightly beveled edge for full thickness of layer.
D. Cut away waste material and lay new mix against fresh cut.

3.190 TOLERANCES

A. Conduct measurements for conformity with crown and grade immediately after initial compression. Correct variations immediately by removal or addition of materials and by continuous rolling.
B. Tolerance Measurements:

1. Completed Surface of Top or Wearing Layer: Uniform texture, smooth, and uniform to crown and grade.
2. Completed surface shall not vary more than 1/8-inch from lower edge of 10-foot straightedge placed on surface parallel to centerline.
3. Transverse slope of completed surface shall not vary more than 1/4-inch in 10 feet from the rate of transverse slope shown.
4. Finished grade shall not vary more than 0.02 feet.

C. Correct deviations in excess of specified tolerances by addition of asphalt concrete mixture to low places or removal of material from high places.

D. Wearing surface may be removed and replaced to achieve a satisfactory finish surface, if surface of completed pavement deviates by more than twice the specified tolerances.

END OF SECTION

SECTION 32 25 80 - PAVEMENT MARKING

PART 1 GENERAL

3.191 REFERENCES

A. The following is a list of standards which may be referenced in this section:
   1. American Society for Testing and Materials (ASTM):
      a. D792, Standard Method of Test for Density and Specific Gravity (Relative Density) and Density of Plastics by Displacement.
      b. D4280, Extended Life Type, Non-plowable, Prismatic, Raised, Retroreflective Pavement Markers.
      c. E28, Standard Method of Test for Softening Point by Ring-and-Ball Apparatus.
   2. American Association of State Highway and Transportation Officials (AASHTO):
      a. M247, Standard Specification for Glass Beads Used in Traffic Paint.
      b. M248, Standard Specification for Ready-Mixed White and Yellow Traffic Paints.
      c. M309, Standard Specification for White and Yellow Fast-Dry Traffic Paint.
      d. M249, Standard Specification for White and Yellow Reflective Thermoplastic Striping Material (Solid Form).
   3. Federal Specifications:
      a. TT-P-115, (Rev F) Paint, Traffic (Highway, White, and Yellow).
      b. TT-P-1952, Paint, Water Base, Traffic (Highway, White and Yellow).

3.192 SUBMITTALS

A. Shop Drawings:
   1. Product Data:
      a. Paint.
      b. Thermoplastic compounds and primers.
   2. Glass Beads: Proposed gradation.
   3. Description of proposed methods for removal of drips, over-spray, improper markings, paint and thermoplastic material tracked by traffic, and existing markings.

B. Samples:
   1. Glass Beads: 2 pounds.
   2. Portland Cement Concrete Primer: 1 quart.

C. Quality Control Submittals: Manufacturer's Certificate of Compliance for products specified in this section.

1. Equipment List: Proposed equipment to be used, including descriptive data.
2. Manufacturer's Instructions:
    a. Application of preformed tape.
    b. Application of portland cement concrete primer.

PART 2 PRODUCTS

3.193 PAINT

A. White or yellow traffic paint meeting the requirements of PRHA.
B. White or yellow traffic paint in accordance with AASHTO M248, AASHTO M309, FS-TT-P115, G: FS-TT-P1952 and shall
C. be homogeneous, easily stirred to smooth consistency, and show no hard settlement or other objectionable characteristics during a storage period of 6 months.

3.194 THERMOPLASTIC STRIPING MATERIALS

A. White or yellow thermoplastic striping material meeting the requirements of PRHA
B. White or yellow thermoplastic striping material in accordance with AASHTO M249.

3.195 RAISED REFLECTIVE MARKERS

A. Furnish either metallic or nonmetallic markers of button or prismatic reflector type. Markers shall be of permanent colors retaining color and brightness under action of traffic.
B. Markers shall have rounded surfaces presenting a smooth contour to traffic. Pavement markers and adhesive epoxy in accordance with ASTM D4280.

3.196 GLASS BEADS

A. Reflective media in accordance with AASHTO M247.

PART 3 EXECUTION

3.197 GENERAL

A. Surface Preparation, Application, and Protection: Perform in accordance with Section of the Standard Specifications.

3.198 SURFACE PREPARATION

A. Cleaning:
    1. Thoroughly clean surfaces to be marked before application of pavement marking material.
    2. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water or a combination of these methods.
    3. Completely remove rubber deposits, surface laitance, existing paint markings, and other coatings adhering to pavement with scrapers, wire brushes, sandblasting, approved chemicals, or mechanical abrasion.

4. Scrub areas of old pavement affected with oil or grease with several applications of tri-sodium phosphate solution or other approved detergent or degreaser, and rinsed thoroughly after each application.
5. After cleaning, oil-soaked areas shall be sealed with cut shellac to prevent bleeding through the new paint.
6. Allow pavement surfaces to dry, when water is used for cleaning, prior to striping or marking.
7. Re-clean surfaces when Work has been stopped due to rain.

B. Cleaning Existing Pavement Markings:
1. Do not place markings over existing pavement marking patterns.
2. Remove existing pavement markings that interfere with or conflict with newly applied marking patterns.
3. Do not apply new preformed and thermoplastic pavement markings over existing preformed or thermoplastic markings.
4. Perform grinding, scraping, sandblasting or other operations so finished pavement surface is not damaged or left in a pattern that is misleading or confusing.

C. Layout of Markings: Unless previously applied markings are present to serve as a guide, layout markings in advance of paint application.

D. Pretreatment for Early Painting: Where early painting is required on rigid pavements, a pretreatment with an aqueous solution containing 3 percent phosphoric acid and 2 percent zinc chloride shall be applied to prepared pavement areas prior to painting.

E. Cleaning Concrete Curing Compounds:
1. On new portland cement concrete pavements, do not begin cleaning operations until a minimum of 30 days after placement of concrete.

F. Clean new concrete pavements by either sandblasting or water blasting. When water blasting is performed, thermoplastic and preformed markings shall be applied no sooner than 24 hours after blasting has been completed.

G. Clean and prepare extent of blasting work as follows:

H. There is no visible evidence of curing compound on peaks of textured concrete surface.

I. There are no heavy puddled deposits of curing compound in valleys of textured concrete surface.

J. Remaining curing compound is intact; loose and flaking material is removed.

K. Peaks of textured pavement surface are rounded in profile and free of sharp edges and irregularities.
1. Surface shall be dry before marking.

3.199 APPLICATION

A. Paint:
    1. General:
B. Thoroughly mix pigment and vehicle together prior to application, and keep thoroughly agitated during application.
C. Do not add thinner.
D. Apply to clean, dry surfaces, and only when air and pavement temperatures are above 40 degrees F and less than 95 degrees F. Maintain paint temperature within these same limits.
E. Allow new asphalt pavement and portland concrete cement surfaces to cure for period of not less than 30 days before applications of paint.
    1. Provide guide lines and templates to control paint application.
F. Take special precautions in marking numbers, letters, and symbols.
G. Apply paint only to pavement surfaces that are unfrozen, dry, and clean.
    1. Edges of markings shall be sharply outlined.
H. Rate of Application: Apply paint in two coats at uniform rate between 105 and 115 square feet per gallon per one coat, without running or spattering.
    1. Reflective Markings:
I. Apply pigmented binder evenly to pavement area at a rate of 105 plus or minus 5 square feet per gallon.
    1. Apply glass spheres uniformly at a rate of 6 plus or minus
        a. **0.5 pounds of glass spheres per gallon of paint.**
J. Non-reflective Markings: Apply paint evenly to pavement surface at a rate of 105 plus or minus 5 square feet per gallon.
K. Drying:
L. Provide maximum drying time of paint to prevent undue softening of bitumen, pickup, displacement, or discoloration by tires of traffic.
M. If there is a delay in drying of markings, discontinue painting operations until cause of slow drying is determined and corrected.
N. Thermoplastic Compounds:
    1. General:
        a. Place thermoplastic pavement markings upon dry pavement.
O. At time of application, pavement surface temperature shall be minimum of 40 degrees F and rising.
    1. Apply thermoplastics free from dirt or tint.
P. Thermoplastic reflectorized pavement marking compound shall be extruded or sprayed in a molten state.

Q. Following a surface application of glass beads and upon cooling to normal pavement temperatures, marking shall be an adherent reflectorized strip that is capable of resisting deformation by traffic.
R. Longitudinal Markings:
S. Apply centerline, skipline, edgeline, and other longitudinal type markings with a mobile applicator.
T. Place special markings, crosswalks, stop bars, legends, arrows, and similar patterns with a portable applicator, using extrusion method.
U. Primer General:
V. After surface preparation has been completed prime asphalt or concrete pavement.
W. Apply primer with spray equipment.
X. Allow primer to “set-up” prior to application of thermoplastic composition.
Y. Asphalt Concrete Primer:
Z. Apply to pavements at a wet film thickness of 0.005 inch, plus or minus 0.001 inch.
AA. Allow asphalt concrete primer to dry to a tack-free condition.
    1. To shorten curing time of epoxy resins an infrared heating device may be used on concrete primer.
    2. Portland Cement Concrete Primer:
        a. Applied to pavements at a wet film thickness of between 0.04 to
        b. **0.05 inch.**
BB. Allow portland cement concrete primer to dry in accordance with thermoplastic manufacturer's instructions.
CC. Markings:
DD. Apply thermoplastic after primer has “set-up” at temperatures no lower than 375 degrees F nor higher than 425 degrees F at point of deposition.
EE. Immediately after installation of marking, mechanically apply drop-on glass spheres so spheres are held by and imbedded in the surface of the molten material at the rate of 1 pound per 20 square feet of compound.
FF. Extruded Markings: Apply thermoplastic markings at a thickness of not less than 0.125-inch and not more than 0.190 inch.
GG. Preformed Tape:
    1. Pavement surface temperature shall be minimum of 60 degrees F and ambient temperature minimum of 60 degrees F and rising.
    2. Place preformed markings in accordance with manufacturer's instructions.

HH. Reflective Media:
1. Apply immediately following application of pigmented binder.
2. Ensure drop-on application of glass spheres is evenly distributed after application of paint.
3. Rate: 10 pounds per gallons.

3.200 PROTECTION
A. Protect markings from traffic until paint is thoroughly dry.
B. Protect surfaces from disfiguration by paint spatters, splashes, spills, or drips.

3.201 CLEANUP
A. Remove paint spatters, splashes, spills, or drips.

END OF SECTION

SECTION 32 28 31 - CHAIN LINK FENCES & GATES

PART 1 GENERAL

3.202 REFERENCES

A. The following is a list of standards which may be referenced in this section:
   1. American Society for Testing and Materials (ASTM):
      a. A392, Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
      b. A491, Standard Specification for Aluminum-Coated Steel Chain-Link Fence Fabric.

B. A570, Standard Specification for Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality.

C. A824, Standard Specification for Metallic-Coated Steel Marcelled Tension Wire for Use with Chain-Link Fence.
   1. B6, Standard Specification for Zinc.
      a. C94, Standard Specification for Ready-Mixed Concrete.

D. C143, Standard Test Method for Slump of Hydraulic Cement Concrete.

E. C387, Standard Specifications for Packaged, Dry, Combined Materials for Mortar and Concrete.

F. F552, Standard Definitions of Terms Relating to Chain Link Fencing.
   1. F567, Practice for Installation of Chain-Link Fence.
      a. F626, Standard Specification for Fence Fittings.

G. F668, Standard Specification for Poly(Vinyl Chloride) (PVC)-Coated Steel Chain-Link Fence Fabric.

H. F669, Standard Specifications for Strength Requirements of Metal Posts and Rails for Industrial Chain Link Fence.

I. F900, Standard Specification for Industrial and Commercial Swing Gates.

J. F1083, Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures.

K. F1183, Standard Specifications for Aluminum Alloy Chain Link Fence Fabric.

L. F1184, Standard Specifications for Industrial and Commercial Horizontal Slide Gates.
   1. F1234, Protective Coatings on Steel Framework for Fences.

M. Institute of Electrical and Electronic Engineers (IEEE), Inc.: C2, National Electrical Safety Code.

N. National Electrical Manufacturers Association (NEMA): 250, Enclosures for Electrical Equipment (1,000 volts max.).

3.203 DEFINITIONS

A. Terms as defined in ASTM F552.

3.204 SUBMITTALS

A. Shop Drawings:
   1. Detailed information and specifications for materials, finishes, and dimensions.
B. Samples: Approximately 6 inches square, or 6 inches long of posts, rails, braces, fabric, wire, ties, and fittings.
C. Quality Control Submittals:
   1. Manufacturer's recommended installation instructions.
   2. Evidence of Supplier and installer qualifications.

3.205 QUALITY ASSURANCE

A. Qualifications:
   1. Gate Operator System Supplier: 5 years' experience in gate operator systems.
   2. Gate Operator System Installer: 3 years' experience and approved by system Supplier.

3.206 SCHEDULING AND SEQUENCING

A. Complete necessary site preparation and grading before installing chain link fence and gates.

PART 2 PRODUCTS

3.207 GENERAL

A. Match style, finish, and color of each fence component with that of other fence components.

3.208 CHAIN LINK FENCE FABRIC

A. Height: 78 inches, unless otherwise shown.
B. Wire Gauge: 9 covered with PVC.
C. “Note: The gage No. 9 only considers the steel, not the PVC covering it.”
D. Pattern: 2-inch diamond-mesh.
E. Diamond Count: Manufacturer's standard and consistent for fabric furnished of same height.
F. Loops of Knuckled Selvages: Closed or nearly closed with space not exceeding diameter of wire.
G. Wires of Twisted Selvages:
   1. Twisted in a closed helix three full turns.
H. Cut at an angle to provide sharp barbs that extend minimum 1/4-inch beyond twist.

3.209 POSTS

A. General:
   1. Strength and Stiffness Requirements: ASTM F669, Heavy Industrial Fence, except as modified in this section.
   2. Steel Pipe: ASTM F1083.

3. Roll-Formed Steel Shapes: Roll-formed from ASTM A570, Grade 45, steel.
4. Lengths: Manufacturer's standard with allowance for minimum embedment below finished grade of 22 inches plus 3 inches for each 1 foot of fence height greater than 4 feet.

B. Line Posts:
1. Steel Pipe:
a. Outside Diameter: 2.375-inch.
2. Roll-Formed Steel C Shape:
a. Outside Dimensions: 2.25-inch by 1.625-inch.
b. Weight: 2.70 pounds per foot.]

C. End, Corner, Angle, and Pull Posts:
1. Steel Pipe:
a. Outside Diameter: 2.875-inch.
b. Weight: HI: 5.79 pounds per foot.
c. Weight: 5.10 pounds per foot.

D. Posts for Removable Fence Panels: As specified for end, corner, angle, and pull

E. posts.

F. Posts for Swing Gates:
1. ASTM F900.
2. Roll-formed steel shapes may be substituted for steel pipe posts for gate leaf widths up to 6 feet and fabric heights up to 8 feet.
a. Outside Dimensions: 3.5-inch by 3.5-inch.
b. Weight: 4.85 pounds per foot.

G. Posts for Swing Gates Over 8 Feet High: As recommended by fence manufacturer.

3.210 TOP RAILS AND BRACE RAILS

A. Galvanized steel pipe or roll-formed steel C shapes

B. Protective Coatings: As specified for posts.

C. Strength and Stiffness Requirements: ASTM F669, Top Rail, Heavy or Light Industrial Fence.

D. Steel Pipe:
1. ASTM F1083.
2. Outside Diameter: 1.66-inch.
3. Weight: 2.27 pounds per foot.

E. Roll-Formed Steel C Shapes:
1. Roll formed from ASTM A570, Grade 45.
2. Outside Dimensions: 1.625-inch by 1.25-inch.
3. Weight: 1.40 pounds per foot.

3.211 FENCE FITTINGS

A. General: In conformance with ASTM F626, except as modified by this article.
B. Post and Line Caps: Designed to accommodate passage of top rail through cap, where top rail required.
C. Tension and Brace Bands: No exceptions to ASTM F626
D. Tension Bars:
    1. One-piece
    2. Equal in length to full height of fabric.
E. Truss Rod Assembly: 3/8-inch diameter.

3.212 TENSION WIRE

A. Aluminum-coated steel marcelled tension wire conforming to ASTM A824

3.213 GATES

A. General:
    1. Gate Operation: Opened and closed easily by one person.
    2. Welded Steel Joints: Paint with zinc-based paint.
B. Chain Link Fabric: Attached securely to gate frame at intervals not exceeding 15 inches.
C. Swing Gates: ASTM F900.
D. Hinges:
    1. Furnished with large bearing surfaces for clamping in position.
E. Designed to swing either 180 degrees outward, 180 degrees inward, or 90 degrees in or out, as shown, and not twist or turn under action of gate.
    1. Latches: Plunger bar arranged to engage stop, except single gates of openings less than 10 feet wide may each have forked latch.
    2. Gate Stops: Mushroom type or flush plate with anchors, suitable for setting in concrete.
    3. Locking Device and Padlock Eyes: Integral part of latch, requiring one padlock for locking both gate leaves of double gates.
    4. Hold-Open Keepers: Designed to automatically engage gate leaf and hold it in open position until manually released.
F. Rolling Gates:
    1. Track Rollers: Malleable iron or heavy pressed steel with provision for grease lubrication.
    2. Ground Rollers: Malleable iron or heavy pressed steel with provision for grease lubrication.
    3. Support Posts: Spaced on maximum 7 foot centers.
    4. Gates more than 8 feet in height shall have three tracks.
    5. Frames: ASTM F1184, Type I.
    6. Gate Accessories: ASTM F1184.

3.214 SLIDING GATE OPERATOR SYSTEMS

A. Description: Systems that open and close sliding gate when properly activated by card access system.
B. Design, supply of equipment and components, installation, and on-call service shall be product of individual company with record of installations meeting requirements specified in this article.
C. Electrical Components: UL listed.
D. Gate Operators:
    1. Heavy-duty, high frequency, electrical models designed to open and close sliding gates provided. For each gate, supply manufacturer of gate operator with complete details of gate, hardware, track rollers, adjacent
    2. fence posts, and fence construction for development and detailing of gate operator.
    3. Furnish with following features:
        a. Metal enclosure with finish and design suitable for exterior installation in all-weather environment.
        b. Minimum 1 hp motor, 208V ac, three-phase, 60-Hz electric power, reversible.
        c. Electric motor driven hydraulic power pack with hard rubber wheels in contact with drive rail secured to gate. Transmission of opening or closing forces to gate shall be by rotation of wheels against rails.
E. Positive limit switches that sense position of gate and provide control to prevent damage to gate operator.
    1. NEMA 250, Type 12 enclosure for all motor control components.
        a. Motor Overload Protection: Industrial quality with manual reset.
F. 24V ac control circuit to power remote control gate activation devices.
G. Manual operation feature or disconnect, without use of tools, for easy operation during power failure, malfunction, or emergency.
H. Aluminum drive rail designed for attachment to sliding gate in manner that reinforces gate assembly.
    1. Gate Travel Speed:
        a. Minimum 1 foot per second.
I. Speed adjusting feature that provides range of appropriate speeds for slide gate operation is acceptable but not required.
J. Component parts of operator, including attachments, shall be constructed with materials or plated, coated, or finished as necessary to provide reliable service in exterior all-weather environment.
    1. Compatible with gate operator control devices provided.
K. Manufacturers:
    1. Hy-Security Gate Operator, Seattle, WA.

a. Automated Equipment Co., Seattle, WA.
b. Stanley.
c. Richards Wilcox, Aurora, IL.

3.215 CONCRETE

A. Provide as specified in Section, CAST-IN-PLACE CONCRETE.

3.216 CONCRETE

A. Reinforcing Steel: ASTM A615, Grade 60 deformed bars.
B. Welded Wire Fabric: ASTM A497.
C. Formwork: Plywood earth cuts may be used.
D. Mix: ASTM C94, Option A.
   1. Cement: ASTM C150, Type II
   2. Coarse Aggregate Size: 3/4 inch(es).
   3. Design for Minimum Compressive Strength at 28 Days: 3,000 psi.

3.217 CONCRETE

A. Materials: ASTM C387 packaged, dry, combined ingredients with Type I cement.
B. Mixing: In a clean metal container, mix entire package of dry materials by hand or machine. Following manufacturer's instructions, add clean water in sufficient quantity to produce a slump of 2 to 3 inches.

PART 3 EXECUTION

3.218 GENERAL

A. Install chain link fences and gates in accordance with ASTM F567, except as modified in this section, and in accordance with fence manufacturer's recommendations, as approved by Civil Engineer of Record. Erect fencing in straight lines between angle points.
B. Provide all necessary hardware for a complete fence and gate installation.
C. All fence components, including foundation must be constructed entirely within the project property limits.

3.219 PREPARATION

A. Establish locations of fence lines, gates, and terminal posts.

3.220 POST SETTING

A. Driven posts are not acceptable.
B. Post Hole Depth:
   1. Minimum 3 feet below finished grade.
   2. 2 inches deeper than post embedment depth below finish grade.
C. Backfill postholes with concrete to 2 inches above finished grade.
D. Set posts with minimum embedment below finished grade of 22 inches plus 3 inches for each 1 foot of fence height greater than 4 feet, and with top rail at proper height above finished grade. Brace posts, as necessary, to maintain correct position and plumb ness until concrete sets.

E. Before concrete sets, crown and finish top of concrete to readily shed water.

3.221 BRACING

A. Brace gate and corner posts diagonally to adjacent line posts to ensure stability.

3.222 TOP RAILS

A. Install top rail sleeves with springs at 105 feet maximum spacing to permit expansion in rail.

3.223 GATES

A. Hang gates and adjust hardware so gates operate satisfactorily from open or closed position.

B. Set gate stops in concrete to engage center drop rod or plunger bar.

3.224 GATE OPERATOR SYSTEMS

A. Install gate operator systems in accordance with manufacturers recommendations.

B. Furnish with equipment and accessories necessary for complete installation.

3.225 ELECTRICAL GROUNDING

A. Ground fences in accordance with applicable requirements of IEEE C2, National Electrical Safety Code.

3.226 FIELD QUALITY CONTROL

A. Gate Tests: Prior to acceptance of installed gates and gate operator systems, demonstrate proper operation of gates under each possible open and close condition specified.

END OF SECTION

SECTION 33 26 60 - PRESSURE TRANSMISSION AND DISTRIBUTION PIPING

PART 1 GENERAL

3.227 REFERENCES

A. The following is a list of standards which may be referenced in this section and any supplemental Data Sheets:
   1. American Association of State Highway and Transportation Officials (AASHTO):
   2. American Concrete Institute (ACI): 301, Specifications for Structural Concrete for Buildings.
   3. American National Standards Institute (ANSI):
   4. American Water Works Association (AWWA):
   5. American Society of Mechanical Engineers (ASME):
   6. American Society for Nondestructive Testing (ASNT): SNT-TC-1A, Recommended Practice for Nondestructive Testing Personnel Qualifications.
   7. American Society for Testing and Materials (ASTM):
   8. American Welding Society (AWS): QC1, Standard for AWS Certification for Welding Inspectors.

3.228 DEFINITIONS

A. Buried Piping: Underground in trenches and backfilled.
B. Encased Piping: Encased in concrete underground and backfilled.
C. Embedded Piping: Embedded in the walls or slabs of concrete structures.
D. Exposed Piping:
   1. Aboveground.
   2. Inside structures including vaults

3.229 DESIGN REQUIREMENTS

A. Where pipe diameter, thickness, pressure class, pressure rating, or thrust restraint is not shown or specified, design piping system for maximum stress determined based on combinations of the following loads:
   1. Pressure Testing = Operating pressure x 1.50.
   2. Earth loads, as applicable.
   3. H20-S16 traffic load with 1.5 impact factor, AASHTO Standard Specifications for Highway Bridges, as applicable
   4. Thrust Restraints:
      a. Design for test pressure shown in Piping Schedule. All pressure pipes must have thrust restraints.

b. Allowable Soil Pressure: 400 pounds per square foot per foot of depth not to exceed 3,000 pounds per square foot.
c. Low Pressure Pipelines:
1) When bearing surface of the fitting against soil provides an area equal to or greater than area required for thrust restraint, concrete thrust blocks will not be required.
2) Determine bearing area for fittings without thrust blocks by projected area of 70 percent of internal diameter multiplied by chord length for fitting centerline curve.

B. When line of lower pressure connects to a line of higher pressure, requirements for higher pressure rating prevails up to and including the first block valve in the line carrying the lower pressure, unless otherwise shown.
C. See Data Sheets for additional design requirements.

3.230 SUBMITTALS

A. Shop Drawings:
1. Shop Fabricated Piping:
a. Detailed pipe fabrication or spool drawings showing special fittings and bends, dimensions, coatings, and other pertinent information.
b. Layout drawing showing location of each pipe section and each special length; number or otherwise designate laying sequence on each piece.
2. Pipe Wall Thickness: Identify wall thickness and rational method or standard applied to determine wall thickness for each size of each different material, including exposed, submerged, buried, and concrete-encased installations, for Design-Build Entity-designed piping.
3. Thrust Restraint for Restrained Joints: Details including materials, sizes, assembly ratings, and pipe attachment methods.
4. Thrust Blocks: Concrete quantity, bearing area on pipe, and fitting joint locations.
5. Dissimilar Buried Pipe Joints: Joint types and assembly drawings.

B. Quality Control Submittals:
1. Manufacturer's Certification of Compliance.
2. Laboratory Testing Equipment: Certified calibrations, manufacturer's product data, and test procedures.
3. Certified welding inspection and test results.

4. Qualifications:
    a. Weld Inspection and Testing Agency: Minimum 5 years and five references for proposed independent testing laboratory.
    b. Welding Inspector: Certification and qualifications.
    c. Welders:
        1) List of qualified welders and welding operators.
        2) Current test records for qualified welder(s) and weld type(s) for factory and field welding.
5. Weld Procedures: Records in accordance with ASME Boiler and Pressure Vessel Code, Section IX for weld type(s) and base metal(s).
6. Nondestructive inspection and testing procedures.
7. Manufacturer's Certification of Compliance:
    a. Pipe and fittings.
    b. Welding electrodes and filler materials.
    c. Factory applied linings and coatings.
8. Certified weld inspection and test reports.
9. Test logs.
10. Coal-tar epoxy applicator certification.

3.231 QUALIFICATIONS

A. Independent Inspection and Testing Agency:
    1. 10 years' experience in field of welding and welded pipe and fittings testing required for this Project.
    2. Calibrated instruments and equipment, and documented standard procedures for performing specified testing.
    3. Certified in accordance with ASNT SNT-TC-1A for testing procedures required for this Project.
    4. Testing Personnel: Qualified for nondestructive test methods to be performed.
    5. Inspection Services: Qualified welding inspector.
B. Welding Inspector:
C. AWS certified, AWS QC1 qualified, with prior inspection experience of welds specified.
    1. Duties include, but are not limited to, the following:
        a. Job material verification and storage.
        b. Qualification of welders.
        c. Certify conformance with approved welding procedures.
        d. Maintenance of records and preparation of reports in a timely manner.

e. Notification to Civil Engineer of Record of unsatisfactory weld performance within 24 hours of weld test failure.

D. Welder and Welding Operator Qualifications:
1. Qualified by accepted inspection and testing agency before starting Work in accordance with Section IX, Article III of the ASME Boiler and Pressure Vessel Code.
2. Qualified to perform groove welds in Positions 2G and 5G for each welding process and pipe material specified.
3. Qualification tests may be waived by Civil Engineer of Record based on evidence of prior qualification.
4. Retesting: Upon Civil Engineer of Record's written request, retest qualified welder(s).

3.232 QUALITY CONTROL

A. The Design-Build Entity shall provide an independent qualified inspection and testing agency for welding operations unless the final Design-Build Agreement expressly assigns a specific test to ASEM/Owner. Owner-provided testing, when any, does not replace the Design-Build Entity’s quality-control responsibilities.

3.233 DELIVERY, STORAGE, AND HANDLING

A. In accordance with the applicable MATERIAL AND EQUIPMENT requirements, and:
1. Flanges: Securely attach metal, hardboard, or wood protectors over entire gasket surface.
2. Threaded or Socket Welding Ends: Fit with metal, wood, or plastic plugs or caps.
3. Cement Linings and Coatings: AWWA C205, Section 6. Pipe ends shall be tightly closed with a 10-mil polyethylene plastic wrap for protection of the cement-mortar lining during shipment. Keep plastic wrap on the pipe until the time of installation.
4. Cold Weather Storage: Locate products to prevent coating from freezing to ground.
5. Interior Bracing: Leave in place until pipe zone material has been placed and completely compacted.
6. Handling: Use heavy canvas or nylon slings to lift pipe and fittings.
7. Rubber Gaskets:
a. Store in a cool, well-ventilated area.
b. Do not expose to the direct rays of the sun.
c. Do not allow contact with oils, fuels, or petroleum solvents.

PART 2 PRODUCTS

3.234 PIPING

A. As specified on Data Sheet(s) and Piping Schedule located at the end of this section as Supplement and on Piping Schedule located on Drawings.

B. Diameters Shown:
   1. Standardized Products: Nominal size.
   2. Fabricated Steel Piping (Except Cement-Lined): Outside diameter, ANSI/ASME B36.10M.
   3. Cement-Lined Steel Pipe: Lining inside diameter.
   4. Pretensioned Concrete Cylinder Pipe: Lining inside diameter.

C. Identification Marking: Mark with nontoxic paint on each end both inside and outside the pipe. The minimum size of the lettering shall be 4 inches. The number marking on each spool shall correspond to the Shop Drawings.

3.235 JOINTS

A. Grooved End System:
   1. Rigid, except where joints are used to correct misalignment, to provide flexibility, or where shown, furnish flexible type.
   2. Flanges: When required, furnish with grooved type flange adapters of same manufacturer as grooved end couplings.

B. Flanged Joints:
   1. Flat-faced carbon steel or alloy flanges when mating with flat-faced cast or ductile iron flanges.
   2. Higher pressure rated flanges as required to mate with equipment when equipment flange is of higher pressure rating than required for piping.

C. Thrust Tie Assemblies:
   1. Tie-rod attachments relying on clamp friction with pipe barrel to restrain thrust are unacceptable.
   2. Anchoring of retainer glands or thrust ties with set screws is unacceptable.

D. Mechanical Joint Anchor Gland Follower:
   1. Ductile iron anchor type, wedge action, with break off tightening bolts.
   2. Manufacturer and Product: EBAA Iron Inc.; Megalug.

3.236 COUPLINGS

A. Steel Middle Rings and Followers:
   1. Fusion bonded epoxy-lined and coated in accordance with the applicable PAINTING AND PROTECTIVE COATINGS requirements, System No. 29. AWWA C213.

2. Pressure tested beyond yield point, for pressure piping.

B. Flexible Couplings:
   1. Manufacturers and Products:
      a. Steel Pipe:
         1) Dresser; Style 38.
         2) Smith-Blair; Style 411
      b. Ductile Iron Pipe:
         1) Dresser; Style 153
         2) Smith-Blair; Style 411

C. Transition Couplings:
   1. Manufacturers and Products:
      a. Dresser; Style 162
      b. Smith-Blair; Style 413

D. Flanged Coupling Adapters:
   1. Manufacturers and Products:
      a. Steel Pipe:
         1) Smith-Blair; Series 913
         2) Dresser Industries, Inc.; Style 128.
      b. Ductile Iron Pipe:
         1) Smith-Blair; Series 912.
         2) Dresser Industries, Inc.; Style 127

E. Bolting:
   1. Exposed and Concrete-Encased Installations: Zinc-plated nuts and bolts; however, high-strength, low-alloy steel, in accordance with AWWA C111/A21.11, may be substituted for use on cast iron and ductile iron couplings.
   2. Buried and Submerged Installations: Provide Type 304 stainless steel bolts and nuts.

3.237 ANCILLARY MATERIALS

A. Gasket Lubricant: As supplied by pipe manufacturer; no substitute or “or-equal” will be allowed.

B. Thrust Block Concrete: As specified in CAST-IN-PLACE and the applicable REINFORCED CONCRETE requirements.

3.238 CONCRETE FOR THRUST BLOCKS

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 deformed bars.

B. Welded Wire Fabric: ASTM A497 Rev B.

C. Formwork: Plywood earth cuts may be used.

D. Mix: ASTM C94, Option A, as depicted by the designer.
   1. Cement: ASTM C150, Type I and/or II with maximum alkyl content of 0.606 percent.
   2. Coarse Aggregate Size: 1-1/2 and/or 3/4- inch(es).
   3. Design for Minimum Compressive Strength at 28 Days: 2,500 and/or 3,000 psi.

3.239 VENT AND DRAIN VALVES

A. Pipelines 2-1/2-inch Diameter and Larger: 3/4-inch vent, 1-inch drain, unless shown otherwise.
B. Pipeline 2-inch Diameter and Smaller: 1/2-inch vent, 1-inch drain, unless shown otherwise.
C. Valve Type:
    1. As shown and as specified in the applicable VALVES AND OPERATORS requirements.
    2. Where valve types are not shown provide Type 300.

3.240 SERVICE SADDLES

A. Ferrous Metal Piping (Except Stainless Steel):
    1. Double-strap design rated 150 psi minimum working pressure.
    2. Run diameter compatible with the outside diameter of the pipe on which the saddle is installed.
    3. Taps with iron pipe threads.
    4. Malleable or ductile iron bodies and galvanized steel straps, steel hex nuts with washers, and neoprene seals.
    5. Manufacturers and Models:
        a. Smith-Blair, Inc.; Series 313 or 366.
        b. Dresser; Style 91.

3.241 SLAB, FLOOR, WALL, AND ROOF PENETRATIONS

A. Ductile Iron Wall Pipe:
    1. Diameter and Ends: Same as connecting ductile iron pipe.
    2. Thickness: Equal to or greater than remainder of pipe in line.
    3. Fittings: In accordance with the applicable Data Sheet.
    4. Provide taps for stud bolts in flanges set flush with wall face.
    5. Seep Ring:
        a. Provide for wall pipes to prevent water seepage.
        b. Material and Construction:
            1) Ductile iron cast integral with wall pipe wherever possible.
            2) Fabricate by welded attachment of ductile iron seep ring to pipe where casting impossible.
                a) Perform in pipe manufacturer's shop by qualified welders as specified herein.
                b) Welds: Electric arc welds of ductile iron with NI-55 or FC-55, nickel-iron-carbon weld rod.
                c) Continuously weld on each side all around.
    6. Manufacturer: American Cast Iron Pipe Co.

B. Steel Wall Pipe: Fabricate of same material and thickness as connecting pipe or as shown, whichever is thicker; however, minimum thickness of 1/4-inch is required.
   1. Lining: Same as connecting pipe.
   2. Seep Ring:
      a. Provide for all wall pipes to prevent water seepage.
      b. Continuously fillet welded on each side all around.

C. Pipe Sleeves: Fabricate of 3/16-inch minimum thickness steel pipe.
   1. Above-grade in Non-submerged Areas: ASTM A153 Hot-dip galvanized after fabrication.
   2. Below grade or in Submerged or Damp Environments: Lined and coated after fabrication with System No. 2 as specified in the applicable PAINTING AND PROTECTIVE COATINGS requirements.
   3. Seep Ring:

D. Provide 3/16-inch minimum thickness center flange for water stoppage on sleeves in exterior or water-bearing walls.
   1. Continuously fillet weld on each side all around.
   2. Existing Walls: Holes drilled with a rotary drill may be provided in lieu of sleeves.

E. Modular Mechanical Seal:
   1. Type: Interconnected synthetic rubber links shaped and sized to continuously fill annular space between pipe and wall sleeve opening.
   2. Assemble interconnected rubber links with Type 316 stainless steel bolts, nuts, and pressure plates.
   3. Size modular mechanical seals according to manufacturer's instructions for the size of pipes shown to provide a watertight seal between pipe and wall sleeve opening.

3.242 INSULATING FLANGES, COUPLINGS, AND UNIONS

A. Dielectric Flange and Union Manufacturers:
   1. Epco Sales, Inc.
   2. Capitol Insulation Unions.

B. Insulating Coupling Manufacturers:
   1. Dresser; STAB-39.
   2. R. H. Baker; Series 216.

3.243 WELD LEAD OUTLETS

A. Outlets for welding leads, if used, shall be as shown on the Drawings. The number and locations of these outlets shall be at the Design-Build Entity's option and shall be indicated on the Shop Drawings.

B. Plugs used for closing the weld lead outlets shall be suitable for the internal pressure and shall allow zero leakage. Joint

compound shall be as recommended by the plug manufacturer and as approved by the Civil Engineer of Record.

3.244 PIPE FABRICATION

A. Flanged pipe shall be fabricated in the shop, not in the field, and delivered to the site with flanges in place and properly faced. Threaded flanges shall be individually fitted and machine tightened on matching threaded pipe by the manufacturer.
B. Fabricate outlets and bends in appropriate lengths so that, when installed, they will be located as shown on laying drawings.
C. Pressure taps and stubs required for hydrostatic testing shall be factory installed on the pipe.
D. Mark each pipe length on outside:
    1. Size or diameter and class.
    2. Manufacturer's identification and pipe serial number.
    3. Location number on laying drawing.
    4. Date of manufacture.
E. Code markings according to approved Shop Drawings.

3.245 FINISHES

A. Factory prepare, prime, and finish coat in accordance with Data Sheet(s) and Piping Schedule.

PART 3 EXECUTION

3.246 EXAMINATION

A. Verify size, material, joint types, elevation, horizontal location, and pipe service of existing pipelines to be connected to new pipelines or new equipment.
B. Inspect size and location of structure penetrations to verify adequacy of wall pipes, sleeves, and other openings.
C. Welding Electrodes: Verify proper grade and type, and free of moisture and dampness, and coating is undamaged.

3.247 PREPARATION

A. Notify Civil Engineer of Record at least 2 weeks prior to field fabrication of pipe or fittings.
B. Damaged Coatings and Linings: Repair using original coating and lining materials in accordance with manufacturer's instructions.
C. Furnish feeler gauges of the proper size, type, and shape for use during installation for each type of pipe furnished.

3.248 WELDING

A. In accordance with AWWA C206.
B. Weld Identification: Mark each weld with symbol identifying welder.
C. Pipe End Preparation:
    1. Machine Shaping: Preferred.
    2. Oxygen or Arc Cutting: Smooth to touch, true, and slag removal by chipping or grinding.
    3. Beveled Ends for Butt Welding: ANSI B16.25.
D. Surfaces:
    1. Clean and free of paint, oil, rust, scale, slag, or other material detrimental to welding.
    2. Clean stainless steel joints with stainless steel wire brushes or stainless steel wool prior to welding.
    3. Prior to deposition of each additional layer of weld metal, thoroughly clean each layer of deposited weld metal, including final pass, with a power-driven wire brush.
E. Alignment and Spacing:
    1. Align ends to be joined within existing commercial tolerances on diameters, wall thickness, and out-of-roundness.
    2. Root Opening of Joint: As stated in qualified welding procedure.
    3. Minimum Spacing of Circumferential Butt Welds: Minimum four times pipe wall thickness or 1 inch, whichever is greater.
F. Climatic Conditions:

1. Do not perform welding if there is impingement of any rain, snow, sleet, or high wind on the weld area, or if the ambient temperature is below 32 degrees F.

G. Thermal Stress Control Joints:
   1. Provide joints with a minimum lap of 3 inches approximately every 350 feet on piping.
   2. Install pipe zone material within 50 feet of the joint prior to welding.
   3. Leave unwelded until such time as the pipe temperature is the coldest (such as early in the morning).
   4. Provide inside fillet weld and an outside seal weld.

H. Tack Welds: Performed by qualified welder using same procedure as for completed weld, made with electrode similar or equivalent to electrode to

I. be used for first weld pass, and not defective. Remove those not meeting requirements prior to commencing welding procedures.

J. Surface Defects: Chip or grind out those affecting soundness of weld.

K. Weld Passes:
   1. Pipe 4 Inches and Under: Minimum of full root and second pass.
      a. Pipe Sizes 6 Inches and Larger: Minimum of three weld passes.

L. Weld Quality: Free of cracks, incomplete penetration, weld undercutting, excessive weld reinforcement, porosity slag inclusions, and other defects in excess of limits shown in applicable piping code.

3.249 INSTALLATION-GENERAL

A. Join pipe and fittings in accordance with manufacturer's instructions, unless otherwise shown or specified.

B. Inspect pipe and fittings before installation, clean ends thoroughly; remove foreign matter and dirt from inside.

C. Flanged Joints:
   1. Install perpendicular to pipe centerline.
   2. Bolt Holes: Straddle vertical centerline, aligned with connecting equipment flanges or as shown.
   3. Use torque-limiting wrenches to ensure uniform bearing and proper bolt tightness.
   4. Plastic Flanges: Install annular ring filler gasket at joints of raised-face flange.
      a. Raised-Face Flanges: Use flat-face flange when joining with flat-faced ductile or cast iron flange.

D. Threaded and Coupled Joints:
   1. Conform with ANSI B1.20.1.
   2. Produce sufficient thread length to ensure full engagement when screwed home in fittings.

3. Countersink pipe ends, ream and clean chips and burrs after threading.
4. Make up connections full, with not more than three threads exposed.
5. Lubricate male threads only with thread lubricant or tape as specified on Data Sheets.

E. Couplings:
1. Install in accordance with manufacturer's written instructions.
   a. Metallic Piping Systems: Flexible couplings, transition couplings, and flanged coupling adapters specified.
   b. Nonmetallic Piping Systems: Teflon bellows connector.
   c. Concrete Encased Couplings: Sleeve type coupling.
   d. Corrosive Service Piping: Elastomer bellows connector.
2. Service Saddles:
   a. Ferrous Metal Piping (except stainless steel): Double-strap iron.
   b. Plastic Piping: Nylon-coated iron.
3. Installation:
   a. Before coupling, clean pipe holdback area of oil, scale, rust, and dirt.
   b. Do not remove pipe coating. If damaged, repair before joint is made.
   c. Clean gaskets before installation.
   d. If necessary, lubricate with gasket lubricant for installation on pipe ends.
   e. Tighten coupling bolts progressively, drawing up bolts on opposite sides a little at a time until all bolts have uniform tightness.

F. Insulating Flanges, Couplings, and Unions:
1. Install between copper and ferrous metal piping connections and where shown.
2. Drill flanges oversize to accommodate insulating sleeves through the drilling using standard bolt sizes.

G. Penetrations:
1. Watertight Penetrations:
   a. Provide wall pipes with thrust collars.
   b. Provide taps for stud bolts in flanges to be set flush with wall face.
2. Nonwatertight Penetrations:
   a. Pipe sleeves with seep ring.

H. Pipe sleeves with modular mechanical seal may be provided where fabrication of seep ring on pipe sleeve is impractical.
1. Existing Walls:
   a. Pipe sleeve with modular mechanical seal.

b. Rotary drilled holes may be provided in lieu of sleeves in concrete walls.

2. New Concrete Walls:
   a. Isolate embedded metallic piping from concrete reinforcement using coated pipe penetrations as specified in the applicable PAINTING AND PROTECTIVE COATINGS requirements, System No. 27
   b. Support wall pipes securely by formwork to prevent contact with reinforcing steel and tie wires.

I. PVC Piping:
   1. Provide Schedule 80 threaded nipple where necessary to connect to threaded valve or fitting.
   2. Use strap wrench for tightening threaded plastic joints. Do not over tighten fittings.
   3. Do not thread Schedule 40 pipe.

J. Ductile Iron Piping:
   1. Cutting Pipe: Cut pipe with milling type cutter, rolling pipe cutter, or abrasive saw cutter. Do not flame cut.
   2. Dressing Cut Ends:
      a. General: As required for the type of joint to be made.
      b. Rubber Gasketed Joints: Remove sharp edges or projections.
      c. Push-On Joints: Bevel, as recommended by pipe manufacturer.
      d. Flexible Couplings, Flanged Coupling Adapters, and Grooved End Pipe Couplings: As recommended by the coupling or adapter manufacturer.

K. Cement Mortar Lined or Coated Welded Steel and Pretensioned Concrete Cylinder Pipe:
   1. Interior Joints:
      a. Pipe Less Than 24-inch Diameter: AWWA C205 Appendix A, Paragraph A2.
      b. Pipe 24-inch Diameter and Larger: After the backfill has been placed at least to the top of the pipe zone, dampen the inside joint space with water or a neat cement slurry and fill by compacting into the joint a portland cement mortar composed of 1 part cement to not more than 2 parts fine aggregate with only sufficient water to form a stiff mix. The finished surface shall be a dense troweled surface, free of projections or depressions, and shall be flush with the interior surface of the pipe.
   2. Exterior Joints: AWWA C205, Appendix A, Paragraph A3.

3.250 INSTALLATION-EXPOSED PIPING

A. Flow Measuring Devices: Provide straight lengths upstream and downstream as required for accurate flow measurement.
B. Supports: As specified in the applicable PIPING SUPPORT SYSTEMS requirements.
C. Unions or Flanges: Provide between each blocking valve and equipment to facilitate installation and removal.
D. Install piping so that no load or movement in excess of that stipulated by equipment manufacturer will be imposed upon equipment connection; install to allow for contraction and expansion without stressing pipe, joints, or connected equipment.
E. Piping clearance, unless otherwise shown:
    1. Between Equipment or Equipment Piping and Adjacent Piping: Minimum 3 feet 0 inches, measured from equipment extremity and extremity of piping system including flanges, valve bodies or mechanisms, insulation, or hanger/support systems.
    2. From Adjacent Work: Minimum 1 inch(es) from nearest extremity of completed piping system including flanges, valve bodies or mechanisms, insulation, or hanger/support systems.
F. Valve Orientation:
    1. As shown where valve handwheels are shown.
    2. Where valve handwheels are not shown, orient to permit easy access to the valve operator, and to avoid interferences.
G. Pipe Identification: As specified in Section 31 22 25, TRENCH BACKFILL

3.251 INSTALLATION-BURIED PIPE

A. Joints:
    1. Dissimilar Buried Pipes:
        a. Provide flexible mechanical compression joints for pressure pipe.
        b. Provide concrete closure collar for gravity and low pressure (maximum 10 psi) piping or as shown.
    2. Concrete Encased or Embedded Pipe: Do not encase joints in concrete unless specifically shown.
B. Ductile Iron Pipe Corrosion Protection: As specified in the applicable PIPE CORROSION PROTECTION requirements.
C. Placement:
    1. Keep trench dry until pipe laying and joining are completed.
    2. Pipe Base and Pipe Zone: As specified in Section 31 22 25, TRENCH BACKFILL.

3. Exercise care when lowering pipe into trench to prevent twisting or damage to pipe.
4. Measure for grade at pipe invert, not at top of pipe.
5. Excavate trench bottom and sides of ample dimensions to permit proper joining, welding, visual inspection, and testing of entire joint.
6. Prevent foreign material from entering pipe during placement.
7. Close and block open end of last laid pipe section when placement operations are not in progress and at close of day's work.
8. In general, lay pipe upgrade with bell ends pointing in direction of laying.
9. Deflect pipe at joints for pipelines laid on a curve using unsymmetrical closure of spigot into bell. If joint deflection of standard pipe lengths will not accommodate horizontal or vertical curves in alignment, provide:
    a. Shorter pipe lengths.
    b. Special mitered joints.
    c. Standard or special fabricated bends.
10. Check gasket position with feeler gauge furnished by the pipe manufacturer, to assure proper seating.
11. After joint has been made, check pipe alignment and grade.
12. Place sufficient pipe zone material to secure pipe from movement before next joint is installed.
13. Prevent uplift and floating of pipe prior to backfilling.

D. PVC:
    1. Lay pipe less than 1-1/2-inch diameter snaking from one side of trench to other.
    2. Offset: As recommended by manufacturer for maximum temperature variation between time of solvent welding and during operation.
    3. Do not lay pipe when temperature is below 40 degrees F, or above 90 degrees F when exposed to direct sunlight.

E. Shield ends to be joined from direct sunlight prior to and during the laying operation.

F. Tolerances:
    1. Deflection From Horizontal Line: Maximum 2 inches.
    2. Deflection From Vertical Line: Maximum 1/2 inch(es).
    3. Joint Deflection: Maximum of 75 percent of manufacturer's recommendation.

4. Horizontal position of pipe centerline on alignment around curves maximum variation of 1.75 feet from position shown.
5. Pipe Cover: Minimum 3 feet, unless otherwise shown.

3.252 THRUST RESTRAINT

A. Location: At pipeline tees, plugs, caps, bends, and other locations where unbalanced forces exist.
B. Type: Restrained joints unless otherwise shown.
C. Thrust Ties: Anchoring of retainer glands or thrust ties with set screws is unacceptable.
D. Mechanical Joint Valve Restraint in Proprietary Restrained Joint Piping: Install pipe joint manufacturer's adapter gland follower and pipe end retainer, or thrust tie-rods and socket clamps.
E. Thrust Blocking:
   1. Place only where shown.
   2. Quantity of Concrete: Sufficient to cover bearing area on pipe and provide required soil bearing area as shown.
   3. Place blocking so that pipe and fitting joints will be accessible for repairs.
   4. Place concrete in accordance with CAST-IN-PLACE and the applicable REINFORCED CONCRETE requirements, ACI 301].
F. Welded joints shall consist of lap-welded slip joints, welded Carnegie joints, welded butt joints, or butt straps. The joints shall be installed in accordance with the detailed Drawings.
G. Mechanically restrained joints shall be as specified in the Data Sheets.
H. Ductile Iron Pipe: Restrained joint length for each location shall be
I. **3.6 times the total length shown on the Drawings, centered on the midpoint of the length shown on the Drawings.**

3.253 CORROSION PROTECTION

A. Buried Pipe: As specified in the applicable PIPE CORROSION PROTECTION requirements.
B. As specified in Piping Schedule, and as shown.
C. Notify Civil Engineer of Record at least 3 days prior to start of surface preparation, coating application, and corrosion protection work.

3.254 THREADED PIPE TAP CONNECTIONS

A. Ductile Iron Piping: Connect only with service saddle or at a tapping boss of a fitting, valve body, or equipment casting.
B. Welded Steel or Alloy Piping: Connect only with welded threadolet or half-coupling as specified on Data Sheet.
C. Limitations: Threaded taps in pipe barrel are unacceptable.

3.255 VENTS AND DRAINS

A. Vents and drains at high and low points in piping required for completed system may or may not be shown.
B. Install vents on high points and drains on low points of pipelines only where shown as shown at all low and high point locations.

3.256 CLEANING

A. Following assembly and testing, and prior to disinfection and final Design-Build acceptance, flush pipelines with water at 2.5 fps minimum flushing velocity until foreign matter is removed.
B. If impractical to flush large diameter pipe at 2.5 fps clean in-place from inside by brushing and sweeping, then flush or blow line at lower velocity.
C. Remove accumulated debris through drains 2 inches and larger or by removing spools and valves from piping.
D. Disinfection: As specified in Section 33 26 83, DISINFECTION OF WATER SYSTEMS.

3.257 FIELD QUALITY CONTROL

A. Pressure Leakage Testing: As specified in the applicable PIPING LEAKAGE TESTING requirements.
B. Required Examinations:
    1. Welding:
        a. Perform examinations in accordance with the Piping Code for Category M fluids, except that 25 percent of the circumferential butt welds shall be random radiographed.
        b. Perform examinations for every pipe thickness and for each welding procedure, progressively, for all piping covered by this section.
        c. Examine at least one of each type and position of weld made by each welder or welding operator.
        d. For each weld found to be defective under the acceptance standards or limitations on imperfections contained in the applicable Piping Code, examine two additional welds made by the same welder or welding operator that produced the defective weld. Such additional examinations are in addition to the minimum required above. Examine, progressively, two additional welds for each tracer examination found to be unsatisfactory.

END OF SECTION

Section 33 26 60.04 - WELDED STEEL PIPE AND FITTINGS	
Item	**Description**
Pipe	Carbon steel, black, ASTM A36 or ASTM A572, Grade 42, sheet or coil, electrically welded, in accordance with AWWA C200, straight or spiral seam, with not more than two longitudinal seams. Design thickness for 66 percent of minimum yield stress at hydrostatic test pressure, minimum 3/16-inch.
Linings	Cement Mortar: AWWA C205. Coal Tar Enamel: AWWA C203, Section A1.5, wrapped with kraft paper. Provide protection against heat from sun. Coal Tar Epoxy: AWWA C210 minimum two top coats. Applied by pipe manufacturer.
Coatings	Reinforced Cement Mortar: AWWA C205. Coal Tar Enamel: AWWA C203, Section A1.5, wrapped with kraft paper. Provide protection against heat from sun. Coal Tar Epoxy: AWWA C210 minimum two top coats. Polyethylene Bonded: As specified in the applicable PAINTING AND PROTECTIVE COATINGS requirements. Applied by pipe manufacturer.
Interior Bracing	60 degree spiders set 2 feet from each end and at the one-third point capable of withstanding backfill loadings. Bracing at one-third point not required for sections less than 10 feet in length.

Joints	Sized Bell and Spigot Rings: AWWA C303, Section 2.6 and 3.3. Maximum Pipe Size: 57-inch diameter. Spigot Rings: Carnegie M3516 for cylinder thickness 3/8-inch or less. Carnegie M3818 for cylinder thickness over 3/8-inch. Double fillet weld lap joint. Bell Ring Thickness: Not less than 3/16-inch or cylinder thickness. Expanded Bell and Spigot Rings: AWWA C303, Section 2.6 and 3.3. Maximum Pipe Size: 57-inch diameter and maximum cylinder thickness 5/16-inch. Spigot Rings: Carnegie M3516. Bell Ring Thickness: Not less than 3/16-inch or cylinder thickness. Rolled Spigot and Expanded Bell: AWWA C200. Maximum pipe size

Section 33 26 60.04 - WELDED STEEL PIPE AND FITTINGS

Item	**Description**
	30-inch diameter and maximum cylinder thickness 1/4-inch. Welded: AWWA C200. Required for all restrained joints and for pipe over 57-inch diameter. Optional for pipe 30-inch diameter and larger. Butt welded or lap welded using bell-and-spigot or butt strap. Flexible Couplings: Maximum Pipe Size: 57-inch diameter. Thicken pipe walls near joints to 3/8-inch minimum. Grooved-End: AWWA C606, Type B, C, or D. Victaulic coupling for pipe 24-inch or less in diameter. Thicken pipe walls near joints to 3/8-inch minimum.
Fittings	Fabricated: Carbon steel fabricated from pipe in accordance with AWWA C208; elbows to have a 22.5 degree maximum miter section angle, minimum of three sections; wyes, tees, crosses, and outlets to be reinforced in accordance with AWWA Manual M-11. Thickness not less than adjoining pipe. Provide weldolets for taps.

Flanges	AWWA C207, Class D, 150 psi or less; Class E, 150 to 250 psi; or Class F, 250 to 275 psi hub or ring type.
Bolting	Carbon steel ASTM A307, Grade A hex head bolts and ASTM A563, Grade A hex head nuts.
Gaskets	Bell-and-Spigot Joints: Synthetic rubber conforming to AWWA C303. Flanged, Water, Sewage, and Air Services: 1/16 inch thick, compressed inorganic fiber with nitrile binder, rated to 700 degrees F and 1000psi. Ring gaskets shall not be permitted. Blind flanges shall be gasketed covering the entire inside face with the gasket cemented to the blind flange.

Section 33 26 60.10
POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS (SCH 40 OR 80)

Item	Size	Description
Pipe	All	Schedule 40 or 80 PVC: Type I, Grade I or Class 12454-B conforming to ASTM D1784 and ASTM D1785. Threaded Nipples: Schedule 80 PVC.
Fittings	All	Schedule 40 or 80 PVC as Specified Under Pipe Above: ASTM D2466 and ASTM D2467 for socket-weld type and ASTM D2464 for threaded type.
Joints	All	Solvent socket-weld except where connection to valves and equipment may require future disassembly.
Flanges	All	One piece, molded hub type PVC flat face flange in accordance with Fittings above, 125 pound ANSI B16.1 drilling.
Bolting	All	Flat Face Mating Flange or In Corrosive Areas: ASTM A193 Type 316 stainless steel Grade B8M hex head bolts and ASTM A194 Grade 8M hex head nuts. With Raised Face Mating Flange: Carbon steel ASTM A307, Grade B square head bolts and ASTM A563, Grade A heavy hex head nuts.
Gaskets	All	Flat Face Mating Flange: Full faced 1/8-inch thick ethylene propylene (EPR) rubber. Raised Face Mating Flange: Flat ring 1/8-inch ethylene propylene (EPR) rubber, with filler gasket between OD of raised face and flange OD to protect the flange from bolting moment.
Solvent Cement	All	As recommended by the pipe and fitting manufacturer conforming to ASTM D2564.
Thread Lubricant	All	Teflon tape.

SECTION 33 26 83 - DISINFECTION OF WATER SYSTEMS

PART 1 GENERAL

3.258 REFERENCES

A. The following is a list of standards which may be referenced in this section:
   1. American Water Works Association (AWWA):
      a. B300, Hypochlorites.
      b. B301, Liquid Chlorine.
      c. B303, Sodium Chlorite.
      d. C651, Disinfecting Water Mains.
      e. C652, Disinfection of Water-Storage Facilities.
      f. C653, Disinfection of Water Treatment Plants.
      g. C654, Disinfection of Wells.

3.259 QUALITY CONTROL SUBMITTALS

A. Procedures and plans for disinfection and testing.
B. Type of disinfecting solution and method of preparation.
C. Training records for employees working with concentrated chlorine solutions or gas.
D. Qualifications: Independent testing agency.
E. Testing Agency:
F. Equipment: Certified calibrations, manufacturer's product data, and test procedures.
   1. Sample Collection and Analysis Procedures for:
      a. Bacteriological Samples.
      b. Chlorine Samples.
G. Certified Bacteriological Test Results:
H. Facility(ies) tested is free from coliform bacteria contamination.
   1. Forward results directly to Civil Engineer of Record
I. Method of disposal for disinfecting wastewater.

3.260 QUALIFICATIONS

A. Independent Testing Agency Certified in Puerto Rico with 10 year's experience in the field of water sampling and testing required for this Project. Calibrated testing instruments and equipment, and documented standard procedures for performing specified testing.

3.261 SEQUENCING AND SCHEDULING

A. Commence initial disinfection after completion of following:
B. Completion and acceptance of internal painting of system(s).
C. Hydrostatic and pneumatic testing, pressure testing, functional and performance testing and acceptance of pipelines, pumping systems, structures, and equipment.

D. Disinfection of:
   1. Pumps and associated system piping.
E. Treatment plant basins and processes used to supply water to system.

PART 2 PRODUCTS

3.262 WATER FOR DISINFECTION AND TESTING
A. Clean, uncontaminated, and potable.
B. Design-Build Entity shall convey in disinfected pipelines or containers or use potable water from existing pipelines.

3.263 DESIGN-BUILD ENTITY'S EQUIPMENT
A. Furnish chemicals and equipment, such as pumps and hoses, to accomplish disinfection.

3.264 MIXING DISINFECTANT
A. Prepare “stock” solution by mixing any of following as described below. The purpose of the stock solution is to facilitate mixing and dilution to ensure a uniform disinfecting solution. The Design-Build Entity will not be required to mix a stock solution if a liquid chlorine gas feed system that can accurately feed a desired amount of chlorine to mix a final (dilute) disinfecting solution is used.
B. Liquid chlorine gas conforming to AWWA B301 and water mixture.
C. Dry chlorine gas conforming to AWWA B301.
   1. Calcium hypochlorite conforming to AWWA B300 or sodium hypochlorite conforming to AWWA B303 powder or liquid and water mixture.
D. Feed dry chlorine gas through devices to regulate the rate of flow and ensure uniform diffusion of gas into water within the pipe or vessel being treated. Chlorinating devices for feeding chlorine gas solution or the gas itself shall prevent backflow of water into chlorine cylinder.
E. Use following proportions of hypochlorite or chlorine to water:
F. Chlorine Gas or Liquid (100 Percent C1): 1 pound per 11.75 gallons water.
G. Apply liquid chlorine gas-water solution by means of a solution feed chlorinating device.
H. Calcium Hypochlorite (65 to 70 Percent C1): 1 pound per 7.5 gallons water.
I. If calcium hypochlorite is used, first mix dry powder with water to make a thick paste, then thin to a 1 percent solution (10,000 ppm chlorine).
J. Sodium Hypochlorite (5.25 Percent C1): 1 gallons water.

1. If sodium hypochlorite procedures is used, dilute the liquid with water to obtain a 1 percent solution.

PART 3 EXECUTION

3.265 GENERAL

A. Disinfect pumps, tanks, filters and pipelines installed or modified under this Project, intended to hold, transport, or otherwise contact potable water:
   1. Disinfect new pipelines that connect to existing pipelines up to the point of connection.
   2. Disinfect surfaces of materials that will contact finished water, both during and following construction using spray method described below. Disinfect prior to contact with finished water. Take care to avoid recontamination following disinfection.

B. Prior to application of disinfectants, clean the tank, equipments, and pipelines of loose and suspended material. Flush pipelines until clear of suspended solid and color. Use water suitable for flushing and disinfecting.

C. Conform to AWWA C651 for pipes and pipelines, C652 for tanks and reservoirs, and AWWA C654 for wells, except as modified in these Specifications.

D. Allow freshwater and stock disinfectant solution to flow into the pipe or vessel at a measured rate so that the chlorine-water solution is at the specified strength. Do not place concentrated commercial disinfectant in the pipeline or vessel before it is filled with water.

3.266 PIPING AND PIPELINES

A. Flushing:
   1. Before disinfecting, flush all foreign matter from pipeline. Provide hoses, temporary pipes, ditches, and other conduits as needed to dispose of flushing water without damage to adjacent properties. Flushing velocities shall be at least 2.5 fps. For large diameter pipe, where it is impractical or impossible to flush the pipe at specified velocity, clean the pipeline in-place from the inside by brushing and sweeping, then flush the line.

B. Flush pipelines through flushing branches and remove branches after flushing is completed. Operate valves during flushing process at least twice during each flush.

C. Flush service connections and hydrants. Flush distribution lines prior to flushing hydrants and service connections.

D. Disinfecting Solution: Chlorine-water solution having a free chlorine concentration of not less than 50 ppm.
E. Disinfecting Procedure: In accordance with AWWA C651, unless herein modified.
F. Point of Application:
    1. Inject chlorine mixture into pipeline to be treated at beginning of line through corporation stop or suitable tap in top of pipeline.
    2. Control water from existing system to flow slowly into pipeline during application of chlorine.
    3. Control rate of chlorine solution flow in proportion to rate of water entering pipe so that combined mixture shall contain not less than 50 ppm of free available chlorine.
    4. Prevent backflow of chlorine solution into line supplying water.
G. Retention Period:
    1. Retain treated water in pipeline for at least 24 hours to destroy all nonspore-forming bacteria. At end of 24 hour period, disinfecting
    2. solution shall contain at least 10 ppm of free chlorine or the pipeline shall be recleaned, disinfecting solution shall be reapplied, and specified procedure repeated.
    3. Operate valves, hydrants, and appurtenances during disinfection to ensure that disinfecting solution is dispersed into all parts of pipeline, including dead-ends and areas that otherwise may not be treated.
    4. After disinfection, flush water from the permanent source until water through the pipeline is equal chemically and bacteriologically to permanent source of supply.

3.267 PUMPS

A. Disinfecting Solutions: Minimum free chlorine concentration of 200 ppm.
B. Disinfecting Procedure: In accordance with AWWA C 653, unless herein modified.
C. Application:
    1. Inject the disinfecting solution into the pump and associated piping and circulate for a minimum 2 hour period of time. At the end of the 2 hour period, the solution shall have a strength of at least 100 ppm free chlorine.
    2. Operate valves and/or pump appurtenances during disinfection to ensure that the disinfecting solution is dispersed into all parts of the pumps and lines.

3. If the disinfecting solution contained in the pumps has a residual free chlorine concentration less than 100 ppm after the 2 hour retention period, reclean the pump, reapply disinfecting solution, and retest until a satisfactory test result is obtained.
4. After chlorination, flush the water from the pumps until the water through the units is chemically and bacteriologically equal to the permanent source of supply.

3.268 TANK

A. Cleaning:
B. Clean interior surfaces using water under pressure before sterilizing. Isolate tank from system to prevent contaminating materials from entering the distribution system. Cleaning shall:
   1. Remove all deposits of foreign nature.
C. Remove all biological growths.
   1. Clean the slopes, walls, top, and bottom.
      a. Avoid damage to the structure.
      b. Avoid pollution or oil deposits by workers and equipment.
D. Dispose of water used in cleaning in accordance with applicable regulations before adding disinfecting solution to the reservoir.
E. Alternatively, the other structures may be cleaned by scrubbing the walls and floor with solution containing at least 200 ppm of free chlorine, rinsing the walls and floor with a stream of water, and disposing of the rinse water. The structures shall then be filled with water containing at least 2 ppm of chlorine until 1 ppm of free chlorine remains after 24 hours' contact.
F. Disinfecting Procedure: In accordance with AWWA C652, unless herein modified.
   1. Disinfect interior surfaces of the tank and inlet and outlet pipelines by the application of chlorine. Wash and disinfect surfaces even though there may be no visible evidence of contamination.
   2. Adapt procedure in Article MIXING DISINFECTANT to obtain residual chlorine concentrations required.
   3. Disinfect in accordance with one of the following methods:
      a. Spray or brush a solution containing 200 ppm of free chlorine onto the interior surfaces of tanks and reservoirs. Apply solution from the bottom up and to the entire

b. structure. Allow to remain 3 hours or until dry before being rinsed off.

G. Fill tanks and reservoirs with water containing at least 50 ppm of free chlorine. Hold solution for at least 3 hours, drain the structure, and fill with potable water.

H. Drain previous chlorine solution and fill tanks and reservoirs with chlorinated water to produce a free chlorine residual of 5 ppm after a retention period of 24 hours. After holding for 24 hours, drain the reservoir and fill with potable water.

3.269 DISPOSAL OF DISINFECTING WASTEWATER

A. Do not allow flow into a waterway without neutralizing disinfectant residual.
   1. See AWWA C652 for acceptable neutralization methods.

3.270 TESTING

A. Test Equipment:

B. Clean containers and equipment used in sampling and assure they are free of contamination.

C. Obtain sampling bottles with instructions for handling from an independent testing laboratory.

D. Chlorine Concentration Sampling and Analysis:
   1. Sampling Frequency for Disinfecting Solution: 2 Samples per Day.
   2. Residual Free Chlorine Samples: 2 Samples per Day.

E. Dechlorinated Disinfecting Wastewater Residual Samples: 2 Samples per Day.

F. Sampling Locations: Selected by Independent Testing Agency and Approved by the Civil Engineer of Record.
   1. Analysis to be performed by an independent test laboratory. Samples will be analyzed using the amperometric titration method for free chlorine as described in the latest edition of Standard Methods for Examination of Water and Wastewater.

G. After tank, pumps, and pipelines have been cleaned, disinfected, and refilled with potable water, an independent laboratory will take water Samples and have them analyzed for conformance to bacterial limitations for public drinking water supplies. Samples shall be analyzed for coliform concentrations in accordance with the latest edition of Standard Methods for the Examination of Water and Wastewater.
   1. A minimum of two Samples on each of 2 consecutive days from each separable structure and every 2,000 feet of pipeline will be obtained and analyzed by standard procedures outlined by local regulatory agencies.
   2. Sampling points will be representative as accepted by ASEM/Owner.

H. If the minimum Samples required above are not bacterially negative, the disinfecting procedure and bacteriological testing shall be repeated on the respective facilities until bacterial limits are met.

I. After initial disinfection process has been completed, fill tanks and reservoirs with water containing at least 2 ppm of free available chlorine residual; after 24 hours' contact, 1 ppm of free available chlorine must remain.

END OF SECTION

SECTION 33 27 00 - STORM DRAIN, SANITARY & DRAINAGE PIPING

PART 1 GENERAL

3.271 REFERENCES

A. The following is a list of standards which may be referenced in this section and any supplemental Data Sheets:

B. American Association of State Highway and Transportation Officials (AASHTO):

1. American National Standards Institute (ANSI)
2. American Water Works Association (AWWA):
3. American Society for Testing and Materials (ASTM):

3.272 SUBMITTALS

A. Quality Control Submittals: Manufacturer's Certification of Compliance.

PART 2 PRODUCTS

3.273 PIPE AND FITTINGS

A. PVC

B. Concrete Pipe

C. Polyethelene

PART 3 EXECUTION

3.274 INSTALLATION OF PIPE, FITTINGS, AND APPURTENANCES

A. General:
   1. Pipe laying shall proceed upgrade with spigot ends pointing in direction of flow.
   2. Excavate bell holes at each joint to permit correct assembly and inspection of entire joint.
   3. Pipe invert may deviate from line or grade up to 1/2-inch for line and 1/4-inch for grade, provided that finished pipe line will present a uniform bore, and such variation does not result in a level or reverse sloping invert, or less than minimum slope shown.
   4. Pipe bedding shall form a continuous and uniform bearing and support for the pipe barrel between joints. Pipe shall not rest directly on the bell or pipe joint.
   5. Prevent entry of foreign material into gasketed joints.

B. Plug or close off pipes which are stubbed off for manhole, concrete structure, or for connection by others, with temporary watertight plugs.

C. Ductile Iron Pipe Corrosion Protection:
   1. Remove foreign material from the exterior of the pipe.

D. Wrap pipe with polyethylene encasement tub e 2 feet longer than the pipe section prior to laying pipe section

E. After assembling the pipe joint, overlap encasement tube with adjacent tube and seal joints with securing tape.
   1. Provide additional securing tape at 3-foot intervals along the pipe.

F. Repair rips, punctures, or other damage to the polyethylene with securing tape.

G. Fittings may be wrapped with a flat sheet or split tube provided all seams are securely taped.

H. Concrete Closure Collars: Only use concrete closure collars where shown or authorized by Civil Engineer of Record.

I. Square-End Underdrains: Cover top and sides of the joints with a strip of asphalt-saturated 30 pound roofing felt.

J. Perforated Underdrain: Lay with open joints and with perforations down.

3.275 PRESSURE TESTING

A. As specified in the applicable PIPING LEAKAGE TESTING requirements.

3.276 REPAIR AND RETESTING

A. Sections of pipe not meeting the pressure test requirements shall be replaced

B. Following repairs, sections shall be retested as specified.

3.277 SEWER CLEANING

A. Before final testing, video inspection where required, and acceptance, flush and clean the entire sewer and drainage system. Remove construction debris, rocks, gravel, sand, silt, and other foreign material at the nearest controlled downstream collection point without discharging debris into existing ASEM or public systems. Use mechanical cleaning methods where necessary and submit inspection and cleaning records.

END OF SECTION

Section 33 27 00.04 DUCTILE IRON PIPE AND FITTINGS	
Pipe	Material: ASTM A746 and ANSI/AWWA C151/A21.51. Centrifugally cast, Grade 60-42-10 iron.
Interior Lining	Cement-Mortar: ANSI/AWWA C104/A21.4, except cement shall conform to ASTM C150, Type II, with seal coat.] Polyethylene: 40-mil nominal ultraviolet-resistant compound consisting of a blend of high and low density polyethylene powder, complying with ASTM D1248, carbon black and inert filler. Fusion bond compound to the interior surface, in a furnace, from beveled end to the rear of the gasket socket. Coat ends and exterior of ends to a point 1-inch outside the gasket position with 8-mil dry film thickness coal-tar epoxy.
Exterior Encasement	Polyethylene Film: ANSI/AWWA C105/A21.5 with minimum nominal thickness of 8 mils and minus tolerance of 10 percent. Provide tubes for straight pipe and sheets for fittings or tees. Securing Tape: Thermoplastic material with minimum thickness 8 mils, width 1-inch and pressure sensitive adhesive face capable of bonding to metal, bituminous coating, and polyethylene.
Fittings	ANSI/AWWA C110/A21.10.
Joints	As shown.
Plugs	Removable. Removal shall provide a socket suitable for making a flexible jointed lateral connection or extension.
Source Quality Control	In accordance with specified reference standard.

Section 33 27 00.06 POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS (SCH 35)	
Pipe: 15-inch diameter and under	ASTM D3034: Standard dimension ratio less than 35, except that the cell classification shall be 12454-B or 12454-C as defined in ASTM D1784.
Joints	ASTM D3212 rubber gasketed.
Gaskets	ASTM F477. Lubricants: As approved by manufacturer.

Fittings	PVC, gasketed. Provide plug when service piping is not required.
Plugs	Removable. Removal shall provide a socket suitable for making a flexible jointed lateral connection or extension.
Source Quality Control Testing	In accordance with specified ASTM.

Section 33 27 00.10 REINFORCED CONCRETE PIPE AND FITTINGS	
Pipe	ASTM C76, Wall B, class as shown. Mark each joint with pipe class. Rotating packer or platform not allowed.
Cement	ASTM C150, Type II, or ASTM C150, Type I, with fly ash; maximum 12 percent Tricalcium Aluminate, or ASTM C595 Rev A, Type IP, with fly ash; Cement: ASTM C150. Minimum 564 pounds per cubic yard without fly ash. Minimum 479 pounds per cubic yard with fly ash.
Ratio: Water to Cementitious Materials	Not over 0.49.
Fly Ash	ASTM C618, Class C or Class F, Tables 1 and 2 modified as follows: Loss on Ignition: Maximum 3 percent Water Requirement: Maximum 100 percent of control Ratio Percent CaO/Fe_2O_3: Maximum 1.5 or test cement fly ash mix in accordance with ASTM C1012. Mix: Equal to or better than ASTM C150, Type II cement. 85 pounds per cubic yard minimum, 160 pounds per cubic yard maximum. Test: ASTM C311 and ASTM C618.
Joints	ASTM C443 Rev A. and/or C361 Captive gasket in groove.
Rubber Gaskets	ASTM C443 Rev A.
Tee Fittings	Reinforced concrete, rubber gasketed. Provide plug when service piping is not required.
Plugs	Removable. Removal shall provide a socket suitable for making a flexible jointed lateral connection or extension.
Circumferential Reinforcement	Not closer than 1-inch to inside surface of pipe. Area of outer circular reinforcing cage not less than 75 percent of inner cage.

Elliptical Reinforcement	Not allowed.
Section 33 27 00.10 REINFORCED CONCRETE PIPE AND FITTINGS	
Source Quality Control Testing	Load Bearing 0.01-inch Crack, Compressive Strength and Absorption: ASTM C76 Load Bearing Ultimate: ASTM C76 Permeability: ASTM C497. Voids: Longitudinally sawcut one pipe from each 100 lengths of pipe manufactured in half with saw that will not damage the concrete or reinforcing steel. Inspect for voids adjacent to circumferential bars. Voids will be considered continuous if a 1/16-inch diameter pin can be inserted 1/4-inch deep. If voids exist adjacent to more than 10 percent of the circumferential bars, two additional pipe shall be tested. If either of the two pipe fail, the entire 100 lengths will be rejected.

Section 33 27 00.11 PRESTRESSED CYLINDER CONCRETE PIPE	
Pipe	AWWA Standard, reinforced with a welded steel cylinder with steel joint rings welded to its ends. The steel cylinder shall de lined with concrete, wrapped with a high tensile strength wire under tension and coated with a dense covering of cement mortar. Each pipe shall be constructed with a self-centering expansion joint sealed with a rubber gasket and capable of caring for normal movement due to earth settlement and extremes of temperature.
Dimensions	The dimensions of the straight pipe shall be in accordance with the manufacture's recommendations. Special pipe for bends, reducers, closure pieces and other fittings may be made in shorter lengths, as required. The pipe should be round and true. The average internal diameter of the straight pipe shall not be less than the nominal diameter by more than ¼ inch for sizes 36" and smaller; by more than ½ inch for sizes 54" to 78"; or by more than ¾ inch for 84" or larger

Pipe Design	3.278 The diameter of prestress wire used, its centerline spacing and the tension under which it is wound around the core shall be such that the core will be sufficiently to produce the required prestress in the core. The elastic and inelastic deformations of the concrete and steel shall be taken into consideration. The gross wrapping stress in the high tensile wire shall not exceed 75% of the minimum tensile strength of the wire. The maximum centerline spacing shall be 1-1/2 inches. Minimum clear distance between wires shall be 3/16 inches and the minimum diameter of the wire used shall be No. 8 gage 3.279 Steel sheets and steel wire of qualities other than those indicated below may be used, provided the design of the pipe is based upon the respective physical properties of the materials 3.280 The core shall not be wrapped with wire until the concrete has reached the specified seven-day compressive strength. The initial compression induced in the concrete shall not exceed 55% of its compressive strength at the time of wrapping.

Section 33 27 00.11 PRESTRESSED CYLINDER CONCRETE PIPE

Pipe Joints	3.281 The joint shall be sealed by a rubber gasket in such a manner that it will remain tight under all conditions of service, including movements due to expansion, contraction and normal settlement. Each length of pipe shall be provided with bell and spigot ends formed by steel joint rings welded to the cylinder. The spigot ring shall be lined with concrete on its interior surface and the bell ring shall be covered with concrete on its exterior surfaces. Portions of the joint rings, which will be exposed after the pipe is manufactured, shall be protected from corrosion by an approved coating. The spigot ring shall have a groove for the purpose of receiving, holding and protecting the gasket. The joint surfaces shall be of such shape and dimensions that the joint will be self-centering when the pipe is laid so that the joint will not be required to support the weight of the adjoining pipe. 3.282 Steel of flat section for bell rings 3/16" thick shall be used on pipe sizes up to and including 36" and shall conform to "Standard Specification for Hot-Rolled Carbon Steel Sheets and Strip, Structural Quality", Grade C, ASTM Designation A-570. 3.283 Steel plate for bell ring 1/4" or more in thickness and special shapes for spigot joint rings shall conform to "Standard Specification for Carbon Steel Bars Subject to Mechanical Property Requirements", Grade 50, ASTM Designation A-306. 3.284 The gasket sealing the joint shall be made of a rubber having a texture to assure a watertight and permanent seal and shall be the product of a manufacturer having at least five years' experience in the manufacture of rubber gaskets for pipe joints. The gasket shall be a continuous ring, of suitable cross-section and of such size as to fill the groove on the spigot joint ring when the pipes are laid. The rubber gasket shall be the sole element depended upon to make the joint watertight and shall have smooth surfaces free from pitting, blisters, porosity and other imperfections. Each gasket shall be subjected to a stretched of 100% and examined for any defects whilw in the stretched condition Cement mortar or plastic materials used to finish the joints shall not be depended upon for watertightness. 3.285 Natural or synthetic isoprene rubber gaskets shall comply with the following physical requirements: Tensile Strength, min. psi.... 3000 Elongation at rupture, min. percent Compression set, max. percent..... 18

Section 33 27 00.11 PRESTRESSED CYLINDER CONCRETE PIPE	
Pipe Joints (continued)	Accelerated aging Tensile strength retained, min. percent of original..... 85 Elongation retained, min. percent of original... .....80 Water absorption Volume and weight increase, max percent... .....5 Durometer hardness, points ..... 60+/- 5 (6) The physical properties of the gaskets shall be determined in accordance with the following methods; **Tensile strength** "Tension Testing of Vulcanized Rubber" ASTM Designation D-412 Elongation "Tension Testing of Vulcanized Rubber" ASTM Designation D-412 **Compression Set** "Compression Set Vulcanized Rubber" ASTM Designation D-395 Method B, age 22 hours at 70 °C. **Accelerated Aging** "Oven Test for Aging of Rubber" ASTM Designation D-573 Age 96 hours at 70 °C. **Water Absorption** "Change in Properties of Elastomeric Vulcanizates Resulting from Immersion in Liquids", ASTM Designation D-471 age 48 hours at 70 °C. **Durometer Hardness** "Indentation Hardness of Rubber and Plastics By Means of a Durometer" Type A, ASTM Designation D-2240
Section 33 27 00.11 PRESTRESSED CYLINDER CONCRETE PIPE	

Steel Cylinder	1. The steel cylinder shall be made of steel sheets not lighter than No. 18 gage for 24" thru 48" diameter pipe and 16 gage for 54" and above, both U.S. Standard and conforming to the requirements of "Standard Specification for Hot-Rolled Carbon Steel Sheets and Strip, Structural Quality", Grade C, ASTM Designation A-570 or "Standard Specification for Steel, Cold-Rolled Sheet, Carbon, Structural", ASTM Designation A-611 2. Each completed cylinder, with joint rings welded to its ends, shall be subjected to hydrostatic test by closing the ends at the joint rings; filling with water in contact with welds at all points and raising the water pressure to produce a stress of 20,000 to 25,000 psi in the cylinder. While under pressure test, all welds shall be thoroughly inspected. If any leaks are found, they shall be repaired and the cylinder shall be retested. The cylinder, with joint rings attached, shall be watertight under the required test pressure. Welding shall be by an approved process and test welds shall be furnished from the work as required.
Steel Reinforcement	The wire used for prestressing shall conform to the requirements of "Standard Specification for Hard-Drawn Steel Mechanical Spring Wire", ASTM Designation A-227 and "Standard Specification for Steel Wire, Hard-Drawn for Prestressing Concrete Pipe". ASTM Designation A-648.
Section 33 27 00.11 PRESTRESSED CYLINDER CONCRETE PIPE	

Concrete	1. Cement shall fulfill the requirements of "Standard Specification for Portland Cement", ASTM Designation C-150. Concrete aggregates shall be composed of hard durable particles, clean and free from foam or organic particles. Water used in mixing the concrete shall be clean and free from deleterious amounts of acids, alkalis or organic materials. 2. The concrete used in the manufacture of the pipe shall consist of cement, sand and crushed stone or crushed or uncrushed gravel accurately proportioned for maximum density and specified strength. In no case shall the cement content be less than 564 lbs. (6 bags) per cubic yard in the finished product. 3. The concrete shall be placed in steel molds so constructed that the inner and outer forms, joint rings and cylinder shall be held in circular and concentric positions. The molds shall be vibrated during the placing of each batch of concrete. 4. The concrete shall have a minimum strength of 3000 psi at seven days and 4500 psi at 28 days as measured by 6" x 12" companion cylinder molded in accordance with the "Standard Method for Making and Curing Concrete Compression and Flexure Test Specimens in the Field", ASTM Designation C-31, and cured in the same manner and for the same duration as the pipe. To conform to the requirements in this section, the average of any ten consecutive strength tests of cylinders representing each type of concrete shall be equal to or greater than the specified strength and not more than 20 % of the strength tests shall have values less than the specified strength.

Section 33 27 00.11 PRESTRESSED CYLINDER CONCRETE PIPE

Curing the Concrete	1. The cores shall be cured by steam or by water. Water and steam curing may be used interchangeably on a time ratio basis of 4 hours of water curing to 1 hour of steam curing, except that water curing may be used only if the minimum ambient temperature exceeds 40 ⍰F. 2. Steam Curing- the cores shall be placed in the steam-curing chamber or otherwise covered by a suitable enclosure that will allow proper circulation of steam. A delay period of from 1 to 4 hours shall be allowed before moist steam is admitted in contact with the cores. The temperatures within the enclosure shall be gradually raised to at least 110⍰F and not more than 150⍰F for a period of at least 24 hours. The present time shall be included in the 24-hour period. Curing by steam shall be continuous, except during a period sufficient to remove the forms or supporting rings. 3. The forms or rings shall not be removed until at least 6 hours after the beginning of steam curing. Following this minimum period, curing shall be continued by either steam or water. 4. Water Curing- the core shall be kept moist by water spraying for a period of 32 hours. The forms or rings shall not be removed from the core until at least 12 hours after the beginning of curing. After being placed in the storage yard, the core shall be kept moist by intermittent sprinkling for a further period of three days.
Pipe Coating	The coating, either cement mortar or concrete, shall be applied to the cores after they have been wrapped under tension with high tensile wire.
Cement Mortar Coating	The mortar used for this coating shall consist of one part of cement to not more than 3 parts of fine aggregate measured by volume, The mortar shall be placed on the pipe by machine in which the mortar, previously mixed, is driven against the exterior surface of the core to produce a dense coating around the prestress wires. Concurrently with mortar coating a cement slurry consisting of 1 bag of cement per 8 gal. of water, shall be applied just ahead of the mortar coating. The thickness of coating, measured from the outer surface of the cylinder, shall not be less than specified.

Section 33 27 00.11 PRESTRESSED CYLINDER CONCRETE PIPE

Concrete Coating	The concrete used fore this coating shall be so proportioned that the cement content is no less than 658 lbs. (7 bags) per cubic yard. The concrete shall be placed in steel molds so constructed that the outer form and the core shall be held in circular and concentric positions. The molds shall be continuously vibrated during the placing of each batch of concrete. The thickness of the coating shall not be less than 1”.
Curing of Coating	Steam Curing - The coated pipe shall be placed in the curing chamber as soon as practicable after placing the coating and shall be steamed-cured as specified under Curing of Concrete for a period of at least 12 hours. The pipe shall be handled in such a manner as to avoid injury to the coating during transportation to and from the curing chamber. Water Curing - As soon as the coating has set sufficiently, it shall be kept moist by continuous water spraying or by intermittent spraying and burlap and canvas covering for period of at least 4 days.
Curves And Fittings	Curves of a long radius may by formed by the deflection of each joint, by the use of pipe on which the spigot joint rings are placed on a bevel or by bevel adapters. Fittings shall be designed to provide the same strength as the adjacent pipes. Elbows, tees, reducers and wyes shall be of non-prestressed steel cylinder type construction. Branch connections or opening such as manholes, air valves and blow offs may be incorporated in straight pipe and shall be suitably reinforced. Fittings shall be provided with joint rings corresponding to those on adjoining straight pipes. Special adapters shall be provided where required to connect to valves or pipes of other manufacturers.

SECTION 33 27 21 - CATCH BASINS AND INLETS

PART 1 GENERAL

3.286 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Society for Testing and Materials (ASTM):
   a. A36, Structural Steel.
   b. A48, Gray Iron Castings.
   c. A615, Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
   d. C94, Ready-Mixed Concrete.
   e. C387, Packaged, Dry Combined Materials for Mortar and Concrete.
   f. C478, Precast Reinforced Concrete Manhole Sections.
2. American Welding Society (AWS): Code for Welding in Building Construction.

PART 2 PRODUCTS

3.287 CONCRETE

A. Concrete shall be ready-mixed, conforming to ASTM C94, Alternate 2. Compressive field strength shall be not less than 2,500 psi at 28 days. Maximum size of aggregate shall be 1-1/2 inch. Slump shall be between 2 and 4 inches. Field strength shall be assumed as equal to 85 percent of the strength of laboratory-cured cylinders.

3.288 FORMS

A. Exposed surfaces shall be plywood, others shall be steel, matched boards, plywood, or other acceptable material. Form all vertical surfaces. Provide fillets on reentrant angles. Trench walls, large rock, or earth will not be acceptable form material.

3.289 REINFORCING STEEL

A. Reinforcing steel shall conform to ASTM A615, Grade 40, deformed bars.

3.290 PRECAST UNITS

A. [A: At the option of the Design-Build Entity, approved precast units may be substituted for cast-in-place units.] Precast units shall conform to ASTM C478 except that the dimensions shall be as shown. Concrete risers for

B. extensions shall be a maximum of 6 inches high and of the same quality as the sections. Risers shall be reviewed by Civil Engineer of Record before installation.

3.291 MORTAR

A. Standard premixed mortar conforming to ASTM C387, Type S, or proportion 1 part portland cement to 2 parts clean, well-graded

sand which will pass a 1/8-inch screen. Admixtures may be used not exceeding the following percentages of weight of cement: Hydrated lime, 10 percent; diatomaceous earth or other inert materials, 5 percent. Consistency of mortar shall be such that it will readily adhere to the concrete.

3.292 FRAMES AND GRATES

A. Frames and grates for catch basins and storm drain inlets shall be fabricated of steel conforming to ASTM A36 in accordance with the details shown. All connections shall be welded. Welding shall conform to requirements of current Code For Welding in Building Construction of the American Welding Society. Frames and grates shall be properly cleaned and given a shop coat of red lead paint.

3.293 FRAMES AND GRATINGS

A. Cast iron frames and gratings for catch basins and storm drain inlets shall be as indicated. Bearing surfaces shall be clean and shall provide uniform contact. Castings shall be tough, close-grained gray iron, sound, smooth, clean, free from blisters, blowholes, shrinkage, cold shuts, and all defects, and shall conform to ASTM A48, Class 30.

PART 3 EXECUTION

3.294 EXCAVATION AND BACKFILL

A. Excavation as required to accomplish the construction. Backfill shall be as specified for the adjoining pipe trench.

3.295 CONSTRUCTION OF CATCH BASINS AND INLETS

A. Construct inlets and catch basins at the locations shown and in accordance with the Drawings. Construct forms to the dimensions and elevations required. Forms shall be tight and well braced. Chamfer corners of forms.

B. Prior to placing the concrete, remove all water and debris from the forms. Moisten forms just prior to placing the concrete. Handle concrete from the transporting vehicle to the forms in a continuous manner as rapidly as practical without segregation or loss of ingredients. Immediately after placing, compact concrete with a mechanical vibrator. Limit the duration of vibration

C. to the time necessary to produce satisfactory consolidation without causing segregation.

D. Screed the top surface of exposed slabs and walls. When the initial water has been absorbed, float the surfaces with a wood float and lightly trowel with a steel trowel to a smooth finish free from marks or irregularities. Finish exposed edges with a steel edging tool. Remove forms and patch any defects in the

concrete with mortar mixed in the same proportions as the original concrete mix.

E. Cure concrete by preventing the loss of moisture for a period of 7 days. Accomplish with a membrane-forming curing compound. Apply the curing compound immediately after removal of forms or finishing of the slabs. Protect concrete from damage during the 7 day curing period.

3.296 PLACING PRECAST UNITS

A. Where trench-bottom material is unsuitable, provide foundation stabilization accepted by the Civil Engineer of Record and include it in the Design-Build scope. Set units to final lines and grades.

3.297 EXTENSIONS

A. Install extensions as shown. Lay risers in mortar with sides plumb and tops to grade. Joints shall be sealed with mortar, with interior and exterior troweled smooth. Prevent mortar from drying out and cure by applying a curing compound. Extensions shall be watertight.

3.298 INSTALLATION OF FRAMES AND GRATES

A. Set frames and grates at elevations indicated or as determined in the field and in conformance with the Drawings.

B. Frames may be cast in, or shall be set in mortar.

3.299 CLEANING

A. Upon completion, clean each structure of all silt, debris, and foreign matter.

END OF SECTION

SECTION 33 27 26 – MANHOLES

PART 1 GENERAL

3.300 REFERENCES

A. The following is a list of standards which may be referenced in this section:
   1. American Society for Testing and Materials (ASTM):
      a. A36/A36M REV B-93, Standard Specification for Structural Steel.
      b. A48-94, Standard Specification for Gray Iron Castings.
      c. A123 REV A-89, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
      d. A240-94, Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels.

B. A536-84, Standard Specification for Ductile Iron Castings (R 1993).

C. A167-94, Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

D. B139-90, Standard Specification for Phosphor Bronze Rod, Bar, and Shapes.

E. C14-94, Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe*.

F. C387-87, Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete.

G. C443 REV A-85, Standard Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets (R 1990).

H. C478-94, Standard Specification for Precast Reinforced Concrete Manhole Sections.

I. C923-94, Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.

J. F593-91, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

K. F594-91, Standard Specification for Stainless Steel Nuts.

3.301 SUBMITTALS

A. Administrative Submittals:

B. Shop Drawings:
   1. Cast-in-Place Manholes: Details of construction.
   2. Precast Manholes: Details of construction.
   3. Precast Base, Cones, and Top Slab Sections: Details of construction.
   4. Manholes Over Existing Piping: Plans and schedule for diverting flow.

5. Design of manhole frame to structure seals.

C. Quality Control Submittals:
   1. Proposed curing method for cast-in-place concrete structures.
   2. Precast Manhole Sections: Manufacturer's results of tests performed on representative sections to be furnished.
   3. Certified load test data for precast manhole steps.
   4. Design-Build Entity’s plan for diversion of flow during installation of manhole over existing piping.

PART 2 PRODUCTS

3.302 PRECAST MANHOLES

A. Riser Sections:
   1. Minimum 48 inches in diameter.
   2. Fabricate in accordance with ASTM C478-94.
   3. Minimum Wall Thickness: 4 inches or 1/12 times inside diameter, whichever is greater.
   4. Top and bottom shall be parallel.
   5. Joints: Tongue-and-groove or confined groove with mortar. Confined O-ring with rubber gaskets meeting ASTM C443 REV A-85.

B. Cone Sections:
   1. Provide concentric and/or eccentric cones as required by the design.
   2. Same wall thickness and reinforcement as riser section.

C. Base Sections and Base Slab:
   1. Base Sections: Base slab integral with sidewalls.
   2. Fabricate in accordance with ASTM C478-94.

D. Manhole Extensions:
   1. Concrete grade rings; maximum 6 inches high.
   2. Fabricate in accordance with ASTM C478-94.

E. Preformed Plastic Gaskets:
   1. Hamilton Kent Manufacturing Co., Box 178, Kent, OH 44240, Kent-Seal No. 2.

F. K. T. Snyder Co., Inc., Central National Bank Bldg., Houston, TX 77002, Ram-Nek.

G. Steps:

H. Fabricate from minimum 3/4-inch steel bar meeting ASTM A36/A36 REV B-93.

I. Minimum Width: 12 inches, center-to-center of legs, drop pattern with a 2-inch drop and 2-inch hook on the embedment end.

J. Make bends around a 1-inch radius minimum, 2-inch radius maximum mandrel.
   1. Galvanize to meet ASTM A123 REV A-89 after bending.
   2. Cast in manhole sections by manufacturer.

K. Load Test: Capable of withstanding ASTM C478-94 vertical and horizontal load tests.
L. Source Quality Control:
M. All test specimens shall be mat tested and meet the permeability test requirements of ASTM C14-94.
    1. Conduct tests at point of manufacture prior to delivery of any section.
    2. Sections to be tested will be selected at random from stockpiled material to be supplied for the project.

3.303 CAST-IN-PLACE MANHOLES

A. Reinforcing Steel: Furnish as specified in the applicable REINFORCING STEEL and REINFORCED CONCRETE requirements.
B. Concrete: Furnish as specified in the applicable CAST-IN-PLACE CONCRETE and REINFORCED CONCRETE requirements.

3.304 MANHOLE FRAMES AND COVER

A. Castings:
    1. Tough, close-grained gray iron, sound, smooth, clean, free from blisters, blowholes, shrinkage, cold shuts, and defects.
    2. Cast Iron: ASTM A48-94 Class 30B and/or 35B
    3. Ductile Iron: ASTM A536-84, Grade 60-40-12.
    4. Plane or grind bearing surfaces to ensure flat, true surfaces.
B. Cover: True and seat within ring at all points in 2-inch raised letters.
C. Watertight Covers: High temper phosphor bronze with 60,000 psi minimum tensile strength meeting ASTM B139-90.

3.305 WATERTIGHT FRAME FASTENERS

A. Galvanize after fabrication in conformance with ASTM A123 REV A-94.

3.306 MANHOLE FRAME TO STRUCTURE SEALS

A. Gasket:
    1. Extrude or mold from a high-grade rubber compound.
    2. Comply with materials test requirements of ASTM C923-94.
    3. Minimum Thickness: 3/16-inch.
    4. Minimum Unstretched Length: Sufficient to extend from the manhole frame, across a maximum of 12 inches of extension rings, to the manhole cone section.
    5. Fabricate bands for compressing sleeve against manhole from Type 304 stainless steel:
        a. Channeled Sheet: Minimum 16 gauge, ASTM A167-94.
        b. Round: 5/16-inch diameter, ASTM A240-94.
B. Screws, Bolts, or Nuts: Stainless steel conforming to ASTM F593-91 and ASTM 594-91, Type 304.
C. The internal gasket or its appurtenances shall not extend into the manhole opening to restrict entry into or exit from the manhole.

D. The gasket shall be made only of materials that have been proven to be resistant to the following exposures and conditions:
   1. Sanitary sewage.
   2. Corrosion or rotting under wet or dry conditions.
   3. Gaseous environment in sanitary sewers and at road surfaces including common levels of ozone, carbon monoxide, and other trace gases at the sites of installation.
   4. Biological environment in soils and sanitary sewers.
   5. Chemical attack by road salts, road oil, and common street spillages or solvents used in street construction or maintenance.
   6. Temperature ranges, variations, and gradients in the area of construction.
   7. Variations in moisture conditions and humidity.
   8. Fatigue failure caused by a minimum of 30 freeze-thaw cycles per year.
   9. Vibrations due to traffic loadings.
   10. Fatigue failure due to repeated variations of tensile, compressive and shear stresses, and repeated elongation and compression.
   11. Any combination of the above.
E. Materials used shall be compatible with each other and with the manhole materials.
F. Design gasket to meet the following requirements:
   1. Continuously prevent leakage of water from outside the manhole into the manhole at the joints between the manhole frame and the cone section.
   2. At the same time, seal shall remain flexible, allowing repeated vertical movements of the frame from 0 to 2 inches, or repeated horizontal movements of the frame with respect to the top of the extension or cone of from 0 to 1/2-inch due to pavement movements or other causes, or both types of movement occurring simultaneously at rates not exceeding 1/10-inch per minute.

3.307 MORTAR

A. Standard premixed in accordance with ASTM C387-87, or proportion 1 part portland cement to 2 parts clean, well-graded sand which will pass a 1/8-inch screen.
B. Admixtures: May be included but do not exceed the following percentages of weight of cement:
   1. Hydrated Lime: 10 percent.
   2. Diatomaceous Earth or Other Inert Material: 5 percent.
C. Mix Consistency:

D. Tongue-and-Groove Type Joint: Such that mortar will readily adhere to pipe.
E. Confined Groove (Keylock) Joint: Such that excess mortar will be forced out of groove and support is not provided for section being placed.

3.308 CLEANOUT FRAMES AND COVERS

A. Castings:
B. Tough, close-grained gray iron, sound, smooth, clean, free from blisters, blowholes, shrinkage, cold shuts, and defects.
    1. Cast Iron: ASTM A48-94, Class 30B and/or 35B
    2. Ductile Iron: ASTM A536-84, Grade 65-40-12.
    3. Plane or grind bearing surfaces to ensure flat, true surfaces.
C. Covers: True and seat within frame at all points.

3.309 IMPORTED PIPE BASE

A. Furnish as specified in Sections: 31 22 20, FILL AND BACKFILL and 31 22 25, TRENCH BACKFILL.

3.310 MANHOLE MARKER POSTS

A. Size and Type: 4 inches by 4 inches by 8 feet, S4S, cedar, pine, redwood, or fir, Construction Grade or better.
B. Prime the top (exposed) 3 feet, 8 inches, followed by two coats of safety orange enamel.
    1. Primer:
        a. Koppers; 625 Undercoater.
        b. Tnemec; 36-603 Undercoater.
    2. Enamel:
        a. Koppers; Glamortex 501 Enamel.
        b. Tnemec; Series 2 Tnemec Gloss.
C. Bottom (Buried) Portion:
    1. Treat the bottom 4 feet, 4 inches with a solution consisting of 5 percent by weight of pentachlorophenol dissolved with a petroleum solvent.
D. At Design-Build Entity's option, entire post may be treated provided 30 days elapse prior to painting.
E. Lettering:
    1. Stencil the letters on all sides of each post.
    2. Letters to be black enamel, 2 inches high.

3.311 FLEXIBLE JOINTS

A. Manufacturers:
    1. "Kor-N-Seal" flexible rubber boot with stainless steel accessories as manufactured by Kor-N-Seal Co. (NPC Systems, Inc.), Milford, New Hampshire 03055.
    2. "Z-Lok XP" or "A-LOK" flexible connectors as manufactured by A-Lok Products, Inc., Tullytown, Pennsylvania 19007.

PART 3 EXECUTION

3.312 GENERAL

A. Remove and keep all water clear from the excavation during construction and testing operations.

B. Place imported pipe base material on undisturbed earth; thoroughly compact with a mechanical vibrating or power tamper.

3.313 EXCAVATION AND BACKFILL

A. Excavation: As specified in Section 31 22 05, EXCAVATION.

B. Backfill: As specified in Sections 31 22 20, FILL AND BACKFILL and 31 22 25, TRENCH BACKFILL.

3.314 INSTALLATION OF PRECAST MANHOLES

A. Concrete Base:

1. Cast-In-Place:

B. Vibrate to densify concrete and screed so first precast manhole section to be placed has a level, uniform bearing for full circumference.

1. Deposit sufficient mortar on base to assure watertight seal between base and manhole wall, or place first precast section of manhole in concrete base before concrete has set. Properly locate and plumb first section.
2. Precast:
   a. Place on compacted imported base material.
   b. Properly locate, ensure firm bearing throughout, and plumb first section.

C. Sections:

1. Thoroughly clean ends of sections to be joined.
2. Thoroughly wet joint with water prior to placing mortar.
3. Locate precast steps in line with each other to provide a continuous vertical ladder.

D. Mortar Joints:

1. Place mortar on groove of lower section prior to section installation.
2. Fill joint completely with mortar of proper consistency.
3. Trowel interior and exterior surfaces smooth on standard tongue-and-groove joints.
4. Prevent mortar from drying out and cure by applying an approved curing compound or comparable approved method.
5. Do not use mortar mixed for longer than 30 minutes.
6. Chip out and replace cracked or defective mortar.
7. Completed Manholes: Rigid and watertight.

E. Preformed Plastic Gaskets (In lieu of mortar joints):

1. Carefully inspect precast manhole sections to be joined.

2. Do not use sections with chips or cracks in the tongue.
3. Use only pipe primer furnished by gasket manufacturer.
4. Install gasket material in accordance with manufacturer's instructions.
5. Completed Manholes shall be rigid and watertight.

F. Rubber Gasketed Joints: Install in accordance with manufacturer's instructions.

G. Extensions:
1. Provide on manholes in streets or other locations where a subsequent change in existing grade may be likely.
2. Install to height not exceeding 12 inches.
3. Lay grade rings in mortar with sides plumb and tops level.
4. Seal joints with mortar as specified for sections, and make watertight.

3.315 MANHOLE INVERT

A. Construct with smooth transitions to ensure an unobstructed flow through manhole. Remove sharp edges or rough sections which tend to obstruct flow.

B. Where full section of pipe is laid through manhole, break out top section as shown and cover exposed edge of pipe completely with mortar. Trowel mortar surfaces smooth.

3.316 CAST-IN-PLACE MANHOLE

A. Reinforcing Steel: Install as specified in the applicable REINFORCING STEEL and REINFORCED CONCRETE requirements.

B. Concrete: Install as specified in the applicable CAST-IN-PLACE CONCRETE and REINFORCED CONCRETE requirements.

C. Steps:
1. Install manhole steps at 16 inches on center, plus or minus 1/4-inch tolerance, and locate to provide a continuous vertical ladder.
2. Do not vary spacing between any two adjacent steps by more than 1/2-inch.
3. The distance between wall of manhole and center of rung, measured at the point of embedment, shall be not less than 4 inches nor more than 6-1/4 inches.
4. Minimum Embedment: 3 inches.

3.317 MANHOLE FRAMES AND COVERS

A. Set frames in bed of mortar with mortar carried over flange as shown.

B. Set tops of covers flush with surface of adjoining pavement or ground surface, unless otherwise shown or directed.

C. At locations shown, install exterior manhole frame to structure seals in accordance with manufacturer's instructions.

3.318 WATERTIGHT MANHOLES

A. Install frame fasteners at the locations shown.

3.319 MANHOLE PIPING

A. Drop Assembly:
   1. Extend pipe from the drop to a minimum of 3 feet beyond the manhole excavation into the trench, and connect to sewer pipe with an adapter.
   2. Support lower drop elbow with concrete monolithically-placed with manhole base.

B. Flexible Joints:
   1. Provide in all pipe not more than 1-1/2 feet from manhole walls.
   2. Where last joint of pipe is between 1-1/2 and 6 feet from manhole wall, provide a flexible joint in the manhole wall.

C. Stubouts For Future Connections:
   1. Provide same type and class of pipe as specified for use in service connection, lateral, main, or trunk sewer construction. Where there are two different classes of pipe at a manhole, use the higher strength pipe.
   2. Grout pipe in precast walls or manhole base to provide watertight seal or use flexible joints as specified herein.
   3. Maximum Length: 1-1/2 feet outside manhole wall.
   4. Construct invert channels as shown. Unless otherwise approved by Civil Engineer of Record, match inside top elevation of service connection pipe to inside top elevation of outlet pipe.
   5. Test Plugs:
      a. Install rubber-gasketed plugs in end of stubouts with gasket joints similar to sewer pipe being used.
      b. Plugs shall withstand internal or external pressures without leakage.
      c. Adequately brace plugs against all hydrostatic or air test pressures.

D. Permanent Plugs:
   1. Clean interior contact surfaces of pipes to be cut off or abandoned as shown, and construct plug as follows:
      a. Pipe 18 Inches or Less in Diameter: Concrete plug in end, minimum 8 inches in length.
      b. Pipe 21 Inches and Larger:
         1) Construct plugs of common brick, concrete block, or concrete.
         2) Plaster exposed face of block or brick plugs with mortar.
      c. Plugs shall be watertight and capable of withstanding internal and external pressures without leakage.

3.320 MANHOLES OVER EXISTING PIPING

A. Maintain flow through existing pipe lines at all times.

B. Plastic Pipe:

1. Use solvent recommended by pipe manufacturer to slightly soften the pipe wall.
2. Apply a dense coating of clean mortar sand over all areas that will be in contact with concrete.
3. Allow mortar to dry completely prior to placing concrete.

C. Concrete Pipe: Apply a bonding agent on all surfaces to be in contact with concrete.
D. Construct base under existing piping.
E. Construct manhole as specified.
F. Break out existing pipe within new manhole, cover edges with mortar, and trowel smooth.
G. Protect new concrete and mortar work for 7 days after placing concrete.

3.321 CONNECTIONS TO EXISTING MANHOLES

A. Break out existing manhole bases or grouting as necessary.
B. Clean all surfaces and apply a bonding agent.
C. Regrout to provide smooth flow into and through manholes.
D. Provide diversion facilities and perform work necessary to maintain flow during connection.

3.322 FIELD QUALITY CONTROL

A. Hydrostatic Testing:
   1. When, in Civil Engineer of Record's opinion, the groundwater table is too low to permit visual detection of infiltration leaks, hydrostatically test all project manholes.
   2. Procedure: Plug inlets and outlets and fill manhole with water to height determined by Civil Engineer of Record.
   3. A manhole may be filled 24 hours prior to time of testing, if desired, to permit normal absorption into the pipe walls to take place.
   4. Leakage in each manhole shall not exceed 0.1 gallon per hour per foot of head above the invert.
   5. Repair manholes that do not meet the leakage test, or do not meet specified requirements from visual inspection.
B. Testing Cast-In-Place Manhole Steps:
C. Test each step for a horizontal pullout load of 400 pounds with the load applied over a width of 3-1/2 inches and centered on the rung.
   1. Apply the load at a uniform rate until the required test load is reached.
   2. Provide suitable hydraulic jacks and gauges to perform the test.
D. Steps will be considered acceptable if they remain solidly embedded after application of the test load and if no cracking or fracture of the step nor spalling of the concrete, masonry, or mortar is evident.
E. Replace, or reset and retest, steps failing to withstand required load.

END OF SECTION

3.0 STRUCTURAL PRELIMINARY TECHNICAL SPECIFICATIONS

STRUCTURAL PRELIMINARY TECHNICAL SPECIFICATIONS

These structural technical specifications are issued as part of the RFP as **basis-of-design (bridging) documents**. They establish the Owner's minimum quality, materials, and performance standards for structural and structural-related work. They are **not** a final, permitted, construction-ready specification package.

These specifications implement the structural system established in the *Puerto Rico Trauma Hospital — Structural Systems Bridging Document*, which governs the selection of structural systems, seismic performance objectives, and design criteria for this Project. Where these technical specifications and the Narrative conflict, the Narrative governs system selection and performance criteria, and these specifications govern material quality, testing, and workmanship standards for the systems the Narrative establishes.

As part of the Design-Build scope of work, the selected Design-Build Entity's structural Engineer of Record (EOR) — licensed in the Commonwealth of Puerto Rico — shall:

1. Complete final structural design and produce fully coordinated construction documents based on these specifications, the Structural Design Intent Narrative, the RFP Design Criteria, drawings, and geotechnical data furnished by the Owner.
2. Resolve all bracketed selections [ ] and editor notes remaining in these sections, in accordance with the Puerto Rico Building Code (current adopted edition, based on the *International Building Code*), ASCE/SEI 7 (*Minimum Design Loads and Associated Criteria for Buildings and Other Structures*), ACI 318, TMS 402/602, and all other codes and standards referenced herein, in the Narrative, or otherwise applicable.
3. Design the facility as a Risk Category IV, essential facility including compliance with all applicable seismic, wind, flood, and continuity-of-operations requirements applicable in Puerto Rico, and any additional criteria issued by the Puerto Rico Health Facilities and Services Administration and other Authorities Having Jurisdiction, consistent with the Maximum Capacity Immediate Occupancy performance objective established in the Narrative.
4. Verify that all material strengths, exposure classes, durability requirements, and tolerances are adequate for a mission-critical healthcare facility located in a high-seismic, hurricane-prone coastal environment, and increase any requirement herein where necessary to meet code minimums, the Narrative's design criteria, or Owner's project requirements.
5. Submit design mixtures, shop drawings, and calculations sealed by the Puerto Rico-licensed Engineer of Record for Owner's review in accordance with the Conditions of the Contract and the applicable submittal procedures.

Nothing in these specifications relieves the Design-Build Entity of its responsibility to design and construct the Project in full compliance with all applicable codes, standards, the Structural Design Intent Narrative, and the Puerto Rico Building Code, as they may be more

stringent than the minimums indicated herein. The Design-Build Entity's Structural Engineer of Record shall independently verify that all requirements in these sections are appropriate to this Project's actual site conditions, seismic isolation system, foundation type, and loads, and shall not assume applicability of any detail, method, or criterion originating from the reference project without independent verification.

The proposed foundation system, footings, deep foundation, underpinning elements for adjacent structure protection; excavation, shoring, and dewatering; shall be in accordance with the Geotechnical Investigation and Soil Study.

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GENERAL REQUIREMENTS FOR STRUCTURAL WORK

SECTION 01 45 00 — QUALITY ASSURANCE: STRUCTURAL TESTING AND INSPECTION

1. GENERAL

   A. Quality assurance is testing and inspection to assist the Owner in evaluating the Contractor's performance and quality control in the fabrication shop and field. It is not a substitute for the testing and inspection that are required as part of the Contractor's quality control program.

   B. Cost: Except as specifically noted otherwise, the testing agency for quality assurance shall be engaged and paid by the Contractor.

2. SCOPE

   See Section 03 30 00 and Structural Steel Framing.

   The term "Testing Agency" in this Specification section is defined as an independent testing and inspection service engaged by the Contractor for quality assurance testing and inspection of structural construction in accordance with applicable building code provisions and any additional activities listed in the Contract Documents.

   The term "Geotechnical Engineer" in this Specification section is defined as an independent geotechnical engineering service engaged by the Contractor for quality assurance testing and inspection of the actual soil conditions to verify compliance with the geotechnical conditions, recommendations and design values described in the Project Geotechnical Report and used as the basis of design for the most current Contract Documents.

A. Testing Agency shall provide qualified personnel at the site to test and inspect materials installed by and work performed by the Contractor

B. Refer to the drawings for Special Inspections requirements for the Project. The Special Inspections shown on the drawings may contain additional testing and inspection that is not listed in this specification section.

3. TESTING AGENCY QUALIFICATIONS

   A. Testing Agency shall be an independent agency with the experience and capability to conduct testing, inspection and sampling as indicated in accordance with ASTM E 329.

   B. Testing Agency shall be an agency approved by the local building official to perform Special Inspections and other related services as outlined in the governing project Building Code.

C. Testing, inspection, and sampling shall be done in accordance with the applicable ASTM standards.

D. Personnel performing visual inspection and non-destructive testing of welds shall meet the requirements of AWS D1.1 for weld inspectors and shall have current certification as an AWS Certified Welding Inspector.

4. TESTING AGENCY RESPONSIBILITIES

A. Provide qualified personnel at the site to test and inspect structural construction as the work progresses using the most current Contract Documents and approved shop drawings.

B. Provide additional testing and inspection as needed due to the following:

1. Work performed contrary to Drawings and Specifications

2. Work performed with improper supervision

3. Work performed without prior notice

C. Report deficiencies to Contractor, Owner, and Design Professionals within 24 hours.

D. Rejection: The Testing Agency has the right to reject any material at any time, when it is determined that the material or workmanship does not conform to the Contract Documents and shall immediately notify the Owner, Design Professionals, and Contractor of deficiencies. Failure to detect any defective work or material shall not prevent later rejection when such a defect is discovered nor shall it obligate Design Professionals for final acceptance.

E. Noncompliance Log: Indicate to the Contractor where remedial work must be performed and maintain a current log of work not in compliance with the Contract Documents. This noncompliance log shall be submitted to the Design Professionals and Owner on a weekly basis.

F. Reports: Prepare daily inspection, observation, and/or test reports as required herein and provide an evaluation statement in each report stating whether or not the work conforms to requirements of Specifications and Drawings and shall specif ically note deviations from them. The daily reports shall be collected and submitted for record to the Design Professionals and Owner weekly.

G. Certification: Upon completion of work and resolution of remedial items, certify in a letter to the Design Professionals and Owner that the installation is in accordance with the requirements of the Drawings and Specifications.

5. CONTRACTOR RESPONSIBILITIES

Testing Agency to assure that all test and inspection procedures required by the Contract

Documents and Public Agencies are provided. The Contractor shall cooperate fully with the Testing Agency in the performance of their work and shall provide the following:

1. The Contractor shall have sole responsibility for coordinating their work Information as to time and place of starting shop fabrication and field construction/erection, at least one week prior to the beginning of the work.
2. The most up to date construction schedule.
3. At least 24 hours advance notice of work requiring testing and inspection.
4. Access to areas as required for testing and inspection.
5. Site File: At least one copy of the most current Contract Documents and approved shop drawings shall be kept available in the contractor's field office. Drawings not bearing evidence of approval and release for construction by the Design Professionals shall not be kept on the job. Provide drawings for the work to be performed in the shop or field one week prior to the start of work.
6. Representative material samples requested by the Testing Agency for testing, if necessary.
7. Full and ample means of assistance for testing and inspection of material.
8. Facilities for proper storage of material samples as required.
9. Proper facilities, including scaffolding, temporary work platforms, safety equipment etc., for inspection of the work in shop and field.
10. Immediately notify the Contractor's Testing Agency and Design Professionals in writing of conditions that will adversely affect the work.
11. Materials and installed work may require testing and retesting at any time during progress of work, as directed by Design Professionals. Tests, including retesting of rejected materials for installed work will be done at Contractor's expense.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

1. GENERAL

    A. Testing Agency shall provide qualif ied personnel at site to test and inspect structural construction using the latest Contract Documents and approved submittals as indicated in the following sections.

2. CONCRETE FORMWORK

A. Quality Assurance:

1. Prior to placement of reinforcement, inspect formwork for grade, quality of material, absence of foreign matter, and other imperfections that might affect concrete placement and tolerances stated herein.

2. Inspect formwork for shape, location and dimensions of the concrete member being formed.

3. Inspect formwork for compliance with specified tolerances, block outs, camber, shoring ties and seal of form joints.

4. Verify condition of bond surfaces, locations and sizes of all accessories, embedment items, and anchorage for prevention of displacement.

5. Verify proper use/application of form release agents.

6. Verify in-situ concrete strength meets requirements for formwork removal in specification section 03 10 00 prior to removal of shores and formwork from beams and structural slabs.

7. Inspect concrete surfaces immediately after removal of formwork and prior to any patching or repair work.

3. CONCRETE REINFORCEMENT AND EMBEDDED ITEMS

A. Quality Assurance:

1. Prior to placement, inspect reinforcement and embeds for grade, quality of material, absence of foreign matter, and for suitable storage.

2. Provide continuous inspection of reinforcement and embedded assemblies during placement and immediately prior to concreting operations for: size, quantity, vertical and horizontal spacing and location, correctness of bends and splices, mechanical splices, clearances, compliance with specified tolerances, security of supports and ties, concrete cover, and absence of foreign matter.

3. Inspect epoxy-coated reinforcement for coating damage and required applied coatings.

4. Provide continuous inspection of adhesive anchors installed in horizontal or upwardly inclined orientations and those marked on the latest Drawings.

5. Adhesive anchors shall be proof tested in tension as follows:

    1. Testing Agency shall submit an adhesive anchorage proof testing plan to the SER for review and approval prior to performing the anchor proof testing. The anchorage testing plan shall meet the requirements as specified in this section and indicate which anchors have been selected for testing.

a) Proof testing shall be performed as a confined tension test in accordance with the guidelines of ASTM E488 and the requirements of ACI 355.4.

b) Testing shall be performed after the minimum curing period specified by the manufacturer.

c) 10 percent of each type and size of an adhesive anchor assembly and 100 percent of anchors marked shall be proof tested in tension by the Contractor's Testing Agency.

d) All anchors selected for proof testing shall be production anchors. Sacrificial anchors are not acceptable for inclusion in the proof testing plan unless specifically approved by the SER prior to performance of the testing.

e) The adhesive anchors proof tension loads shall be as specified in the general notes of the structural drawings.

f) Anchors shall have no visible indications of displacement or damage during or after proof load application. Concrete cracking in the vicinity of the anchor after loading shall be considered a failure.

g) If more than 10% of the tested adhesive anchors fail to achieve the specified proof load, 100% of the anchors of the same diameter and type as the failed anchor shall be proof tested, unless otherwise direct in writing by the SER. Immediately notify the SER of all failed proof tests.

    1. Mechanical post-installed anchors shall be proof tested as follows:

a) Testing Agency shall submit a mechanical anchorage proof testing plan to the SER for review and approval prior to performing the anchor proof testing. The anchorage testing plan shall meet the requirements as specified in this section and indicate which anchors have been selected for testing.

b) 10 percent of each type and size of mechanical anchor shall be proof tested by the Contractor's Testing Agency. The required proof test for the anchors is as follows:

c) For torque-controlled mechanical anchors, a proof torque shall be applied to the anchor using a calibrated torque wrench and the proof torque shall be achieved with no more than one-half turn of the anchor nut.

d) The required proof torque load for torque-controlled mechanical anchors shall be as specified in the general notes of the structural drawings.

e) All anchors selected for proof testing shall be production anchors. Sacrificial anchors are not acceptable for inclusion in the proof testing plan unless specifically approved by the SER prior to performance of the testing.

f) Concrete cracking in the vicinity of the anchor during or after proof torque load application shall be considered a failure.

g) If more than 10% of the tested mechanical anchors fail to achieve the specified proof torque load or set, 100% of the anchors of the same diameter and type as the failed anchor shall be proof tested, unless otherwise direct in writing by the SER. Immediately notify the SER of all failed proof tests.

1. Periodic inspection for post-installed adhesive and mechanical anchors shall be provided in accordance with the building code except that continuous inspection shall be provided for the conditions identified in section B.4. The inspector shall observe all aspects of the anchor installation and shall, at a minimum, verify the following items:

a) Hole drilling method in accordance with the Manufacturer's Published Installation Instructions (MPII) and these installation requirements.

b) Anchor spacing and edge distance.

c) Hole diameter and depth.

d) Hole cleaning in accordance with the MPII.

e) Anchor element type, material, diameter, and length.

f) For adhesive anchors, adhesive identification and expiration date.

g) For adhesive anchors, adhesive installation in accordance with the MPII.

h) For torque-controlled mechanical anchors, the number of turns required to achieve the anchor set torque per the MPII.

4. CAST-IN-PLACE CONCRETE

Source Quality Assurance: The Contractor's Testing Agency shall conduct concrete quality evaluations for compliance with Specifications as follows:

a) Review and test Contractor's proposed materials.

b) Review and test Contractor's proposed concrete mix designs.

c) Confirm production samples at plants or stockpiles are consistent with approved mix designs. Additionally confirm the following:

i. Test for free water in aggregate

ii. Confirm supplier's documentation of compliance with ASTM standards for mix components

iii. Aggregates are from a single source throughout the project for exposed concrete

iv. The same brand of Portland Cement is from a single source

d) Check batching and mixing operations to extent deemed necessary to assure compliance with ASTM C94

A. Quality Assurance:

1. Monitor concrete placement as follows:

a) Verify use of required design mix

b) Record location of point of concrete discharge of each batch truck tested, cross referenced to grid lines.

c) Record temperature of concrete at time of placement.

d) Record weather conditions at time of placement, including temperature, wind speed, relative humidity, and precipitation.

e) Record types and amounts of admixtures added to concrete at the project site.

f) Record amount of water added at the site and verify that total water content does not exceed amount specified in the mix design. Addition of water at the site is subject to prior approval by the Design Professional.

g) Monitor consistency and uniformity of concrete.

h) Monitor preparation for concrete operations, placement of concrete, and subsequent curing period for conformance with Specifications for following procedures:

i. Concrete curing.

ii. Hot weather concreting operations.

iii. Cold weather concreting operations.

1. Conduct tests of concrete as follows and in accordance with ASTM C 1077:

a) Testing frequency: Sample sets for all tests listed below of each concrete design mix placed each day shall be taken not less than once a day, nor less than once for each 100 cubic yards of concrete, nor less than once for each 5000 square feet of surface area for slabs or walls. Additional tests shall be performed if deemed necessary by

the Contractor's Testing Agency and Design Professionals. In addition, sample each truckload used for columns, regardless of other frequencies listed above.

b) Obtain each test sample from different batches selected on a strictly random basis before commencement of concrete placement. Record location in structure of sampled concrete.

c) Determine air content of normal weight concrete in accordance with either ASTM C 231 or ASTM C 138. Determine air content of lightweight concrete in accordance with ASTM C 173. Conduct one test for air content for each strength test required or for every 50 cubic yards of fly ash concrete placed, whichever is less.

d) Determine unit weight of lightweight concrete in accordance with ASTM C 567.

e) Test water content of freshly mixed concrete on a random basis, a minimum of once per 100 cubic yards or every 5000 square feet of concrete placement, during placement in accordance with AASHTO T 318 for the following concrete types:

    i. Hard troweled slabs exposed to view

    ii. Slab to receive a bonded finish floor material

    iii. Slabs with specified concrete compressive strength exceeding 5000 psi

f) Conduct slump tests in accordance with ASTM C 143.

g) Slump indicated in mix designs shall be achieved at point of placement. Correlation between slump at point of initial discharge from truck and point of placement must be established to determine amount of slump loss which occurs between initial discharge and point of placement. Adjustment may be necessary to achieve slump indicated in mix designs at point of placement.

h) Conduct slump tests for Self-Consolidating Concrete (SCC) as follows

    i. In accordance with ACI 237, where sec is used, perform slump flow and visual stability index tests in accordance with ASTM C1611 on the first batch of SCC, and then consecutive batches until two consecutively produced batches are within specification, sec with a visual stability index value of 2 or 3 shall be stabilized, where possible, with a viscosity modifying admixture or rejected at the discretion of the Engineer and Ready-Mix Quality Control Representative. The Ready-Mix Producer shall be responsible for adjusting the mix to provide desired flow and stability. After establishing the consistency of the SCC mix, testing shall continue in accordance with the requirements of the above parag raph.

i) Conduct strength tests of concrete as follows:

i. Secure sample sets in accordance with ASTM C 172.

ii. Mold cylinders in accordance with ASTM C 31 and cure under standard moisture and temperature conditions in accordance with ASTM C 31, Section 7. Quantity of cylinders listed below is based on a cylinder size of 4-inch diameter x 8 inches long. If 6-inch diameter by 12-inch-long cylinders are used, the total quantity of cylinders may be reduced by one with two cylinders instead of three tested at the age designated for determination of f'c.

iii. Test cylinders in accordance with ASTM C 39. For specified concrete strength of 5,000 psi and above, cylinders shall be ground and not capped.

iv. For 28-day mixes mold six cylinders. Test two cylinders at seven days and three cylinders at 28 days. The 28-day strength shall be the average of the three 28-day cylinders. One cylinder shall be retained in reserve for later testing if required.

v. For 56-day mixes mold seven cylinders. Test one cylinder at seven days, two cylinders at 28 days, and three cylinders at 56 days. The 56-day strength shall be the average of the three 56-day cylinders. One cylinder shall be retained in reserve for later testing if required.

vi. For 90 day mixes mold eight cylinders. Test one cylinder at seven days, one at cylinder at 28 days, two cylinders at 56 days, and three cylinders at 90 days. The 90 day strength shall be the average of the three 90 day cylinders. One cylinder shall be retained in reserve for later testing if required.

vii. When high early strength concrete is required by Contractor, additional cylinders shall be made and tested as required at Contractor's expense.

viii. If one cylinder in a test manifests evidence of improper sampling, molding or other damage, discard cylinder and base test results on that of remaining cylinder.

1. Evaluate concrete for conformance with Specifications as follows:

a) Slump:

Maintain a slump moving average, comprised of the average of all batches or most recent five (5) batches tested, whichever is fewer.

b) Strength test:

i. Maintain a compressive strength moving average, comprised of three (3) consecutive strength test results, for each mix design used in work.

ii. Strength level of concrete will be considered satisfactory provided averages of all sets of three (3) consecutive strength test results (i.e. moving average) equal or exceed specified 28-day strength, and no individual strength test result falls below specified 28-day strength by more than 500 psi.

iii. If strength tests fail to meet minimum requirements, concrete represented by such tests shall be considered questionable and shall, if deemed appropriate by the SER, be subject to further evaluation by core testing as specified herein or other testing methods.

iv. Maintain a log that contains the results of all concrete strength tests. The log shall include the results of each test performed, be in electronic spreadsheet format, and updated and submitted along with concrete test data. See example log attached at the end of this Specification Section.

c) Conduct core tests on questionable concrete in accordance with ACI 318 and ASTM C 42.

i. Location of cores shall be coordinated with Design Professionals so as to least impair strength of structure. Before testing cores, discard and replace any that show evidence of having been damaged subsequent to or during removal from structure or which have reinforcement present.

ii. Cores from structure exposed to soil or constant moisture in service (e.g. basement walls, retaining walls, slab -on-grade, piers, footings, etc.)shaII be tested in a fully saturated condition. Cores for all other concrete may be tested dry. Prior to commencement of coring, verify with Design Professionals whether cores are to be tested wet or dry.

iii. Fill core holes with low slump concrete or mortar with a strength equal to or greater than that specified for area cored.

d) Concrete in area represented by core test will be considered adequate if average strength of cores is equal to at least 85% of, and if no single core is less than 75% of specified strength.

1. Floor flatness and levelness tolerance compliance testing is to be performed within 72 hours of concrete placement by Testing Agency, and prior to the removal of shores and forms.

a) Testing Agency to test and report flatness (FF), levelness (FL) prior to shoring removal. For slabs that include camber, do not test for levelness (FL). Perform FFIFL testing in accordance with ASTM E 1155 requirements.

1. FOOTINGS

A. Quality Assurance by Geotechnical Engineer (or Testing Agency if the same entity):

1. Review Contractor's proposed footing installation methods, sequences, and procedures.

2. Verify bearing stratum and bearing capacity of each footing; verify levelness of footing end bearing surface.

3. Determine final bearing elevation at each footing location.

4. Observe, record, and report footing as-built plan location, footing size and final elevations of bottom (where possible) and top of completed footings.

5. Coordinate with Testing Agency.

B. Quality Assurance by Testing Agency:

1. Inspection of Batch Plant: As required to ensure that concrete delivered to job complies with Specifications and design mix. Batch plant inspection shall be required once at start of job and thereafter if concrete falls below Specifications.

2. Inspection of Reinforcement: Provide continuous visual inspection of site fabrication. Record the steel reinforcement bar sizes, grade, length, and number of bars.

3. Inspection of Concrete and Reinforcement Placement: Provide continuous visual inspection of installation of reinforcement and concrete placement including verification of laitance removal at top of footings.

4. Check ready mix delivery tickets for correct concrete mix desig n number. Record batch to placement time. Check slump, temperature, and batch to placement time for each set

5. Slump Tests: ASTM C143. Make one test from each truck.

6. Concrete Compressive Strength Tests: Testing agency will take a minimum of one sample set of concrete cylinders per 20 cubic yards of concrete. See CAST-IN-PLACE CONCRETE section of this specification for requirements. Cure cylinders to simulate same curing conditions as concrete in footings. Reports of cylinder tests shall state footing location(s), laboratory or site curing, compression strength, type of fracture, age at testing, concrete supplier, mix specification strength, any other pertinent information, test results, and conclusions.

7. Additional Tests: Perform additional testing if, in the opinion of the Design Professionals, concrete of poor quality has been placed based on cylinder strengths below Specification requirements or visual defects. Tests may be compression tests on cored cylinders, ASTM C42, and load tests as outlined in ACI 318, or as directed by the Design Professionals. Complete continuous

coring of footings will be required, at Contractor's expense, where verification of quality of concrete is not otherwise attainable.

END OF SECTION 01 45 00

EXISTING CONDITIONS AND STRUCTURAL DEMOLITION

SECTION 02 41 16 — STRUCTURE DEMOLITION

1. GENERAL
    1. SUBMITTALS
        A. Action Submittals:
            1. Demolition procedures.
        B. Closeout Submittals: Site plan Indicating locations and sizes of existing [pier] [pile] [____] foundations.
2. PRODUCTS

Not used

3. EXECUTION
    1. DEMOLITION
        A. Remove slabs and foundations to [full depth.] [depth indicated.]
        B. Remove tops of [pier] [pile] [____] foundations to [24] [__] inches below final grade. [Document remaining foundation locations and sizes.]
        C. Remove associated walks, paving, curbs, gutters, and site improvements.
        D. Remove underground utilities to locations indicated or to points agreed to with serving utility services. Flag underground utilities to remain.
        E. Backfill excavations [in maximum [10] [__] inch deep, loose, even, horizontal lifts, using clean soil. Uniformly compact each lift to density of existing soils.] [to requirements of Earth Moving.]
    2. MATERIAL DISPOSAL
        A. Store materials designated to remain property of Owner where directed.
        B. Remove other materials from Project site.
    3. SCHEDULES
        A. Existing Materials to be Removed and Retained by Owner:

1. [____.]
2. [____.]

B. Existing Materials to be Removed by [Contractor] [Construction Manager] [Design/Builder] for Owner's Use:

1. [____.]
2. [____.]

END OF SECTION

SECTION 02 41 19 — SELECTIVE DEMOLITION

1. GENERAL
    1. SUBMITTALS
        A. Action Submittals:
            1. Shop Drawings: Illustrate areas for demolition, demolition sequence, and materials salvaged for Owner's use.
2. PRODUCTS

Not used

3. EXECUTION
    1. DEMOLITION
        A. Remove existing construction to extent indicated.
        B. Protect work designated to remain.
        C. Plug ends of disconnected utilities. Protect and support utilities designated to remain.
    2. MATERIAL DISPOSAL
        A. Store materials designated to remain property of Owner where directed.
        B. Remove other materials from Project site.
    3. SCHEDULES
        A. Existing Materials to be Removed and Retained by Owner:
            1. [____.]
            2. [____.]
        B. Existing Materials to be Removed by [Contractor] [Construction Manager] [Design/Builder] for Owner's Use:
            1. [____.]
            2. [____.]

END OF SECTION

STRUCTURAL CONCRETE WORK

SECTION 03 01 30 — MAINTENANCE OF CAST-IN-PLACE CONCRETE

1. GENERAL
    1. SUMMARY
        A. Section Includes:
            1. Removal of deteriorated concrete and subsequent patching.
            2. Floor joint repair.
            3. Epoxy crack injection.
            4. Corrosion-inhibiting treatment.
            5. Polymer sealers.
    2. PREINSTALLATION MEETINGS
        A. Preinstallation Conference: Conduct conference at [**Project site**].
    3. ACTION SUBMITTALS
        A. Product Data: For each type of product.
        B. Samples: Cured Samples for each exposed product and for each color and texture specified.
    4. INFORMATIONAL SUBMITTALS
        A. Material certificates.
        B. Product test reports.
        C. Field quality-control reports.
    5. QUALITY ASSURANCE
        A. Concrete-Maintenance Specialist Qualifications: Engage an experienced concrete-maintenance firm that employs installers and supervisors who are trained and approved by manufacturer to apply [**packaged patching-mortar**] [**crack-injection adhesive**] [**corrosion-inhibiting treatments**] [**and**] [**polymer sealers**] to perform work of this Section. Firm shall have completed work similar in material, design, and extent to that indicated for this Project with a record of successful

in-service performance. Experience in only installing or patching new concrete is insufficient experience for concrete-maintenance work.

2. PRODUCTS

A. Source Limitations: For repair products, obtain each color, grade, finish, type, and variety of product from single source and from single manufacturer with resources to provide products of consistent quality in appearance and physical properties.

1. BONDING AGENTS

A. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Manufactured product that consists of water-insensitive epoxy adhesive, portland cement, and water-based solution of corrosion-inhibiting chemicals that forms a protective film on steel reinforcement.

B. Epoxy Bonding Agent: ASTM C881/C881M, bonding system [**Type II**], or [**Type V**], depending on the application and free of VOCs.

C. Latex Bonding Agent, Redispersible: ASTM C1059/C1059M, Type I[**for use at nonstructural and interior locations unless otherwise indicated**].

D. Latex Bonding Agent, Non-Redispersible: ASTM C1059/C1059M, Type II[**for use at structural and exterior locations and where indicated**].

2. PATCHING MORTAR

A. Patching Mortar Requirements:

1. Only use patching mortars that are recommended by manufacturer for each applicable horizontal, vertical, or overhead use orientation.

2. Color and Aggregate Texture: Provide patching mortar and aggregates of colors and sizes necessary to produce patching mortar[**where indicated**] that matches existing, adjacent, exposed concrete. Blend several aggregates if necessary to achieve suitable matches.

3. Coarse Aggregate for Patching Mortar: ASTM C33/C33M, washed aggregate, Size No. 8, Class 5S. Add to patching-mortar mix only as permitted by patching-mortar manufacturer.

B. Cementitious Patching Mortar: Packaged, dry mix for repair of concrete.

1. Compressive Strength: As minimum as provided by the product specified on drawings.

C. Polymer-Modified, Cementitious Patching Mortar: Packaged, dry mix for repair of concrete and that contains a[**non-redispersible**] latex additive as either a dry powder or a separate liquid that is added during mixing.

1. Compressive Strength: As minimum as provided by the product specified on drawings.

D. Polymer-Modified, Silica-Fume-Enhanced, Cementitious Patching Mortar: Packaged, dry mix for repair of concrete and that contains silica fume complying with ASTM C1240 and a[**non-redispersible**] latex additive as either a dry powder or a separate liquid that is added during mixing.

1. Compressive Strength: As minimum as provided by the product specified on drawings.

3. JOINT FILLER

A. Epoxy Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A Shore durometer hardness of at least 80 according to ASTM D2240.

B. Polyurea Joint Filler: Two-component, semirigid, 100 percent solids, polyurea resin with a Type A Shore durometer hardness of at least 80 according to ASTM D2240.

C. Color: [**As selected by Architect/Engineer from the full range of industry colors**]

4. EPOXY CRACK-INJECTION MATERIALS

In "Epoxy Crack-Injection Adhesive" Paragraph below, Type I is for non-load-bearing applications and Type IV is for load-bearing applications.

A. Epoxy Crack-Injection Adhesive: ASTM C881/C881M, bonding system [**Type I,**], or [**Type IV,**] [**Type IV at structural locations and where indicated, Type I at other locations;**]

1. Capping Adhesive: Product manufactured for use with crack-injection adhesive by same manufacturer.

5. CORROSION-INHIBITING MATERIALS

A. Corrosion-Inhibiting Treatment: Waterborne solution of alkaline corrosion-inhibiting chemicals for concrete-surface application that penetrates concrete by diffusion and forms a protective film on steel reinforcement.

6. POLYMER-SEALER MATERIALS

    A. Epoxy Polymer Sealer: Low-viscosity epoxy, penetrating sealer and crack filler recommended by manufacturer for penetrating and sealing cracks in exterior concrete traffic surfaces; [**VOC content 100 g/L or less**]

        1. Color: [**As selected by Architect/Engineer from full range of industry colors**].

    B. Methacrylate Polymer Sealer: Low-viscosity, high-molecular-weight methacrylate**,** penetrating sealer and crack filler recommended by manufacturer for penetrating and sealing cracks in exterior concrete traffic surfaces; [**VOC content 100 g/L or less**].

1. Color: [**As selected by Architect/Engineer from full range of industry colors**].

7. MISCELLANEOUS MATERIALS

    A. Portland Cement: ASTM C150/C150M, Type I, II, or III unless otherwise indicated.

    B. Water: Potable.

8. MIXES

    A. General: Mix products, in clean containers, according to manufacturer's written instructions.

    B. Dry-Pack Mortar: Mix required type(s) of patching-mortar dry ingredients with just enough liquid to form damp cohesive mixture that can be squeezed by hand into a ball but is not plastic.

3. EXECUTION

    1. CONCRETE MAINTENANCE

        A. Have concrete-maintenance work performed only by qualified concrete-maintenance specialist.

        B. Comply with manufacturers' written instructions for surface preparation and product application.

    2. EXAMINATION

        A. Notify Architect/Engineer seven days in advance of dates when areas of deteriorated or delaminated concrete and deteriorated reinforcing bars will be located.

        B. Locate areas of deteriorated or delaminated concrete using hammer or chain-drag sounding and mark boundaries. Mark areas for removal

by simplifying and squaring off boundaries. At columns and walls make boundaries level and plumb unless otherwise indicated.

C. Pachometer Testing: Locate at least three reinforcing bars using a pachometer, and drill test holes to determine depth of cover. Calibrate pachometer using depth of cover measurements, and verify depth of cover in removal areas using pachometer.

D. Perform surveys as the Work progresses to detect hazards resulting from concrete-maintenance work.

3. PREPARATION

A. Ensure that supervisory personnel are on-site and on duty when concrete maintenance work begins and during its progress.

B. Protect persons, motor vehicles, surrounding surfaces of building being repaired, building site, plants, and surrounding buildings from harm resulting from concrete maintenance work.

1. Comply with each product manufacturer's written instructions for protections and precautions.

2. Contain dust and debris generated by concrete maintenance work and prevent it from reaching the public or adjacent surfaces.

3. Protect floors and other surfaces along haul routes from damage, wear, and staining.

4. Provide supplemental sound-control treatment to isolate removal and dismantling work from other areas of the building.

5. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.

C. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is in working order.

1. Prevent solids such as aggregate or mortar residue from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from concrete maintenance work.

2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

D. Preparation for Concrete Removal: Make explorations, probes, and inquiries as necessary to determine condition of construction to be removed in the course of repair.

1. Verify that affected utilities have been disconnected and capped.

2. Provide and maintain shoring, bracing, and temporary structural supports as required to preserve stability and prevent unexpected or uncontrolled movement, settlement, or collapse of construction being demolished and construction and finishes to remain. Strengthen or add new supports when required during progress of removal work.

E. Reinforcing-Bar Preparation: Remove loose and flaking rust from exposed reinforcing bars by [**high-pressure water cleaning**] [**or**] [**wire brushing**] until only tightly adhered light rust remains.

1. Where section loss of reinforcing bar is more than 1/16" bar diameter, cut bars and remove and replace as indicated on Drawings.

2. Remove additional concrete as necessary to provide at least 3/4-inch clearance at existing and replacement bars.

3. Splice replacement bars to existing bars according to ACI 318 (ACI 318M) by lapping, welding, or using mechanical couplings.

F. Preparation of Floor Joints for Repair: Saw-cut joints full width to edges and depth of spalls, but not less than specified on drawings or [**3/4 inch**] deep. Clean out debris and loose concrete; vacuum or blow clear with compressed air.

4. REMOVAL OF CONCRETE

A. Do not overload structural elements with debris.

B. Saw-cut perimeter of areas indicated for removal as specified on drawings or to a depth of at least [**1/2 inch**]. Make cuts perpendicular to concrete surfaces and no deeper than cover on reinforcement.

C. Remove deteriorated and delaminated concrete by breaking up and dislodging from reinforcement.

D. Remove additional concrete if necessary to provide a depth of removal of at least [**1/2 inch**] over entire removal area.

E. Where half or more of the perimeter of reinforcing bar is exposed, bond between reinforcing bar and surrounding concrete is broken, or reinforcing bar is corroded, remove concrete from entire perimeter of bar and to provide at least 3/4-inch clearance around bar.

F. Test areas where concrete has been removed by tapping with hammer, and remove additional concrete until unsound and disbonded concrete is completely removed.

G. Provide surfaces with a fractured profile of at least 1/8 inch that are approximately perpendicular or parallel to original concrete surfaces. At columns and walls, make top and bottom surfaces level unless otherwise directed.

H. Thoroughly clean removal areas of loose concrete, dust, and debris.

5. APPLICATION OF BONDING AGENT

A. Epoxy-Modified, Cementitious Bonding and Anticorrosion Agent: Apply to reinforcing bars [**and concrete**]. Apply to reinforcing bars in two coats, allowing first coat to dry two to three hours before applying second coat. Allow to dry before placing patching mortar.

B. Epoxy Bonding Agent: Apply to reinforcing bars[**and concrete**], leaving no pinholes or other uncoated areas.[**Apply to reinforcing bars in at least two coats, allowing first coat to dry before applying second coat.**] Place patching mortar while epoxy is still tacky. If epoxy dries, recoat before placing patching mortar.

C. Latex Bonding Agent, Type I: Apply to concrete by brush roller or spray. Allow to dry before placing patching mortar.

D. Latex Bonding Agent, Type II: Mix with portland cement and scrub into concrete surface. Place patching mortar while bonding agent is still wet. If bonding agent dries, recoat before placing patching mortar.

E. Slurry Coat for Cementitious Patching Mortar: Wet substrate thoroughly and then remove standing water. Scrub a slurry of neat patching mortar[**mixed with latex bonding agent**] into substrate, filling pores and voids.

6. INSTALLATION OF PATCHING MORTAR

A. Place patching mortar as specified in this article unless otherwise recommended in writing by manufacturer[**or where dry-pack mortar is indicated**].

1. Provide forms where necessary to confine patch to required shape.

2. Wet substrate and forms thoroughly and then remove standing water.

B. Pretreatment: Apply specified [**bonding agent**] [**slurry coat**] [**bonding agent and slurry coat**].

C. General Placement: Place patching mortar by troweling toward edges of patch to force intimate contact with edge surfaces. For large patches, fill edges first and then work toward center, always troweling toward edges of patch. At fully exposed reinforcing bars, force patching mortar to fill space behind bars by compacting with trowel from sides of bars.

D. Vertical Patching: Place material in lifts of not more than thickness recommended by manufacturer. Do not feather edge.

E. Overhead Patching: Place material in lifts of not more than thickness recommended by manufacturer. Do not feather edge.

F. Consolidation: After each lift is placed, consolidate material and screed surface.

G. Multiple Lifts: Where multiple lifts are used, score surface of lifts to provide a rough surface for placing subsequent lifts. Allow each lift to reach final set before placing subsequent lifts.

H. Finishing: Allow surfaces of lifts that are to remain exposed to become firm and then finish to a similar surface of adjacent concrete.

I. Curing: Wet-cure cementitious patching materials, including polymer-modified cementitious patching materials, for not less than seven days by water-fog spray or water-saturated absorptive cover.

7. INSTALLATION OF DRY-PACK-MORTAR

A. Use dry-pack mortar for deep cavities[**and where indicated**]. Place as specified in this article unless otherwise recommended in writing by manufacturer.

1. Provide forms where necessary to confine patch to required shape.

2. Wet substrate and forms thoroughly and then remove standing water.

B. Pretreatment: Apply specified [**bonding agent**] or [**mortar scrub coat**] as manufacturer recommended.

C. Place dry-pack mortar into cavity by hand, and compact tightly into place. Do not place more material at a time than can be properly compacted. Continue placing and compacting until patch is approximately level with surrounding surface.

D. After cavity is filled and patch is compacted, trowel surface to match profile and finish of surrounding concrete.

E. Wet-cure patch for not less than seven days by water-fog spray or water-saturated absorptive cover.

8. FLOOR-JOINT REPAIR

A. Cut out deteriorated concrete [**and reconstruct sides of joint with patching mortar**] as indicated on Drawings. Install joint filler in nonmoving floor joints where indicated and as specified in this article.

Joint depth is critical to successful joint-filler installation. For joint repairs where filler is supported on shoulders created by saw-cutting slabs, 3/4 to 1 inch is considered acceptable; for unsupported filler, 2 inches is required.

B. Depth: Install joint filler to a depth of at least [**1 inch**]. Use fine silica sand no more than 1/4 inch deep to close base of joint. Do not use sealant backer rods or compressible fillers below joint filler.

C. Top Surface: Install joint filler so that when cured, it is flush at top surface of adjacent concrete. If necessary, overfill joint and remove excess when filler has cured.

9. EPOXY CRACK INJECTION

A. Clean cracks with oil-free compressed air or low-pressure water to remove loose particles.

B. Clean areas to receive capping adhesive of oil, dirt, and other substances that would interfere with bond.

C. Place injection ports as recommended by epoxy manufacturer, spacing no farther apart than thickness of member being injected. Seal injection ports in place with capping adhesive.

D. Seal cracks at exposed surfaces with a ribbon of capping adhesive at least 1/4 inch thick by 1 inch wider than crack.

E. Inject cracks wider than 0.003 inch to a depth of 8 inches.

F. Inject epoxy adhesive, beginning at widest part of crack and working toward narrower parts. Inject adhesive into ports to refusal, capping adjacent ports when they extrude epoxy. Cap injected ports and inject through adjacent ports until crack is filled.

G. After epoxy adhesive has set, remove injection ports and grind surfaces smooth.

10. APPLICATION OF CORROSION-INHIBITING-TREATMENT

A. Apply corrosion-inhibiting treatment to [**surfaces indicated on Drawings].**

B. Apply by brush, roller, or airless spray in two coats at manufacturer's recommended application rate. Remove film of excess treatment before patching treated concrete[**or applying a sealer**].

11. APPLICATION OF POLYMER SEALER

A. Apply polymer sealer by brush, roller, or airless spray at manufacturer's recommended application rate.

B. Apply to traffic-bearing surfaces, including parking areas and walks.

12. FIELD QUALITY CONTROL

A. Testing Agency: [**Desing-builder will engage**] a qualified testing agency to perform tests and inspections.

Retain "Perform the following tests and inspections" Paragraph below to require Contractor to perform tests and inspections.

B. Perform the following tests and inspections:

1. Packaged, Cementitious Patching Mortar: <**3**randomly selected sets of samples for each type of mortar required, tested according to ASTM C928/C928M.

2. Joint Filler: Core-drilled samples to verify proper installation.

a. Testing Frequency: One sample for each 100 feet of joint filled.

b. Where samples are taken, refill holes with joint filler.

3. Epoxy Crack Injection: Core-drilled samples to verify proper installation.

a. Testing Frequency: [**Three samples from mockup and**]one sample for each 100 feet of crack injected.

b. Where samples are taken, refill holes with epoxy mortar.

C. Product will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 030130

SECTION 03 10 00 — CONCRETE FORMWORK

1. GENERAL

   Work of this Section shall conform to requirements of Drawings and general provisions of the Contract, including General and Supplementary Conditions and applicable General Requirements specifications.

2. SCOPE

   Provide all labor, materials, equipment, services and transportation for formwork and related accessories required to complete all cast-in-place concrete work as shown on Drawings, as specified herein, and as required by the job conditions.

3. RELATED WORK SPECIFIED IN OTHER SECTIONS

   Submittals Quality Control

   Quality Assurance: Structural Testing and Inspection Concrete Reinforcement and Embedded Assemblies Cast-In-Place Concrete

   Exposed-To-View Cast-In-Place Concrete Thermal and Moisture Protection

4. CODES AND STANDARDS

   Section 01 45 00

   Section 03 20 00

   Section 03 30 00

A. Building Code: Concrete work shall conform to the requirements of the Building Code identified on the Structural General Notes, and OSHA requirements, except where more stringent conditions or criteria occur in the standards referenced below and on the Drawings.

B. Standards:

   1. ACI 117 — Standard Specifications for Tolerances for Concrete Construction and Materials.

   2. ACI 237 — Self Consolidating Concrete.

   3. ACI 301 —Specifications for Structural Concrete.

   4. ACI 318 — Building Code Requirements for Structural Concrete and Commentary.

5. ACI 347 — Guide to Formwork for Concrete.

6. ACI 347.2R — Guide for Shoring/Reshoring of Concrete Multistory Buildings

C. Definitions:

1. See Section 03 30 00.

5. CONTRACTOR QUALIFICATIONS

A. The work of this section shall be performed by a company specializing in the type of concrete formwork required for this Project, with a minimum of 10 years of documented successful experience and shall be performed by skilled workers thoroughly experienced in the necessary crafts.

B. Contractor's testing agency Services: Required as specified in General Requirements and herein.

C. Materials and installed work may require testing and retesting at any time during progress of work, as directed by Design Professionals. Tests, including retesting of rejected materials for installed work will be done at Contractor's expense.

6. SUBMITTALS

A. Required Submittals - Where the SUBMITTALS section of this Specification is in conflict with the applicable submittal requirements, the more stringent requirements for the Contractor apply. Required submittal items are listed here; see below for detailed requirements. Do not submit items not requested.

(1) Submittal Schedule

(2) Shop Drawings

(3) Shoring/Reshoring Calculations

(4) Product Data

(5) Samples

(6) Compatibility Certification

(7) Hazardous Materials Notification

1. **Submittal Schedule:** See Section 03 30 00.

Shop Drawings:

1. Submit for action: Formwork shop drawings sealed and signed by a Professional Engineer licensed in Puerto Rico. Shop drawings shall clearly indicate but not be limited to the following:

1. Size, type and quality of form materials including conditions at tops and ends of walls. (If wood is used, indicate species.)

2. Form construction indicating structural stability and jointing including special form joints or reveals required by Contract Documents

3. Location and pattern of form tie placement, and other items that affect the appearance of concrete that will remain exposed to view.

4. Form finish clearly indicating proper locations and full coordination with concrete finishes required by Contract Documents.

5. Layout, procedures, and sequencing of shoring and reshoring that correlates with the information contained in the shoring/reshoring calculations described below.

6. Locations and dimensions of openings in structural members including floor slab, shear walls, columns and beams. See SUBMITTALS Section of Specification 03 30 00.

7. Location of proposed construction joints in walls, floors, slabs, and beams. See SUBMITTALS Section of Specification 03 30 00.

2. **Shoring/Reshoring Calculations:** Submit for record. Calculations sealed and signed by a Professional Engineer licensed in Puerto Rico. Calculations shall clearly address but not be limited to the following:

   a. Shoring removal and reshoring installation procedure including timing and sequencing.

   b. Concrete age and strength at the time of each shoring/reshoring operation.

   c. Description of construction loads assumed including concrete, formwork, and construction live load in accordance with ACI 347.

   d. Description of the distribution of construction loads between the shored/reshored levels.

   e. The total construction load imposed on all levels supporting shoring/reshoring at each stage of the shoring/reshoring cycle.

   A written statement by the Professional Engineer that the total construction load imposed on any level supporting shoring/reshoring, at all stages of the shoring/reshoring cycle, accounting for concrete age and relative strength at time of loading, meets the requirement of Section 3.2.

3. Product Data: Submit for action copies of manufacturers' product data and installation instructions for proprietary materials used in exposed concrete work, including form liners, release agents, manufactured form systems, ties, and accessories.

4. Samples: At request of Architect, submit for record samples of form ties and spreaders.

5. **Compatibility Certification:** Submit for record a written statement certifying that form release agent used is compatible with subsequent architectural finish materials applied to concrete surfaces. Submit along with manufacturer's data.

6. **Hazardous Materials Notification:** Submit for record. In the event no product or material is available that does not contain hazardous materials as determined by the Owner, a "Material Safety Data Sheet" (MSDS) equivalent to OSHA Form 20 shall be submitted for that proposed product or material prior to installation.

A. Submittal Process: See Section 03 30 00.

B. SER Submittal Review: See Section 03 30 00.

C. Substitution Request: See Section 03 30 00.

D. Request for Information (RFI): See Section 03 30 00.

1. FORMWORK DESIGN

   A. Design of Formwork, Shoring/Reshoring, and its removal is the Contractor's responsibility.

   B. Design, erect, support, brace and maintain formwork so that it will safely support vertical and lateral loads per SEI/ASCE 37-02 that might be applied, until such loads can be supported by the concrete structure.

   C. Design Requirements:

1. Forms shall be designed for fabrication and erection in accordance with Design Professionals' requirements and recommendations of ACI 301, 318 and 347.

2. Design formwork in a manner such that the total construction load does not at any time exceed the total design load of new or existing construction and accounts for concrete age and relative strength at time of loading. See Section 3.2 Shoring/reshoring requirements.

3. Design formwork for loads and lateral pressures outlined in Section 2.2, ACI 347, and wind and seismic loads as specified by SEI/ASCE 37-02 unless otherwise controlled by local building code.

4. Design formwork to include loads imposed during construction, including weight of construction equipment, concrete mix, height of concrete drop, rate of filling of formwork, vibrator frequency, ambient temperature, foundation pressures, lateral stability, temporary imbalance or discontinuity of building components, and other factors pertinent to safety of structure during construction.

5. The use of flowing concrete (8” to 10” slump) of Self-Consolidating Concrete requires a review of the formwork design based on the rate of placement and setting time of the mix. Unless shown to be sufficient otherwise, formwork design shall conform to the requirements of ACI 237.

2. DELIVERY, STORAGE, AND HANDLING

    A. Comply with General Conditions and General Requirements, including the following:

        1. Store forms and form materials clear of ground and protect from damage.

3. QUALITY ASSURANCE BY CONTRACTOR'S TESTING AGENCY

    A. See Section 01 45 00.

4. QUALITY CONTROL BY CONTRACTOR

    A. See Section 03 30 00.

5. OBSERVATIONS AND CORRECTIONS BY DESIGN PROFESSIONALS

    A. See Section 03 30 00.

6. PERMITS AND WARRANTY

    A. Permits: See Section 03 30 00.

    B. Warranty: See Section 03 30 00. Failures include but are not limited to the following:

        1. Discoloration of concrete scheduled to remain exposed to view.

        2. Damage of concrete finishes caused by forms.

        3. Damage of concrete caused by form stripping.

        4. Non-compliance with form finishes required for designated architectural finishes.

        5. Non-compatibility of form release agent with subsequent architectural finish materials applied to concrete surfaces.

        6. Excessive and/or noticeable bowing in placed concrete members caused by deflection of formwork during concrete placement.

PART 2 - PRODUCTS

1. FORMWORK REQUIREMENTS

    A. General Requirements:

1. Formwork shall meet construction safety regulations for the state where the project is located.

2. Forms shall be removable without impact, shock or damage to concrete surfaces, the structure and adjacent materials.

3. Forms shall be tight-fitting, designed and fabricated for required finishes and to withstand concrete weight and maintain tolerances as specified in ACI 117 for the following designations: (See architectural drawings for locations).

    a. Class A — For surfaces prominently exposed to public view where appearance is of special importance.

    b. Class B — Coarse-textured concrete-formed surfaces intended to receive plaster, stucco or wainscoting.

    c. Class C — General Standard for permanently exposed surfaces where other finishes are not specified.

    d. Class D - Minimum quality surface where roughness is not objectionable, usually applied where surfaces will be concealed.

4. Furnish forms in largest practicable sizes to minimize number of joints and to conform to joint system shown on Drawings, using form materials with sufficient thickness to withstand pressure of newly-placed concrete without bow or deflection.

5. Butt Joints: Shall be solid and complete with backup material to prevent leakage of cement paste.

B. Form Finishes for Exposed Surfaces:

1. Type: Straight, smooth, free of cement paste leaks at butt-joints, surface imperfections and other irregularities detrimental to appearance of finished concrete, fully coordinated with requirements for required finish material.

2. Form exposed areas of columns, beams, ledges, balcony fascias to achieve true alignment and level soffit of edge beams and concrete edges. All such areas must be sharp, straight and true to line and level. Edge beams and concrete canopies and ledges must have adequate shoring to prevent any visible amount of sag and sufficient bracing to prevent any lateral movement during construction.

2. FORM MATERIALS

A. General: Plywood, fiberglass, metal, metal-framed plywood faced, or other acceptable panel-type materials.

1. Provide materials with sufficient strength to prevent warping.

B. Plywood: Of species and grade suitable for intended use, sound undamaged sheets with clean true edges, minimum 5/8" thick, complying with U.S. Product Standard PS-1

1. Other Acceptable Sheet Materials: 14 gauge sheet steel or fibrous glass reinforced resin.

C. Lumber: Construction grade or better consistent with calculation requirements, without loose knots or other defects.

1. Use only where entire width can be covered with one board 11-1/4" or less in width.

D. Forms for Cylindrical Columns and Supports: Metal, glass-fiber reinforced plastic, or paper or fiber tubes that will produce smooth surfaces without joint indications.

1. Provide units with sufficient wall thickness to resist wet concrete loads without deformation.

E. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to support weight of placed concrete without deformation.

F. Chamfer for Form Corners:

1. Types: Chamfer strips of wood, metal, PVC or rubber fabricated to produce smooth form lines and tight edge joints, 3/4" size, maximum possible lengths.

2. Required for all exposed corners of beam, walls and column forms.

G. Form Ties:

1. Type: Factory-fabricated metal, adjustable length, designed to prevent form deflection and to prevent spalling concrete upon removal.

2. Ties used for architecturally exposed concrete shall be galvanized.

3. Ties shall not leave metal closer than 1-1/2" to exposed surface.

4. When removed, ties shall not leave holes larger than 1" diameter in concrete surface.

5. Removable Ties: Use type with tapered cones, 1" outside diameter, for concrete walls which will remain exposed to view and scheduled for architectural finishes.

6. Snap-Off Ties: Use for concrete walls below grade and walls which will not remain exposed to view and are not scheduled for architectural finishes.

7. Wire Ties: Not acceptable.

H. Nails, Spikes, Lag Bolts, Thru-Bolts, Anchorages:

1. Type: Of size, strength and quality to meet the required quality of formwork.

I. Form Release Agent:

1. Type: Commercial formulation form release agent of non-emulsifiable type which will not bond with, stain, or adversely affect concrete surfaces. Form release agent shall not impair subsequent treatment of concrete surfaces requiring bond or adhesion, or impede the wetting of surfaces to be cured with water or curing compounds. Form release agent shall be compatible with subsequent architectural finish materials applied to concrete surfaces. Apply in compliance with manufacturers' instructions.

2. Form release agent shall meet, at a minimum, all federal and state requirements for volatile organic compounds (VOC's).

3. For Steel Forms: Non-staining rust-preventative type.

J. Reglets: Provide sheet metal reglets formed of same type and gauge as flashing metal, unless indicated otherwise on Drawings. Where resilient or elastomeric sheet flashing, or bituminous membranes are terminated in reglets, provide reglets of not less than 26 gauge galvanized sheet metal. Fill reglet or cover face opening to prevent intrusion of concrete or debris.

K. Coordinate with materials as specified in Section 03 20 00 Concrete Reinforcement and Embedded Assemblies.

PART 3 - EXECUTION

1. FORMWORK

A. General:

1. Inspect areas to receive formwork.

2. Construct forms to sizes, shapes, lines, and dimensions shown on Contract Documents, and to obtain accurate alignment, location, grades, level and plumb work in finished structures.

3. Provide formwork sufficiently tight to prevent leakage of cement paste during concrete placement. Solidly butt joints and provide backup material at joints as required to prevent leakage and fins, and to maintain alignment.

4. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, drips, bevels, chamfers, blocking, screeds, bulkheads, anchorages and inserts and other features required in the Work.

5. Comply with shop drawings, ACI 301, 318, 347 and Contract Documents.

6. Maintain formwork and finished work construction tolerances complying with ACI 301 and 117.

7. Provide shore and struts with positive means of adjustment capable of taking up formwork settlement during concrete placing operations, using wedges or jacks or a combination thereof.

8. Erect forms for easy removal without hammering or prying against concrete surfaces.

9. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces.

10. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only.

11. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.

12. Chamfer exposed corners and edges as indicated on the architectural drawings, using wood, metal, PVC or rubber chamfer strips fabricated to produce smooth lines and tight edge joints.

13. Design, erect, support, brace and maintain formwork and shoring to support loads until such loads can be safely supported by the concrete structure.

14. Where specifically shown on the Contract Documents as monolithic, upturned beams, curbs and similar members in connection with slabs shall be formed so that they can be poured integrally with slabs.

B. Concrete Accessories and Embedded Items:

1. Install into forms concrete accessories, sleeves, inserts, anchor bolts, anchorage devices and other miscellaneous embedded items furnished by other trades or that are required for other work that is attached to or supported by cast-in-place concrete.

    a. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached.

2. Install reglets to receive top edge of foundation sheet waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, relieving angles, and other conditions.

3. Install dovetail anchor slots in concrete structures as indicated on drawings or required by other trades.

4. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces.

5. Coordinate with CONCRETE REINFORCEMENT AND EMBEDDED

ASSEMBLIES Section in Specification 03 20 00.

6. Install accessories and embedded items straight, level, plumb and secure in place to prevent displacement by concrete placement.

C. Temporary Openings:

1. Locate temporary openings in forms at inconspicuous locations.

2. For clean-outs and inspection before concrete placement, locate temporary openings where interior area of formwork would otherwise be inaccessible.

3. For cleaning and inspections, locate openings at bottom of forms to allow flushing water to drain.

4. Securely brace temporary openings and set tightly in forms to prevent loss of concrete.

5. Close temporary openings with tight fitting panels, flush with inside face of forms, neatly fitted so that joints will not be noticeable on exposed concrete surfaces.

D. Provisions for Other Trades: Coordinate and provide openings in concrete formwork to accommodate work of other trades.

1. Determine size and location of openings, recesses, chases, offsets, openings, depressions, and curbs from information provided by trades requiring such items.

2. Accurately place and securely support items built into forms.

E. Cleaning:

1. Normal Conditions:

a. Thoroughly clean forms and adjacent surfaces to receive concrete.

b. Remove chips, wood, sawdust, dirt, standing water or other debris just before placing concrete.

c. Flush with water or use compressed air to remove remaining foreign matter.

d. Verify that water and debris can drain from forms through clean-out ports.

2. During Cold Weather:

a. Remove ice and snow from within forms.

b. Do not use de-icing salts.

c. Do not use water to clean out completed forms, unless formwork and concrete construction will proceed within heated enclosure.

d. Use compressed air or other means to remove foreign matter.

F. Form Release Agents

1. Before placing reinforcing steel and miscellaneous embedded items, coat contact surfaces of forms with an approved non-residual, low VOC form release agent in accordance with manufacturer's published instructions.

2. Do not allow release agent to accumulate in forms or come into contact with reinforcement or concrete against which fresh concrete will be placed.

a. Coat steel forms with nonstaining, rust-preventative material.

3. Remove form release agent and residue from reinforcement or surfaces not requiring form coating.

G. Before Placing Concrete:

1. Inspect and check completed formwork, shoring and bracing to ensure that work is in accordance with formwork requirements of this section and

Contract Documents, and that supports, fastenings, wedges, ties, and parts are secure.

a. Make necessary corrections or adjustment to formwork to meet tolerance requirements.

2. Retighten forms and bracing before concrete placement to prevent mortar leaks and maintain proper alignment.

3. Notify Testing Agency sufficiently in advance of placement of concrete to allow inspection of completed and cleaned forms.

H. During Concrete Placement:

1. Maintain a check on formwork to ensure that forms, shoring, ties and other parts of formwork have not been disturbed by concrete placement methods or equipment.

2. Use positive means of adjustment as required for formwork settlement during concrete placing operations.

I. Camber:

1. Provide camber in formwork as required for anticipated deflections due to weight and pressures of fresh concrete and construction loads.

2. Camber bottom forms where indicated on the drawings. Whenever forms are cambered, screeded levels for establishing top of concrete must be cambered to the same amount and to the same profiles such that scheduled depth of member is not reduced by lifting of forms. Check camber and adjust forms before initial set as required to maintain camber.

J. Surface Defects:

1. Install forms that will not impair the texture of the concrete and are compatible with the specified finish type.

K. Formwork Loads on Grade

1. Where loads from formwork bear on grade, provide suitable load-spreading devices for adequate support and to minimize settlement. In no event shall frozen ground or soft ground be utilized directly as the supporting medium.

L. Footings and Grade Beams:

1. Provide forms for footings and grade beams if soil or other conditions are such that earth trench forms are unsuitable.

2. When trench forms are used, provide an additional 1” of concrete on each side of the minimum design profiles and dimensions indicated.

M. For slabs-on-grade, secure edge forms in such a manner as to not move under weight of construction loads, construction and finishing equipment, or workers.

2. SHORES AND RESHORES

A. Comply with ACI 347.2R for shoring and reshoring in multistory construction, and as specified herein.

1. For non-post tensioned flat plate concrete structures of five supported levels or more, extend shoring/reshoring at least four levels below the floor or roof being placed (shore formwork, reshore three levels below)

2. For non-post tensioned flat plate concrete structures of less than five supported levels, extend shoring/reshoring to ground.

3. For all other concrete structures of four supported levels or more, extend shoring/reshoring at least three levels below the floor or roof being placed (shore formwork, reshore two levels below)

4. For all other concrete structures of less than four supported levels, extend shoring/reshoring to ground.

5. Reshores shall be placed as soon as practicable after stripping operations are complete but no later than the end of the working day in which the stripping occurs.

6. For shoring/reshoring placed on mud sills, adjustments shall be made by contractor to account for ground settlement.

7. Locate shores/reshores such that the factored (ultimate) construction load imposed onto any slab or beam at any time during the construction cycle does not exceed 90% of the factored (ultimate) design load for that slab or beam, scaled down to reflect effect on capacity of lower concrete strength at time of loading.

8. Construction load shall include the weight of wet concrete, total weight of formwork and shoring/reshoring, and a minimum construction live load of 50 psf (increase if construction operations will produce higher loading). Design load includes self-weight of the slab, and superimposed dead and live loads as indicated on the drawings.

9. For comparison of construction loads to design loads, compare factored (ultimate) construction loads to factored (ultimate) design loads. For construction dead and live loads, use the same load factors and load combinations as required by ACI 318 for design dead and live loads. The specified strength reduction factors from ACI 318 should

also be applied during the strength evaluation of the partially completed structure.

10. For flat plate or flat slab construction “backshores” or “preshores” as defined in ACI 347 shall be permitted only if appropriate calculations and construction sequences are provided demonstrating that the accumulation of shore loads will not overload any slab. In the absence of such calculations and construction sequences, shores must be removed and reshores installed in a sequence such that each floor is permitted to deflect and carry its own weight prior to the installation of reshores.

11. Reshores shall not be removed until the concrete has attained its specified 28 day strength.

3. REMOVING FORMS

A. Formwork not supporting the weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50°F for 12 hours after placing concrete, provided concrete is sufficiently hard to avoid damage by form-removal operations, and provided curing and protection operations are maintained after removal of formwork.

B. Formwork supporting the weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed until concrete has attained at least 75% of design compressive strength. If stripping occurs before 3 days, 100% strength must be achieved. For multistory buildings, enough shoring should be provided for a sufficient number of floors to be built to properly support the construction loading from reshoring.

C. Formwork supporting the weight of concrete for post-tensioned floor framing may not be removed until all post-tensioning operations have been completed and approved. For multistory buildings, enough shoring should be provided for a sufficient number of floors to be built to properly support the construction loading from reshoring. See General Notes in the drawings for the minimum compressive concrete strength required for stressing of tendons.

D. Where reshoring is required as part of the formwork removal process, refer to the Shores and Reshores section of this specification.

E. Determination of compressive strength of concrete at time of formwork removal shall be made by cylinder tests on specimens, field-cured the same as the concrete they represent or by the maturity method per ASTM C1074. If the maturity method is used, submit sufficient data using project materials to

demonstrate correlation of measurements on the structure with the compressive strength of laboratory-cured molded cylinders.

F. Remove formwork progressively using methods to prevent shock loads or unbalanced loads from being imposed on structure.

G. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against concrete surfaces.

H. Whenever formwork is removed during the curing period, the exposed concrete shall be cured per requirements of Section 03 30 00.

I. All wood formwork, including that used in void spaces, pockets and other similar places shall be removed.

J. Form tie holes shall be filled as per approved samples submitted to the Design Professionals.

K. The Contractor shall assume responsibility for all damage due to removal of the forms.

4. RE-USING FORMS

A. Before forms can be re-used, surfaces that will be in contact with freshly poured concrete must be thoroughly cleaned, damaged areas repaired, and projecting nails withdrawn.

1. Split, frayed, delaminated or otherwise damaged form-facing material will not be acceptable.

2. Apply new form release agent on re-used forms.

B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joints to avoid offsets.

C. Forms for exposed concrete may be reused only if the surfaces have not absorbed moisture and have not splintered, warped, discolored, stained, rusted or peeled, subject to acceptance by the Design Professionals. The Design Professionals reserve the right to require the Contractor to remove and reconstruct such formwork as will produce subsequent areas that are acceptable. Do not use "patched" forms for exposed concrete surfaces, unless approved by the Design Professionals.

5. CORRECTIVE MEASURES

A. Where the Contractor requests that the Design Professionals develop the corrective actions or review corrective actions developed by others, the

Design Professional shall be compensated as outlined in Part 3 — CORRECTIVE MEASURES section of Specification 03 30 00.

END OF SECTION

SECTION 03 20 00 — CONCRETE REINFORCEMENT AND EMBEDDED ASSEMBLIES

1. GENERAL

   Work of this Section shall conform to requirements of Drawings and general provisions of the Contract, including General and Supplementary Conditions and applicable General Requirements specifications.

2. SCOPE

   Provide all labor, materials, equipment, services and transportation for reinforcing steel, accessories, embedments and miscellaneous anchorage accessories, joint fillers, and waterstops for cast-in-place concrete work as shown on Drawings, as specified herein, and as required by the job conditions.

3. RELATED WORK SPECIFIED IN OTHER SECTIONS

   Submittals Quality Control

   Quality Assurance: Structural Testing and Inspection Concrete Formwork

   Cast-In-Place Concrete

   Exposed-To-View Cast-In-Place Concrete Thermal and Moisture Protection

4. CODES AND STANDARDS

   Section 01 45 00

   Section 03 10 00

   Section 03 30 00

A. Building Code: Concrete work shall conform to the requirements of the Building Code identified on the Structural General Notes, and OSHA requirements, except where more stringent conditions or criteria occur in the standards referenced below and on the Drawings.

B. Standards:

   1. ACI 117 — Standard Specifications for Tolerances for Concrete Construction and Materials.

   2. ACI 301 —Specifications for Structural Concrete.

   3. ACI 315 — Details and Detailing of Concrete Reinforcement.

4. ACI 318 — Building Code Requirements for Structural Concrete and Commentary.
5. ACI 355.2 — Qualification of Post-Installed Mechanical Anchors in Concrete and Commentary
6. ACI 355.4 — Qualification of Post-Installed Adhesive Anchors in Concrete and Commentary
7. American Society for Testing and Materials "ASTM Standards in Building Codes", various standards as referenced herein.
8. AWS D1.1 — Structural Welding Code-Steel.
9. AWS D1.4 — Structural Welding Code-Reinforcing Steel.
10. CRD C 572 — Specification for Polyvinylchloride Waterstops.
11. Concrete Reinforcing Steel Institute “Manual of Standard Practice”
12. ASTM D3963 Fabrication and Jobsite Handling of epoxy Coated Steel Reinforcing Bars.

C. Definitions:

1. See Section 03 30 00.

5. CONTRACTOR QUALIFICATIONS

A. The work of this section shall be performed by a fabricator specializing in the type of reinforcement fabrication required for this Project, with a minimum of 10 years of documented successful experience and shall be performed by skilled workmen thoroughly experienced in the necessary crafts.

1. Welders shall be qualified in accordance with applicable AWS Code within 12 months before starting the work.

a. Make qualification records available to the Design Professionals upon request.

B. Manufacturers shall specialize in manufacturing the types of concrete accessories required for cast-in-place concrete work, with a minimum of 10 years of documented successful experience and shall have the facilities capable of meeting all requirements of Contract Documents as a single-source responsibility and warranty for each type of accessory.

6. SUBMITTALS

A. Required Submittals - Where the SUBMITTALS section of this Specification is in conflict with the applicable submittal requirements, the more stringent

requirements for the Contractor apply. Required submittal items are listed here; see below for detailed requirements. Do not submit items not requested.

(1) Submittal Schedule

(2) Shop Drawings

(3) Product Data

(4) Mill Reports

(5) Reinforcement Strain Test

(6) Hazardous Materials Notification

1. **Submittal Schedule:** See Section 03 30 00.

2. **Shop Drawings:** Submit for action shop drawings that shall clearly indicate, but not be limited to:

    a. All details, dimensions and information required for fabrication and placement of concrete reinforcement in accordance with Contract Documents, prepared in accordance with ACI 315 recommendations.

    b. Elevations, plans, sections, and dimensions of concrete work with required reinforcement clearances.

    c. Ledges, brackets, openings, sleeves, anchor rods, embedments, prefabricated bent-in dowel keyway systems, electrical conduit and items of other trades including interference with reinforcing materials.

    d. Sizes, grade designations, spacing, locations, and quantities of wire fabric, reinforcement bars, temperature and shrinkage reinforcement dowels.

        i. Do not use dimensions scaled from Contract Drawings to determine bar lengths.

        ii. Hooks and bends not specifically dimensioned shall be detailed per ACI 318.

    e. Bending and cutting schedules, assembly diagrams, splicing and connection requirements, details, and laps.

    f. Each type of supporting and spacing devices, including miscellaneous accessories.

    g. Construction joint type, details, and locations. Contractor shall coordinate construction joint type, details, and locations with

concrete pour schedule. Submittal shall include details for each type of construction joint in accordance with Contract Documents.

h. Locations and dimensions of openings in structural members including floor slab, shear walls, columns and beams. See SUBMITTALS Section of Specification 03 30 00.

i. Concrete accessories and embedded items. See SUBMITTALS Section of Specification 03 30 00.

3. Product Data: Submit for action for each type of product identified in Part 2. Product Data shall be clearly marked to indicate all technical information which specifies full compliance with this section and Contract Documents, including published installation instructions and I.C.C reports, where applicable, for products of each manufacturer specified in this section.

4. **Mill Reports:** Submit for record.

5. **Reinforcement Strain Test:** For Grade 75 reinforcement, submit for record certification that steel has a yield strength of no less than 75 ksi as measured by both ASTM A615 and ACI 318 Section 3.5.3.2 procedures.

6. **Hazardous Materials Notification:** Submit for record. In the event no product or material is available that does not contain hazardous materials as determined by the Owner, a "Material Safety Data Sheet" (MSDS) equivalent to OSHA Form 20 shall be submitted for that proposed product or material prior to installation.

A. Submittal Process: See Section 03 30 00.

B. SER Submittal Review: See Section 03 30 00.

C. Substitution Request: See Section 03 30 00.

D. Request for Information (RFI): See Section 03 30 00.

1. DELIVERY, STORAGE, AND HANDLING

A. Comply with General Conditions and General Requirements, including the following:

1. Deliver reinforcing steel to Project site bundled, tagged and marked.

a. Use weatherproof tags indicating bar sizes, lengths and other information corresponding to markings shown on placement diagrams.

2. Deliver welded wire fabric in sheets. Do not deliver in rolls.

3. During construction period, properly store reinforcing steel and accessories to assure uniformity throughout the Project.
4. Deliver and store welding electrodes in accordance with AWS D1.4.
5. Immediately remove from site materials not complying with Contract Documents or determined to be damaged.
6. Store reinforcing steel above ground so that it remains clean.
    a. Maintain steel surfaces free from materials and coatings that might impair bond.
    b. Keep covered.
    c. Protect against corrosion or deterioration of any kind.

2. QUALITY ASSURANCE BY CONTRACTOR'S TESTING AGENCY
    A. See Section 01 45 00.
3. QUALITY CONTROL BY CONTRACTOR
    A. See Section 03 30 00.
4. OBSERVATIONS AND CORRECTIONS BY DESIGN PROFESSIONALS
    A. See Section 03 30 00.
5. PERMITS AND WARRANTY
    A. Permits: See Section 03 30 00.
    B. Warranty: See Section 03 30 00. Failures include but are not limited to the following:
        1. Bars with kinks or bends not indicated on Drawings or on approved shop drawings.
        2. Bars damaged due to bending, straightening or cutting.
        3. Bars heated for bending.

PART 2 - PRODUCTS

1. REINFORCEMENT
    A. Reinforcing Steel:
        1. Type: Deformed billet steel bars, ASTM A 706, Grade 60.

a. ASTM A615 Grade 60 may be substituted provided the following additional requirements are met per ACI 318-14:

Actual yield strength based on mill tests does exceed fy by more than 18,000 psi; and,

ii. Ratio of the actual tensile strength to the actual yield strength is at least 1.25;

iii. Minimum elongation in 8" shall be at least 14% for bar sizes No. 3 through No. 6, and at least 12% for bar sizes No. 7 through No. 11, and at least 10% for bar sizes No. 14 and No. 18

2. Size: As indicated on structural Drawings.

3. Where indicated on Drawings, reinforcing steel shall be hot-dipped galvanized after fabrication in accordance with ASTM A 767, Class II, with galvanizing material protected from embrittlement during galvanizing process in accordance with ASTM A 143.

   a. Galvanized finish shall meet the bend and shear test requirements of ASTM A 615.

4. Epoxy-Coated: ASTM A 775 where indicated on Drawings.

5. Weldable reinforcement: ASTM A 706 where indicated on Drawings.

B. Welded Wire Reinforcement:

   1. Type: steel wire, deformed, ASTM A 496.

   2. Size: As indicated on structural Drawings.

   3. Where indicated on Drawings, welded wire reinforcement shall be hot-dipped galvanized after fabrication in accordance with ASTM A 767, Class II, with galvanizing material protected from embrittlement during galvanizing process in accordance with ASTM A 143.

      a. Galvanized finish shall meet the bend and shear test requirements of ASTM A 615.

   4. Plain Steel Welded Wire Reinforcement: ASTM A 1064.

   5. Deformed Steel Welded Wire Reinforcement: ASTM A 497.

   6. Epoxy-Coated Welded Wire Reinforcement: ASTM A 884, Class A.

C. Headed Shear Stud Reinforcement At Slab-Column Connections:

   1. Type: Steel studrail or double headed stud assemblies for shear reinforcement at slab-column connections shall be in accordance with ASTM A 1044. Headed shear studs per AWS D1.1 are not an acceptable substitution for headed shear stud reinforcement. A

a. Shear studs shall be in accordance with ASTM A108, Grade C1010 through C1018.

b. Rails shall be low carbon steel Type 44W.

c. Studs shall be welded in accordance with AWS D1.1.

d. Acceptable Products:

Studrails by DECON

DSA by SureBuilt Manufacturing DSR by Dayton Superior

2. Size, quantity and spacing: As indicated on structural Drawings.

3. Installation: Per manufacturer's instructions.

4. Supports: Use plastic molded plastic chairs as provided by the manufacturer to maintain the bottom rebar cover as specified on the Drawings. Tie headed shear stud reinforcement to adjacent top bars to maintain vertical position.

D. Reinforcement Coating Repair Materials:

1.

2.

3.

2. ACCESSORIES

Apply repair coating in accordance with the manufacturer's written procedures. Galvanized Repair Coating: Zinc-based solder, paint containing zinc dust or sprayed zinc complying with ASTM A780.

Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775/ A 775M.

a) The maximum amount of repaired damaged areas shall not exceed 2% of the surface area in each linear foot of each bar. If more than 2% of the surface area in each linear foot of bar is damaged, bar shall be replaced.

A. Tie Wire:

1. Type: Minimum 16 gauge annealed steel wire, ASTM A 510 and ASTM A 853.

2. Wire Bar Type: Comply with CRSI.

B. Mechanical Splicing Systems:

1. Mechanical tension and compression splicing systems shall be used where indicated on Drawings or at contractor's option. For seismic

design categories D, E and F, in plastic hinge regions, only Type 2 mechanical splices are permitted.

2. Splices shall be installed in accordance with manufacturer's requirements.

3. Acceptable Products:

    a. Bartec Couplers by Dextra

    b. Griptec Couplers by Dextra

    c. Unitec Couplers by Dextra

    d. Lenton Couplers by Erico

    e. Lenton Cadweld by Erico

    f. Bar Lock Couplers by Dayton Superior

    g. Taper-Lock Couplers by Dayton Superior

    h. Grip-Twist by BarSplice

    i. ZAP Screwlok by BarSplice

    j. BPI Barsplicer by BarSplice

    k. BarGrip by BarSplice

    l. 400 and 500 Series by Headed Reinforcement Corp

4. Mechanical and welded tensile mechanical splicing systems shall be capable of developing 125% of the reinforcing steel ASTM specified minimum yield strength (Type 1) except where indicated as Type 2 (100% of specified tensile strength).

5. Mechanical compression splices shall be such that the compression stress is transmitted by end bearing held in concentric contact.

C. Headed Bars:

1. For bar sizes #11 (o36) or smaller where specifically detailed on Drawings, mechanical bar terminators shall be used.

2. Headed bars shall meet the requirements of ASTM A970, Class HA.

3. Acceptable Products:

    a. Headed Bars by Dextra

b. Lenton Terminator by Erico

c. Grip-Twist Doughnut by Bar-Splice

d. BPI ButtonHead by BarSplice

e. Zap T-Lok by BarSplice

f. Taper-Lock End Anchor Disc by Dayton Superior

g. 100, 550 and 670 Series by Headed Reinforcement Corp

D. Weldable Bar Couplers:

1. Acceptable Products:

a. Lenton Weldable Couplers by Erico

b. DBDI Weldable Coupler by Dayton Superior

c. BPI Structural Connector by BarSplice

E. Slip Dowel Bar/Plate Systems for Slab on Grade Joints

1. Acceptable Products:

a. Speed Dowel or Speed Plate by Sika Corporation

b. QuicDowel or QuicPlate by BoMetals, Inc.

c. Diamond Dowel System by PNA Construction Technologies

F. Supports for Reinforcement:

1. Types: Bolsters, chairs, spacers, clips, chair bars, and other devices for properly placing, spacing, supporting, and fastening the reinforcement, plastic, plastic protected steel, or epoxy coated to match supported reinforcement.

2. For Contact with Forms: Use types with not less than 3/32” of plastic between metal and concrete surface.

a. Plastic tips shall extend not less than /” on metal legs.

3. Individual and continuous slab bolsters and chairs shall be of type to suit various conditions encountered and must be capable of supporting 300 pound load without damage or permanent distortion.

4. Unless otherwise indicated on Drawings, bottom reinforcing bars in footings shall be supported by precast concrete bricks or individual high chairs with welded sand plates on bottom.

5. For Slabs on Grade: Use supports with sand plates or horizontal runners where base material will not support chair legs.

G. Deformed Bar Anchors:

1. Type: Automatic end welded, ASTM A 496 quality.

2. Size and Grade: As indicated on structural Drawings by Nelson Stud Welding.

H. Anchor rods and dowels:

1. Types and Sizes: Provide sizes and types of anchor rods and dowels as indicated on the Drawings. Each type of anchor shall be manufactured of structural quality steel, designed for cast-in-place concrete applications and be of sizes as indicated on Drawings, complete with washers, nuts, plates and miscellaneous accessories required to meet Contract Document requirements.

2. Adhesive Anchors for anchor rods and dowels in existing concrete: See Anchorage Accessories.

I. Prefabricated Bent-In Dowel Keyway Systems and Dowel Bar Replacements:

1. Type, Size and Grade as indicated on Drawings.

2. Dowels shall be installed in accordance with manufacturer's requirements

3. Acceptable Products:

a. Lenton Form Savers by Erico

b. Keyway Splice Box by Meadow Burke

c. Metalstrip by Dayton Superior

d. DBDI Splice System by Dayton Superior

e. D50 DBR Coupler System by Dayton Superior

f. BPI Barsplicer by BarSplice

g. 300 Series by Headed Reinforcement Corp

1. ANCHORAGE ACCESSORIES

A. General: Miscellaneous anchorage accessories for anchoring structural, architectural, electrical, and mechanical items to poured concrete shall include but not be limited to the following:

1. Concrete Anchors: Headed or bent studs ASTM A 108/Grade 1015 through 1020, minimum yield strength of 50,000 psi, minimum tensile strength of 60,000 psi.

2. Anchor Rods: ASTM F1554, Grade as noted on Drawings.

3. Shallow Embedment Internally Threaded Inserts with °/‹” maximum embedment.

    a. Acceptable Products:

        i. Mini Undercut + by DeWalt (for post-tensioned slabs and precast hollow core slabs)

        ii. HDI-P TZ by Hilti (for post-tensioned slabs)

4. Adhesive Anchors:

    a. Basis of Design: See General Notes

    b. Substitution Request: As anchor capacities vary by manufacturer, the following anchors will be considered as a Substitution Request. Refer to project specifications for Substitution Request procedure

        i. HIT-RE 500-V3 by Hilti, Inc.

        ii. Epcon C6+ by ITW Red Head

        iii. Epcon G5 by ITW Red Head

        iv. Pure 110+ by DeWalt

        v. SET-3G by Simpson Strong-Tie Co.

    c. The adhesive anchor system used for post-installed anchorage to concrete shall conform to the requirements of ACI 355.4 and commentary and shall possess a current ICC- ES report demonstrating compliance with ACI 318.

5. Expansion Anchors:

    a. Basis of Design: See General Notes

    b. Substitution Request: As anchor capacities vary by manufacturer, the following anchors will be considered as a Substitution Request. Refer to project specifications for Substitution Request procedure.

i. Power Stud+ SD1 or SD2 by DeWalt

ii. Power Stud + SD6 (SS) by DeWalt

iii. Trubolt by ITW CCNA

iv. Strong-Bolt 2 by Simpson Strong-Tie Co.

c. The expansion anchors used for post-installed anchorage to concrete shall conform to the requirements of ACI 355.2 and commentary and shall possess a current ICC- ES report demonstrating compliance with ACI 318.

6. Threaded Screw Anchors:

a. Basis of Design: See General Notes

b. Substitution Request: As anchor capacities vary by manufacturer, the following anchors will be considered as a Substitution Request. Refer to project specifications for Substitution Request procedure.

i. Screw-Bolt + by DeWalt

ii. Tapcon + by ITW Red Head

iii. Titan HD by Simpson Strong-Tie Co., Pleasanton, CA

7. Inserts and Coil Rods: Yield strength 65,000 psi, ASTM B 633, manufactured by Acrow-Richmond Limited or Dayton Superior

8. Welding Electrodes: AWS 5.5, Series E70.

9. Welded Deformed Bar Anchors: Welded by full-fusion process, as furnished by TRW Nelson Stud Welding Division or equivalent.

B. Dovetail Anchor Slots:

1. Type: Formed 22 gauge galvanized steel

2. Acceptable Manufacturers:

a. Heckmann Building Products

b. Hohmann and Barnard,

c. BoMetals, Inc..

2. JOINT FILLERS

Location of Use: Continuous installation of anchor slots, full height of masonry walls, where masonry walls abut poured concrete walls.

Fill slot with temporary filler or cover face opening to prevent intrusion of concrete or debris.

Finish: Hot-dip galvanized or zinc-plated steel. Stainless steel anchors are acceptable.

A. Permanent Compressible Joint Filler:

1. Acceptable Product: W.R. Meadows: “Ceramar” closed-cell expansion joint filler, ultraviolet stable, minimal moisture absorption, non-impregnated, nonstaining and nonbleeding, inert and compatible with cold-applied sealants.

2. Location of Use: Slabs and curbs as indicated on Drawings or required.

3. Thickness: As indicated on Drawings or required.

B. Temporary Compressible Joint Filler:

1. Type: White molded polystyrene beadboard.

2. Location of Use:

a. In slabs, curbs, and walls which must be removed prior to joint sealant installation.

b. Vertically to isolate walls from columns or other walls.

C. Semi Rigid Joint Filler:

1. Acceptable Product: Euclid Chemical Company “Euco 700" or”Euco QWlKjoint 200”

2. Acceptable Product: Sika Corporation “Sikadur 51 SL”

3. Acceptable Product: W.R. Meadows Sealtight “Rezi-Weld Flex”

D. Noncompressible Joint Filler:

1. Acceptable Product: Dow Chemical's "STYROFOAM 40" rigid closed-cell extruded polystyrene board, square edges, 40 psi compressive strength, ASTM C 578, Type IV.

2. Thickness: As indicated on Drawings.

3. Location of Use: As indicated on Drawings or required.

E. Asphalt-Impregnated Joint Filler:

1. Acceptable Product: W.R. Meadows Asphalt Expansion Joint Filler, preformed, ASTM D 994.
2. Thickness: /2" maximum, as indicated on Drawings or required.
3. Location of Use: Sidewalks at foundation walls and as indicated on Drawings or required.

F. Asphalt-impregnated fiberboard expansion joint filler for interior work:

1. Type: ASTM D1751.

G. Self-expanding cork board expansion joint filler for exterior work:

1. Type: ASTM D1752.

H. Construction Joints:

1. Type: Tongue and groove type profile of galvanized steel, with knock-out holes at 6" on center to receive dowelling, complete with anchorage.

3. WATERSTOPS

A. Preformed Swellable Waterproofing Strips especially formulated for concrete cold joints at footings, walls, or slabs.

1. Acceptable Products:

a. Volclay Waterstop RX by CETCO Building Materials Group

b. Adcor ES by GCP Applied Technologies

c. Hydrotite by Sika

2. Size: 3/4" by 3/8" strips minimum, 25 ft. long, and weighing at least 0.165 lbs/ft.
3. Location of Use: Concrete cold joints at footings, walls and slab joints.
4. Comply with manufacturer product application and installation instructions.

B. Polyvinyl Chloride Waterstops:

1. Type: PVC Waterstops for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections and directional changes.

U.S. Corp of Engineers Specification CRD C 572.

2. Acceptable Products:

a. PVC Waterstops” by BoMetals

b. Greenstreak by Sika

c. Sealtight PVC Waterstops by W.R. Meadows

PART 3 - EXECUTION

3. 1 FABRICATION

A. Reinforcing Steel Fabrication:

1. Fabricate in accordance with approved shop Drawings, ACI 315 and Contract Documents.

2. Heating of Reinforcement: Will be permitted only with specific prior approval of the SER.

3. Welding: Comply with ANSI/AWS D1.4; use E9018 electrodes or approved electrodes.

4. Tolerances: Comply with ACI 117.

5. Unacceptable Materials: Reinforcement with any of following defects will not be permitted in Work.

a. Bar lengths, depths, and bends exceeding ACI fabrication tolerances.

b. Bends or kinks not indicated on Drawings or final shop drawings.

c. Bars with reduced cross-section due to excessive rusting or other cause.

B. Welded Wire Reinforcement:

1. Type: As fabricated in accordance with CRSI, unless otherwise noted.

C. Templates:

1. Required for all footing and column dowels, and where required for proper alignment of reinforcing.

D. Assemblies:

1. Fabricate and assemble structural steel items in shop in conformance with AISC and AWS D1.1. Shearing, flame cutting, and chipping shall be done carefully and accurately. Cut, drill, or punch holes at right angles to the surface of the metal. Do not make or enlarge holes by burning. Holes shall be clean-cut without torn or ragged edges.

2. Welding of deformed bar anchors and headed stud anchors shall be installed by full-fusion process equivalent to TRW Nelson Stud Welding Division or KSM Welding Services Division, Omark Industries or Tru-Weld Stud Welding, Medina, OH.

3. Welding of reinforcement shall be done in accordance with AWS requirements. Welding shall be performed subject to the observance and testing by Testing Agency.

4. Galvanizing where required, shall be applied after fabrication and prior to casting concrete.

5. Welding of crossing bars (tack welding) for assembly of reinforcement is not permitted without use of weldable reinforcement and express written consent of SER.

2. INSTALLATION OF REINFORCEMENT

    A. General:

        1. Perform the work of this section in accordance with approved shop drawings, ACI 318 and CRSI recommended practice for “Placing Reinforcing Bars”, for details and methods of reinforcement placement and supports, and as specified.

        2. Before placing reinforcement steel, inspect forms for proper fitting and compliance with allowable tolerances.

        3. Reinforcement shall be free of form coatings, sealers, powdered and scaled rust, loose mill scale, earth, ice, and other materials which will reduce or destroy bond with concrete.

        4. Do not place concrete until the completed reinforcement steel work has been observed and accepted by Contractor's Testing Laboratory.

        5. Reinforcement steel is not permitted to be “floated into position”.

        6. Bend bars cold.

            a. Do not heat or flame cut bars.

            b. No field bending of bars partially embedded in concrete is permitted, unless specifically approved by the SER and tested by Testing Agency for cracks.

        7. Weld only as indicated.

            a. Perform welding per ANSI/AWS D12.1 and/or ANSI/AWS D1.4.

b. See structural Drawings for additional requirements.

8. Tag reinforcement steel for easy identification.

B. Placement of Reinforcement Bars:

1. Comply with approved shop drawings, ACI 318 and Contract Documents.

2. Accurately position, support and secure reinforcement in a manner to prevent displacement before and during placement of concrete.

a. Place reinforcement bars within tolerances specified in ACI 117.

b. Locate and support reinforcement by metal chairs, runners, bolsters, spacers, hangers and other accessories for fastening reinforcing bars and welded wire reinforcement in place.

3. If bars are displaced beyond specified tolerance when relocating the bars to avoid interference with other reinforcement or embedded items, immediately notify the Design Professionals for approval prior to concrete placement.

4. Avoid cutting or puncturing vapor retarder during reinforcement placement.

a. Repair damages before placing concrete.

5. Concrete Coverage: Maintain concrete cover around reinforcement as indicated on Drawings.

6. Bar Supports: Use type specified in this section.

7. Tie Wires: After cutting, turn tie wires to the inside of section and bend so that concrete placement will not force ends to be exposed at face of concrete.

C. Placement of Wire Reinforcement:

1. Install in lengths as long as practicable.

2. Support in position adequately to prevent bending of reinforcement between supports before and during placement of concrete.

3. Overlap the wire reinforcement 6” or one panel width + 2”, whichever is larger.

    a. Securely tie together with wire.
4. Offset laps of adjoining widths to prevent continuous laps in either direction.

5. Locate wire fabric in the top third of slabs, unless noted otherwise on structural Drawings.

D. At Construction Joints:

1. Reinforcement bars and wire reinforcement shall be continuous through construction joints, unless otherwise indicated on Drawings. See Drawings for scheduled lap splices.

E. At Expansion Joints:

1. Reinforcing bars and wire fabric shall NOT be continuous through expansion joints, unless otherwise indicated on Drawings.

F. Splicing:

1. Unless otherwise indicated on Drawings provide lap splices for bar sizes #11 (s36) and smaller by lapping ends, placing bars in contact, and tying tightly with wire in accordance with requirements of ACI 318 for lap lengths indicated on Drawings.

2. At all #14 (o43) and #18 (o57) bars and where mechanical splices are specifically indicated on Drawings, comply with requirements specified in this Specification section under “Mechanical Splicing Systems”.

3. Do not splice reinforcement except as indicated on structural Drawings.

4. Tension couplers may be used and installed per manufacturer's specifications where indicated on Drawings or as approved by Engineer.

G. Dowels in Existing Concrete:

1. Install dowels and dowel adhesive in accordance with manufacturer's recommendations.

2. Minimum embedment length shall be 12 bar diameters, unless noted otherwise.

3. INSTALLATION OF POST-INSTALLED ADHESIVE ANCHORS

A. General:

1. Post-installed adhesive anchors shall be installed in accordance with the Manufacturer's Printed Installation Instructions (MPII).

2. The adhesive anchors shall be supplied as an entire system. The contractor shall provide all equipment required to install the adhesive anchor in accordance with the MPII.

3. Anchors shall be installed in holes drilled with a rotary impact hammer drill with carbide bit. Contractor shall obtain prior written approval from SER before using rock drilling or core drilling installation methods.

4. Anchor holes shall be thoroughly cleaned and dry prior to adhesive injection, in accordance with the MPII. Anchors to be installed in the adhesive shall be clean, oil-free, and free of loose rust, paint, or other coatings.

5. Concrete shall have a minimum compressive strength of 2500 psi.

6. Concrete at time of adhesive anchor installation shall have a minimum of 21 days.

7. Concrete temperature at the time of adhesive anchor installation shall be at least equal to manufacture's requirements, or 50° F if no requirement exists.

8. Support the anchor and protect it from disturbance or loading for the full cure time stated by the manufacturer at that base material temperature.

9. Unless specified otherwise in the contract documents, anchors shall be installed perpendicular to the concrete surface. Anchors displaced or disturbed prior to the adhesive cure time shall be considered damaged and reported to the SER (see Observations and Corrections section of 03 30 00).

10. Locate, by non-destructive means, and avoid all existing reinforcement prior to installation of anchors. If existing reinforcement layout prohibits the installation of anchors as indicated in the drawings the contractor shall immediately notify the Design Professionals.

11. Reinforcement bars or all-threaded bars shall not be bent after being adhesively embedded in hardened, sound concrete, unless written approval is given by the SER.

12. All personnel installing anchors shall be trained by the manufacturer on proper installation techniques. Submit for record certificate from training documentation from the manufacturer for each installer on this Project

13. Installation of adhesive anchors horizontally or upwardly inclined and anchors that are designated with a (CERT) after the anchor call-out, shall be performed by personnel certified by the ACI/CRSlAdhesive Anchor Installer Certification program. Submit for record certificate from ACI-CRSI Adhesive Anchor Installation Certification Program for each certified installer on this Project.

4. INSTALLATION OF ACCESSORIES AND EMBEDDED ITEMS

A. Install concrete accessories in accordance with manufacturer's published instructions and Contract Documents.

1. Set and secure embedments, including embedded plates, bearing plates, and anchor rods, per approved setting drawings and in such a manner to prevent

movement during placement of concrete and to allow removal of formwork without damage.

2. Tolerances: Anchor rod and other embedded items placement tolerances shall comply with AISC 303, “Code of Standard Practice”, Section 7.5.

3. Inspect locations to receive concrete accessories.

4. Immediately notify the Design Professionals in writing of conditions that will adversely affect the Work or fail to meet Contract Document requirements.

5. Do not place concrete until reinforcement, accessories and other built-in items have been inspected and accepted by Testing Agency.

B. Construction and Contraction (Control) Joints:

1. Construction and contraction (control) joints indicated on Drawings are mandatory and must not be omitted.

a. Provide construction joints in accordance with ACI 318.

b. Roughen surface at construction joints as indicated on the drawings.

c. Where specifically indicated on drawings, provide 1-1/2” deep key type construction joints at end of each placement for slabs, beams, walls and footings.

i. Bevel forms for easy removal.

2. Provide waterstops in construction joints as indicated on the Contract Documents in sizes to suit joint.

3. Install waterstops to form continuous diaphragm in each joint.

4. Support and protect exposed waterstops during progress of Work.

5. Field-fabricate joints in waterstops according to manufacturer's printed instructions.

C. Coordinate the installation of pipes, bolts, hangers, anchors, flashing and other embedded items with the work of other trades.

5. CORRECTIVE MEASURES

A. Where the Contractor requests that the Design Professionals develop the corrective actions or review corrective actions developed by others, the Design Professional shall be compensated as outlined in Part 3 — CORRECTIVE MEASURES section of Specification 03 30 00.

END OF SECTION

SECTION 03 30 00 — CAST-IN-PLACE CONCRETE

1. GENERAL

Work of this Section shall conform to requirements of Drawings and general provisions of the Contract, including General and Supplementary Conditions and applicable General Requirements specifications.

2. SCOPE

Provide all labor, materials, equipment, services and transportation required to complete all concrete work as shown on Drawings, as specified herein, and as required by the job conditions. This Specification is not intended to address the particular requirements of Architectural Concrete.

3. RELATED WORK SPECIFIED IN OTHER SECTIONS

Submittals Quality Control

Quality Assurance: Structural Testing and Inspection Concrete Formwork

Concrete Reinforcement and Embedded Assemblies Exposed-To-View Cast-In-Place Concrete

Thermal and Moisture Protection

Section 01 45 00

Section 03 10 00

Section 03 20 00

4. CODES AND STANDARDS

A. Building Code: Concrete work shall conform to the requirements of the Building Code identified on the Structural General Notes, and OSHA requirements, except where more stringent conditions or criteria occur in the standards referenced below and on the Drawings.

B. Standards:

1. ACI 117 — Standard Specifications for Tolerances for Concrete Construction and Materials except as modified by more stringent requirements in the Project Specifications and/or Drawings.

2. ACI 237 — Self Consolidating Concrete.

3. ACI 301 — Specifications for Structural Concrete.
4. ACI 318 — Building Code Requirements for Structural Concrete and Commentary.
5. American Concrete Institute “Manual of Concrete Practice”, various committee reports as referenced herein.
6. American Society for Testing and Materials "ASTM Standards in Building Codes", various standards as referenced herein.
7. ASTM C1202 — Standard Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration.
8. AASHTO T318 — Standard Method of Test for Water Content of Freshly Mixed Concrete Using Microwave Oven Drying.

C. Definitions:

1. The term “Contract Documents” in this Specification is defined as the design Drawings and the specifications.
2. The term “SER” in this Specification is defined as the Structural Engineer of Record for the structure in its final condition.
3. The term “Design Professionals” in this Specification is defined as the Owner's Architect and SER.
4. The term “Contractor” in this Specification is defined to include any of the following: General Contractor and their sub-contractors, Construction Manager, Concrete Contractor and their sub-contractors.
5. The term “Testing Agency” in this Specification is defined as an independent testing and inspection service engaged by the Owner for quality assurance testing and inspection of structural construction in accordance with applicable building code provisions and any additional activities listed in the Contract Documents.
6. The terms “for record” and “submit for record” in this Specification are defined as Contractor submittals that do not require a response from the Design Professionals.
7. The term “Working Days” in this Specification is defined as Monday through Friday, excluding federal or state holidays.
8. The term “Delegated Design” in this Specification is defined as a scope of work that meets performance and design criteria established in the

Contract Documents and is to be completed by the Contractor's licensed engineer.

5. CONTRACTOR QUALIFICATIONS

A. The work of this section shall be performed by a company specializing in the type of concrete work required for this Project, with a minimum of 10 years of documented successful experience and shall be performed by skilled workmen thoroughly experienced in the necessary crafts.

B. Contractor's testing agency services: Required as specified in General Requirements and herein.

6. SUBMITTALS

A. Required Submittals - Where the SUBMITTALS section of this Specification is in conflict with the applicable submittal requirements, the more stringent requirements for the Contractor apply. Required submittal items are listed here; see below for detailed requirements. Do not submit items not requested. Reproduction of structural drawings for shop drawings is not permitted.

(1) Submittal Schedule

(2) Mix Designs

(3) Concrete Travel Times to the Project Site

(4) Hot and Cold Weather Procedures

(5) Product Data

(6) Concrete Joint Locations

(7) Comprehensive Layout Drawings

(8) Preconstruction Survey

(9) Survey of Flat Plate or Flat Slab Concrete Floors during construction

(10) FF/FL Testing

(11) Structural Repairs

(12) Patching Defective Concrete Finishes

(13) Conduit and Pipes Embedded in Concrete

(14) Hazardous Materials Notification

1. **Submittal Schedule:** The contractor shall submit for action a schedule at least twenty (20) working days prior to commencing submittals.

    a. This schedule shall include a list, in order of date to be submitted, of all drawings and other required submittal items scheduled to be submitted. The schedule shall list the proposed submittals for each week, as well as their formats. Once shop drawing submissions have commenced any modification or addition to this schedule must be submitted for action at least twenty (20) working days before the modification or addition is proposed to take place.

    b. If at any time the total number of shop drawings received in any one week period exceeds the amount in the approved schedule by more than 10% for that week, the Design Professionals have the right to add two days to the average turnaround time for each 20% increment in excess of the scheduled quantity for that week's submissions. For example if the weekly total exceeds the schedule by 10% to 20%, two days may be added; if it is exceeded by 21% to 40%, four days may be added. The return dates for subsequent submittals may be extended based on the additional review time stated above.

    c. For the purposes of developing a schedule, assume the following review rate, Shop drawings — 10 full size sheets per week.

2. **Mix Designs:** Submit for action concrete mix designs for each type and strength of concrete required for this Project at least thirty (30) days before placing concrete.

    a. Mix designs shall be prepared or reviewed by an approved independent testing agency retained by the Contractor in accordance with requirements of ACI 301 and ACI 318, sealed and signed by a Professional Engineer licensed in the state where the project is located, and shall be coordinated with design requirements and Contract Documents.

    b. Before submitting to Testing Agency, submit complete mix design data for each separate mix to be used on the Project in a single submittal.

    c. Provide a completed “Concrete Mix Design Submittal Form” (attached to the end of this Specification Section) for each proposed concrete mix.

    d. Mix materials shall be from the same production facility that will be used for this Project.

    e. Mix Design data shall include but not be limited to the following:

i. Locations on the Project where each mix design is to be used corresponding to Structural General Notes on the Drawings.

ii. Design Compressive Strength: As indicated on the Drawings.

iii. Proportions: ACI 301 and ACI 318.

iv. Gradation and quality of each type of ingredient including fresh (wet) unit weight, aggregates sieve analysis.

v. Water/cementitious material ratio.

vi. Evaluation and classification fly ash in accordance with ASTM D 5759.

vii. Report of chemical analysis of fly ash in accordance with ASTM C 618.

viii. Classification of slag cement in accordance with ASTM C 989. Slump: ASTM C 143.

ix. Certification and test results of the total water soluble chloride ion content of the design mix - AASHTO T260 or ASTM C 1218 at age between 28 and 42 days.

x. Air content of freshly mixed concrete by the pressure method, ASTM C 231, or the volumetric method, ASTM C 173.

xi. Density of Concrete: ASTM C 138.

xii. Design strength at 28, 56 or 90 days, as indicated on Contract Documents: ASTM C 39.

(1) Document strength based on basis of previous field experience or trial mixtures per ACI 301. Proportioning by water-cement ratio alone, with no test results per the trial mixtures procedure is not permitted.

(2) Submit strength test records, mix design materials, conditions, and proportions for concrete used for record of tests, standard deviation calculation, and determination of required average compressive strength. Test records to support proposed mixtures shall be no more than 24 months old and use current cement aggregate sources. Test records to establish standard deviation may be older if necessary to have the required number of samples.

(3) If early concrete strengths are required, Contractor shall submit trial mixture results as required.

Manufacturer's product data for each type of admixture. Manufacturer's certification that all admixtures used are compatible with each other.

All information indicating compliance with Contract Documents including method of placement and method of curing.

Normalweight Concrete: Density per ASTM C 138. Design the mix to produce the strength, modulus of elasticity and density as indicated on the Contract Documents.

Lightweight Concrete: Density per ASTM C 138. Design the mix to produce the strength, modulus of elasticity and density as indicated on the Contract Documents.

Certification from a qualified testing agency indicating absence of potential for deleterious expansion of concrete due to alkali reactivity of the aggregate as determined by testing per ASTM C1260 in accordance with ASTM C 33. If potential for deleterious expansion exists, expansion reduction and mitigation measures per the guidelines of ASTM C1778 or US Army COE CRD-C662 shall be submitted for review by the SER.

1. **Concrete Travel Times to the Project Site:** Submit for record.

2. **Hot and Cold Weather Procedures:** Submit for record written procedures for placement of concrete in hot and cold weather conditions. Hot and Cold weather are as defined in the Concrete Placement section of this Specification.

3. Product Data: Submit for action product data clearly marked to indicate locations to be used and all technical information which specifies full compliance with this section and Contract Documents, including published application instructions, product characteristics, compatibility, and limitations for each of the following:

a. Bonding agents.

b. Curing compound and liquid sealer densifier. Submit for record to Design Professionals a written statement guaranteeing that the compound will not leave discoloration on concrete to be left exposed, or affect the bond for paint or other applied finishes. Include provision in written statement that in the event of failure of applied finishes to bond to membrane cured concrete, to remove the curing compound and leave suitable surfaces for bonding such finishes.

c. Absorptive covers and moisture retaining covers.

d. Vapor Retarder: See Thermal and Moisture Protection.

e. Self-leveling concrete topping.

f. Grout: Submittal of grout by manufacturers not listed herein must be accompanied by independent certification of ASTM C 1107 compliance without modification of standard methods.

g. Other products proposed by Contractor

4. **Concrete Joint Locations:** Submit for action plans indicating locations and details of construction joints, contraction joints, waterstops, sleeves, embedments, etc. that interact with the joints. Contractor to coordinate joint location with reinforcement shop drawings. Reinforcement shop drawings shall indicate additional reinforcement bars where required at construction joints.

Joint locations for concrete slabs to receive a terrazzo or similar finish subject to reflective cracking must be coordinated with layout of finish drawings.

5. **Comprehensive Layout Drawings:** Submit for action comprehensive layout drawings (a single drawing per area/element):

    a. Drawings shall show openings in structural members, including floor slab, shear walls, columns and beams.

    b. Drawings shall consolidate the work of all trades and shall be coordinated by the Contractor.

    c. Drawings shall show concrete accessories and embedded items, including fabrication details of items to be placed (exclusive of reinforcement).

    d. Submit with or prior to reinforcement and formwork submittals for same element/area.

6. **Preconstruction Survey:** Submit for record. Where interface with existing construction occurs, before related shop drawings are prepared survey the existing construction and submit the survey prepared by a professional surveyor employed by the Contractor to the Design Professionals.

7. **Survey of Flat Plate or Flat Slab Concrete Floors during construction:** Submit for record. Survey requirements are described on Drawings. Based on survey results, SER may propose adjustments to formwork and camber.

8. FF/FL Testing: Submit for record. Testing Agency to test and report flatness (FF), levelness (FL) prior to shoring removal. For slabs that include camber, do not test for levelness (FL). Perform FF/FL testing in accordance with ASTM E 1155 requirements.

9. Structural Repairs: Submit for action procedures, intended locations, and product information. Alterations to design shall be sealed and signed by a Professional Engineer licensed in the state where the project is located.

10. **Patching Defective Concrete Finishes:** Submit for action procedures, intended locations, and product information.

11. Conduit and Pipes Embedded in Concrete: Submit for action layout of embedded conduit and pipes.

12. **Hazardous Materials Notification:** Submit for record. In the event no product or material is available that does not contain hazardous materials as determined by the Owner, a "Material Safety Data Sheet" (MSDS) equivalent to OSHA Form 20 shall be submitted for that proposed product or material prior to installation.

A. Submittal Process

1. Submittal of shop drawings and other submittals by the Contractor shall constitute Contractor's representation that the Contractor has verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each drawing with other Drawings and other trades. The Contractor shall place their shop drawing stamp on all submittals confirming the above.

2. Shop drawings: Submit in complete packages so that individual parts and the assembled unit may be reviewed together. This Specification Section and the applicable Drawings used in the development of the shop drawings shall be referenced on each shop drawing to facilitate checking.

3. The Contractor shall submit to the Design Professionals one (1) electronic copy for shop drawing review. The naming convention of each drawing must follow the submittal numbering system and include the submittal number, Specification number, revision number and drawing number in the prefix of the drawing name.

4. The Contractor shall allow at least [ten (10)] working days between receipt and release by the SER for the review of shop drawings and submittals.

5. All modifications or revisions to submittals and shop drawings must be clouded, with an appropriate revision number clearly indicated. The following shall automatically be considered cause for rejection of the modification or revision whether or not the drawing has been approved by the Design Professionals:

    a. Failure to specifically cloud modifications

    b. Unapproved revisions to previous submittals

    c. Unapproved departure from Contract Documents

6. Resubmittals: Completely address previous comments prior to resubmitting a drawing. Resubmit only those drawings that require resubmittal. Do not include new content not previously reviewed.

7. Resubmittals Compensation: The Contractor shall compensate the Design Professionals for submittals that must be reviewed more than twice due to

Contractors' errors. The Contractor shall compensate the Design Professionals at standard billing rates plus out-of-pocket expenses incurred at cost + 10%.

8. The Contractor shall deliver to the Design Professionals at the completion of the job two (2) copies of the electronic version of the final as-built shop drawings on a CD-ROM or other media acceptable to the Design Professionals.

B. SER Submittal Review

1. The Design Professionals' review and approval of shop drawings and other submittals shall be for general conformance with the design intent of the work and with the information given in the Contract Documents only and will not in any way relieve the Contractor or the Contractor's Engineer from:

    a. Conforming to the Contract Documents.

    b. Coordination with other trades.

    c. Responsibility for all required detailing and proper fitting of construction work.

    d. The necessity of furnishing material and workmanship required by Drawings and Specifications which may not be indicated on the shop drawings.

    e. Control or charge of construction means, methods, techniques, sequences or procedures, for safety precautions and programs in connection with the work.

2. TYPE 1 — Structural Submittal Review Stamp: For shop drawings for building elements designed by the SER, the responses on the shop drawing review stamp used by the SER require one of the following actions:

    a. APPROVED indicates that the SER has found that the information presented on the shop or erection drawing appears to conform to the requirements of the Contract Documents. Fabrication, manufacture or construction of the elements of work shown in the shop drawing may proceed, provided that work is in compliance with the Contract Documents.

    b. APPROVED AS NOTED indicates that the SER requires the shop or erection drawing to be corrected to reflect the notes and comments shown. Fabrication, manufacture or construction of the elements of work shown in the shop drawing may proceed, provided that work is in compliance with the notations shown on the shop drawings and the

Contract Documents. Promptly resubmit the corrected shop or erection drawing for record.

c. REVISE and RESUBMIT indicates that the SER requires resubmission of the shop or erection drawing after correction per notes and comments. None of the elements of work shown on the shop drawing shall be fabricated, manufactured or constructed until the Contractor has received a returned shop drawing marked Approved or Approved as Noted.

d. NOT APPROVED indicates that the shop or erection drawing does not conform to the Contract Documents and must be extensively revised before re-submittal. None of the elements of work shown on the shop drawing shall be fabricated, manufactured or constructed until the Contractor has received a returned shop drawing marked Approved or Approved as Noted.

3. TYPE 2 — Delegated Design Review Stamp: For submittals for building elements which are not designed by the SER but are delegated design items, or for items that do not form part of the completed structural system but impose loads on the structure, or for construction items or activities which have an effect on the final structure. The responses on the stamp used by the SER require one of the following actions:

   a. NO EXCEPTIONS indicates that the SER has found that the information presented on the submittal appears to conform to the requirements of the Contract Documents. Fabrication, manufacture or construction of the elements of work shown in the shop drawing may proceed, provided that work is in compliance with the Contract Documents.

   b. EXCEPTIONS NOTED indicates that the SER requires the submittal be corrected to reflect the notes and comments shown. Fabrication, manufacture or construction of the elements of work shown in the shop drawing may proceed, provided that work is in compliance with thenotations shown on the shop drawings and the Contract Documents. Promptly resubmit the corrected document for record.

   c. REJECTED indicates that the SER requires resubmission of the submittal after correction per notes and comments. None of the elements of work shown on the shop drawing shall be fabricated, manufactured or constructed. Contractor to revise and resubmit until SER response of No Exceptions or Exceptions Noted is received.

C. Substitution Request

1. Requests for any departure from Contract Documents must be submitted in writing by the Contractor and accepted in writing by the Design Professionals, prior to receipt of submittals.

2. All substitutions must be requested using the structural substitution request form included at the end of this section. Acceptance using the structural substitution request form indicates acceptability of the structural concept only. Contractor must submit shop drawings reflecting accepted substitutions for review in accordance with this Specification. The structural substitution request form, even if accepted, does not constitute a change order.

3. Accepted substitutions or modifications shall be coordinated and incorporated in the work at the sole expense of the Contractor.

4. The acceptance by the Design Professionals of a specific and isolated request by the Contractor to deviate from these requirements does not constitute a waiving of that requirement for other elements of, or locations in the project, unless specifically addressed as such and permitted by the Design Professionals in writing.

5. Compensation for Additional Services: Should additional work by Design Professionals such as design, documentation, meetings and/or site visits be required which are necessitated for the review and/or incorporation of the Contractor-requested substitution, including indirect effects on other portions of the work, the Contractor is responsible for paying for additional work performed by the Design Professionals at the standard billing rates plus out-of-pocket expenses incurred at cost + 10%. Additional costs for testing and inspection by the Contractor shall also be compensated by the Contractor.

6. Contractor is responsible for means and methods and any impacts on other portions of the work that may arise from this substitution.

D. Request for Information (RFI)

1. RFIs shall be submitted by the Contractor. RFIs submitted by other entities will be returned with no response.

2. Limit RFI to one subject.

3. Submit RFI immediately upon discovery of the need for interpretation or clarification of the Contract Documents. Submit RFI within timeframe so as not to delay the Construction Schedule while allowing the full response time described below.

4. The response time for answering an RFI depends on the category in which it is assigned.

    a. Upon receipt by the SER, each RFI will be assigned to one of the following categories:

        i. No cost clarification

        ii. Shown in Contract Documents

        iii. Change to be issued in future document revision

        iv. Previously answered

        v. Information needs to be provided by others.

        vi. Request for corrective field work

        vii. Request for substitution

b. RFIs in the first five categories listed above will be turned around by the SER on average of [five (5)] working days.

c. RFIs in the last two categories listed above will be immediately rejected and must be submitted as submittals or requests for substitution.

1. DELIVERY, STORAGE, AND HANDLING

    A. Comply with General Conditions and General Requirements.

    B. Storage:

        1. Store materials in accordance with ACI 304R.

        2. Store cement in weather-tight buildings, bins or silos that will exclude moisture and contaminates.

        3. Store admixtures to avoid contamination, evaporation, damage, and in accordance with manufacturer's temperature and other recommendations.

        4. Keep packaged material in original containers with seals unbroken and labels intact until time of use.

    C. Handling:

        1. Handle fine and coarse aggregates as separate ingredients.

2. Arrange aggregate stockpiles to avoid excessive segregation, and prevent contamination with other materials or with other sizes of like aggregates.

3. Do not use frozen or partially frozen aggregates.

4. Allow sand to drain until it has reached relatively uniform moisture content before use.

5. Protect liquid admixtures from freezing and temperature changes that would adversely affect characteristics, and in accordance with manufacturer's recommendations.

2. PRE-CONCRETE CONFERENCE

A. At least 30 working days prior to the start of concrete construction, the Contractor shall hold a meeting to review the proposed concrete mix designs and to determine the procedures for producing proper concrete construction. The Contractor shall notify the Design Professionals of the meeting and require responsible representatives of every party who is concerned with the concrete Work to attend the conference, including but not limited to the following:

1. Contractor's superintendant.

2. Testing Agency representative responsible for field quality control

3. Concrete subcontractor.

4. Ready-mix concrete producer.

5. Admixture manufacturer(s).

6. Architect

7. Structural Engineer

B. Minutes of the meeting shall be recorded and distributed by the Contractor to all parties concerned within five working days of the meeting. One copy of the minutes shall also be furnished to the following:

1. Design Professionals.

2. Owner's Representative.

C. The minutes shall include a statement by the concrete contractor and admixture manufacturer(s) indicating that the proposed mix design and placing, finishing, and curing techniques can produce the concrete properties and quality required by these Specifications.

3. QUALITY ASSURANCE BY CONTRACTOR'S TESTING AGENCY

    A. See Section 01 45 00.

4. QUALITY CONTROL BY CONTRACTOR

    A. The Contractor shall provide a program of quality control to ensure that the minimum standards specified herein are attained.

    B. The Owner's general review during construction and activities of the Testing Agency are undertaken to inform the Owner of performance by the Contractor but shall in no way replace or augment the Contractor's quality control program or relieve the Contractor of total responsibility for quality control.

    C. The Contractor shall immediately notify the Design Professionals of any deficiencies in the work which are departures from the Contract Documents. The Contractor shall propose corrective actions and their recommendations in writing and submit them for review by the Design Professionals. After proposed corrective action is accepted by the Design Professionals and Owner, the Contractor shall correct the deficiency at no cost to the Owner. Where the Contractor requests that the Design Professionals develop the corrective actions or review corrective actions developed by others, the Design Professional shall be compensated as outlined in the OBSERVATIONS AND CORRECTIONS BY DESIGN PROFESSIONALS section of this Specification.

    D. Where SCC is used, the Ready Mix Producer shall have a Quality Control Representative on site during placements until mix consistency and stability is established.

5. OBSERVATIONS AND CORRECTIONS BY DESIGN PROFESSIONALS

    A. Observations: The Design Professionals will observe the construction for general compliance with the provisions of the Contract Documents during various phases of construction.

    B. Corrections by Design Professionals: See Part 3 - CORRECTIVE MEASURES section of this Specification.

6. PERMITS AND WARRANTY

    A. Permits: The Contractor shall apply for, procure, renew, maintain, and pay for all permits required by City, State, or other governing authorities, necessary to execute work under this Contract. Contractor shall furnish copies of all permits to the Owner.

B. Warranty: Comply with General Conditions, agreeing to repair or replace specified materials or work that has failed within the warranty period. Failures include but are not limited to the following:

1. Oily, waxy or loose residue which may interfere with the bonding or discoloration of various applied Architectural finish materials.

2. Discoloration of concrete surfaces scheduled to remain exposed as a finish.

3. Areas which show surface failure or defects.

4. Areas which puddle water.

5. Areas which are not properly prepared to receive Architectural finish materials. If necessary, the Contractor, at his own expense, shall have the Testing Agency perform appropriate tests for bond and discoloration.

6. Patches that become crazed, cracked or sound hollow when tapped.

7. Self-leveling concrete topping that has cracked, spalled and/or not performed in accordance with manufacturer's design criteria.

PART 2 - PRODUCTS

1. CONCRETE MATERIALS AND PRODUCTION

A. Portland Cement:

1. ASTM C150, Type I or Type II

2. ASTM C150, Type III, High-early Strength Portland Cement may be used subject to review and approval of the SER. The specified 28-day concrete compressive strength shall occur within 7 days for concrete using Type III Portland Cement.

3. Provide the same brand of Portland Cement produced in the United States from a single source throughout the project, as required to meet Design Professionals' requirements.

4. Provide Portland Cement that is uniform in color.

B. Aggregates for Normalweight Concrete:

1. ASTM C 33

2. Fine Aggregate: Natural sand, or sand prepared from stone or gravel, clean, hard, durable, uncoated and free from silt, loam and clay.

3. Provide aggregates from a single source throughout the project for exposed concrete.

4. The acceptability of aggregates for the work will depend on proof that their potential alkali reactivity is not deleterious to the concrete.

5. Do not use fine or coarse aggregates that contain substances that cause spalling.

6. Maximum coarse aggregate size shall conform to the requirements as specified in ACI 301 but shall not exceed the following:

   Size no. 57 for footings, drilled piers and caissons Size no. 67 for all other locations

   Size no. 467 or 457 for non-reinforced concrete at locations noted on Drawings.

7. Contractor shall furnish concrete with maximum 3/8" aggregate at no additional cost to the Owner if areas of high reinforcement density require it for placement and consolidation.

C. Aggregates for Lightweight Concrete:

1. ASTM C 330: Except aggregates prepared by processing natural materials, such as pumice, scoria, or tuff.

2. Classification of Aggregates: As required to meet Design Professional's requirements.

3. Provide aggregates from a single source throughout the project for exposed concrete.

4. Aggregate shall contain the minimum absorbed moisture content recommended by the manufacturer for the project prior to batching.

5. Maximum coarse aggregate size shall conform to the requirements as specified in ACI 301

D. Water: ASTM C 1602. Clean, and free from injurious amounts of oil, acids, alkali, salts, organic material, or other deleterious materials.

E. Supplementary Cementitious Material

1. Fly Ash:

   a. ASTM C 618, Class C or Class F.

   b. Shall only be used as part of an approved mix design.

c. Slag Cement

d. ASTM C 989.

e. Shall not be used unless part of an approved mix design.

2. Silica Fume (Microsilica):

a. ASTM C 1240

b. Acceptable Products:

i. Force 10,000 D by GCP Applied Technologies, Inc.

ii. Eucon MSA by Euclid Chemical Company

iii. MasterLife SF 100 by BASF Coroporation

iv. Sikacrete 950 DP by Sika Corporation

3. Metakaolin:

a. ASTM C 618, Class N

b. Accetpable Products:

i. MetaMax by BASF Kaolin, part of BASF Corporation

ii. HRMK 100 by GCP Applied Technologies, Inc.

iii. Sikacrete M-100 by Sika Corporation

4. For concrete subject to Exposure Class F3 conditions as defined in ACI 318, limit the maximum content of supplementary cementitious materials to values shown in ACI 318.

5. The exact percentages used shall be based on successful test placement on site. Resubmit mix design if percentages change based on test placement.

6. The fly ash or natural pozzolan supplier shall have an effective quality control program in place to guard against contamination of the fly ash and assure compliance with Specifications.

7. Fly ash and slag cement used shall be from one source throughout the project. Substitution of sources will be acceptable only if testing of concrete mixes containing the substituted material show similar test results and if the color of concrete produced with the substituted material matches the color of previously poured concrete to the satisfaction of the Architect.

F. Ready Mixed Concrete:

1. Shall be batch-mixed and transported in accordance with ASTM C

G. Self-Consolidating Concrete:

1. Produce in accordance with ACI 237R.

2. Perform the following tests and provide report prior to submitting mix design:

a. Resistance to Segregation: Achieve a maximum static segregation percentage of 15% when tested according to ASTM C 1610 with a VSI index of 1 maximum.

b. Slump Flow: ASTM C1611 within a range of 20”-30”.

c. Passing Ability: ASTM C1621 with a maximum difference of 2" between testing with and without the J-Ring.

2. CONCRETE MIX DESIGN

A. Concrete Strength:

1. Shall be as indicated on the Structural Drawings

B. Concrete Density (Unit Weight):

1. Shall be as indicated on the Structural Drawings

C. Air Entrainment

1. For concrete exposed to freeze/thaw cycles and/or deicing chemicals (ACI 318 Exposure Classes F1, F2, F3), and concrete intended to be watertight, provide entrained air content of 6% + 1.5%, unless specified otherwise. This includes, but is not limited to, concrete at the following locations:

a. Concrete at the exterior of the structure with at least one surface exposed to weather, such as exterior face of grade beams, foundation walls, exterior walls and parapets, exposed columns and edge beams.

b. Floor framing and ramps in parking garages.

c. Loading docks.

d. Balconies and terraces with no waterproofing membrane.

2. For lightweight concrete less than 120 pcf density, air content may be up to 7% regardless of exposure condition.

3. For concrete with a specified compressive strength (f'c) greater than 5000 psi, required air content may be reduced to 5% + 1.5%.

4. Entrained air content noted above shall occur at point of delivery.

5. No entrained air content is required for foundations with no surface exposed to weather.

6. All interior steel trowel finished, normalweight slabs shall have a maximum air content of 3%.

D. Water-Cementitious Materials Ratio (w/cm) for Normalweight Concrete

1. Concrete used in slab on grade shall have a maximum w/cm ratio of 0.45.

2. All concrete used in exterior applications, including foundations, shall have a maximum w/cm of 0.40.

3. Absent the above conditions, all concrete with required strength of 4000 psi or higher shall have a maximum w/cm of 0.50.

4. The water-cementitious materials ratio shall not exceed values indicated, including any water added to meet specified slump in accordance with the requirements of ASTM C 94.

5. Weight of fly ash and other pozzolanic materials shall be included with the weight of cementitious materials used to determine the water-cementitious materials ratio.

E. Slump

1. Concrete design mixes shall be proportioned to meet the following slump limitations. Slump should be measured as described in the Testing Agency responsibilities:

a. Concrete with high range or mid range water-reducing admixture: Concrete slump prior to addition of high range water-reducing admixture shall not exceed 3" +/- 1” for normalweight concrete and 4" +/- 1” for lightweight concrete. After addition of water-reducing admixture, the concrete shall have a maximum slump of 9" +/- 1” unless otherwise approved by the SER.

b. Concrete without a water-reducing admixture: Slump shall not exceed 4” +/- 1”.

F. Self-Consolidating Concrete Slump/Flow: Use for concrete exposed to view and heavily reinforced areas where indicated on the plans, and where conventional mixtures do not provide adequate consolidation. Minimum slump/flow diameter of [20"] or as required by the successful test placement onsite, which shall verify proper

workability, finish, and setting time. All self-consolidating concrete shall contain the specified high range water-reducing admixture. All self-consolidating concrete shall contain viscosity modifying admixture as required unless proper quantity and grading of fines can be achieved.

G. Shrinkage Limit

1. At all locations required to be watertight, proportion concrete for a maximum allowable length change of 0.04%, measured at 28 days, unless a lower shrinkage limit is indicated on the drawings.

H. Chloride Ion Content

1.

2.

3. ADMIXTURES

The total water-soluble chloride ion content of the mix including all constituents shall not exceed 0.15 percent by weight of cement unless corrosion inhibiting admixtures are added to the mixture to offset the additional chloride.

If the specified level of water-soluble chloride ion content cannot be maintained, appropriate level of corrosion inhibiting admixture shall be added to the mix in accordance with the manufacturer's recommendation to offset the excess amount of chloride at no additional cost to the Owner.

A. General:

1. Admixtures specified below can be used only when established in the mix design with Design Professionals' prior written approval.

2. Each admixture approved by Design Professionals shall be used in strict compliance with manufacturer's published instructions.

3. Concrete supplier shall certify all admixtures to be compatible with each other. (See Submittals Section in Part 1)

B. Air Entraining Admixture:

1. ASTM C 260

2. Acceptable Products:

a. MasterAir Series by BASF Corporation

b. Darex Series or Daravair Series by GCP Applied Technologies, Inc.

c. EUCON AEA —92 or EUCON Air Series by Euclid Chemical Company

d. AIR Series or AEA-14 by Sika Corporation

c. Water-Reducing Admixture:

1. ASTM C 494, Type A

2. Acceptable Products:

a. MasterPozzolith Series by BASF Corporation

b. EUCON NW or EUCON WR 91 by Euclid Chemical Company

c. WRDA Series, Zyla Series or Mira Series by GCP Applied Technologies, Inc.

d. Plastocrete Series by Sika Corporation

D. Retarding Admixture:

1. ASTM C 494, Type B

2. Acceptable Products:

a. MasterSet R Series or MasterSet DELVO Series by BASF Corporation

b. EUCON RETARDER 100 by Euclid Chemical Company

c. Daratard 17 by GCP Applied Technologies, Inc.

d. Plastiment Series by Sika Corporation

E. Non Corrosive Accelerating Admixture:

1. ASTM C 494, Type C

2. Acceptable Products:

a. MasterSet FP 20 or MasterSet NC 534 by BASF Corporation

b. ACCELGUARD 80, ACCELGUARD NCA or ACCELGUARD 90 by

Euclid Chemical Company

c. Daraset" Series, Polarset, or DCI by GCP Applied Technologies, Inc.

d. Sikaset Series or Rapid-1 by Sika Corporation

F. Water-Reducing and Retarding Admixture:

1. ASTM C 494, Type D

2. Acceptable Products:

a. MasterSet R Series or MasterSet DELVO Series by BASF Corporation

b. EUCON RETARDER 75 or EUCON DS by Euclid Chemical Company
c. Daratard 17 or Recovery Series by GCP Applied Technologies, Inc.
d. Plastiment Series by Sika Corporation

G. Water-Reducing and Accelerating Admixture:
1. ASTM C 494, Type E
2. Acceptable Products:
a. MasterSet FP 20 by BASF Corporation
b. ACCELGUARD 80 or ACCELGUARD 90 by Euclid Chemical Company
c. Libricon NCA by GCP Applied Technologies, Inc.
d. Sikaset NC by Sika Corporation

H. Mid-Range Water-Reducing Admixture:
1. ASTM C 494, Type A
2. Acceptable Products:
a. MasterPolyheed Series by BASF Corporation
b. Daracem or Mira by GCP Applied Technologies, Inc.
c. Sikaplast Series or Sikament Series by Sika Corporation
d. Eucon MR or Eucon MRX by Euclid Chemical Company

I. High-Range Water-Reducing Admixture:
1. ASTM C 494, Type F
2. Acceptable Products:
a. MasterGlenium Series by BASF Corporation
b. EUCON 37 or PLASTOL SERIES by Euclid Chemical Company
c. Daracem or ADVA Series by GCP Applied Technologies, Inc.
d. Viscocrete Series or Sikament Series by Sika Corporation

J. High-Range Water-Reducing Admixture for production of Control Flow Concrete:
1. ASTM C494 Type A and F and ASTM C1017 Type I

2. Acceptable Product:
    a. CONCERA SA8080 by GCP Applied Technologies, Inc.

K. High-Range Water-Reducing and Retarding Admixture:
1. ASTM C 494, Type G
2. Acceptable Products:
    a. EUCON 537 by Euclid Chemical Company
    b. Daracem Series or Adva Series by GCP Applied Technologies, Inc.

L. Workability Retaining Admixture:
1. ASTM C494, Type S
2. Acceptable Products:
    a. MasterSure Z-60 by BASF Corporation
    b. Visco Flow-2020 by Sika Corporation

M. Permeability-Reducing Admixture:
1. ASTM C494, Type S
2. Shall be a Portland cement based crystalline capillary waterproofing admixture that reacts in concrete to form non-soluble crystalline hydration products in the capillary pores of concrete,
3. Acceptable Products:
    a. MasterLife 300D by BASF Corporation
    b. Eucon Vandex AM-10 by Euclid Chemical Company
    c. Admix C-Series by Xypex

N. Viscosity Modifying Admixture (VMA) for Self-Consolidating Concrete (SCC):
1. ASTM C 494, Type S
2. Acceptable Products:
    a. MasterMatrix VMA Seriesby BASF Corporation
    b. V-MAR3 by GCP Applied Technologies, Inc.
    c. EUCON ABS or EUCON WO or VISCTROL by Euclid Chemical Company

d. Sika Stabilizer-4R by Sika Corporation

O. Corrosion Inhibiting Admixtures:

1. Calcium Nitrite Based: ASTM C 1582 and ASTM C 494, Type C, 30% + 2% solution

a. Acceptable Products:

i. DCI or DCI-Sby GCP Applied Technologies, Inc.

ii. MasterLife CI 30 by BASF Corporation

iii. EUCON CIA by Euclid Chemical Company

iv. Sika-CNl by Sika Corporation

2. Amine Carboxylate Based: ASTM C 1582, which includes ASTM C-494 amine carboxylate

a. Acceptable Product:

i. MCI 2005, MCI 2005 NS, MCI 2006 or MCI 2006 NS by Cortec Corporation

3. Amino Alcohol Based:

a. Acceptable Product:

i. FerroGard 901 by Sika Corporation

ii. MasterLife CI 222 by BASF Corporation

P. Shrinkage Reducing/Compensating Admixtures:

1. ASTM C 494, Type S

2. Acceptable Products:

a. Eclipse Floor 200 or Eclipse 4500 (for use with air-entrained concrete) by GCP Applied Technologies, Inc.

b. Conex or EUCON SRA Floor or EUCON SRA-XT (for use with air-entrained concrete) by Euclid Chemical Company

c. MasterLife SRA Series or MasterLife CRA 007 by BASF Corporation

d. SikaControl 75 by Sika Corporation

e. PREVent-C by PremierCPG

Q. Alkali-Silica Reaction Inhibiting Admixture:

1. ASTM C 494, Type S
2. Shall contain a nominal lithium nitrate content of 30 percent.
3. Dosage to be determined in accordance with US Army COE CRD-C662
4. Acceptable Products:
    a. MasterLife ASR 30 by BASF Corporation
    b. Eucon Integral ARC by Euclid Chemical Company
    c. RASIR by GCP Applied Technologies

R. Porosity Inhibiting Admixture:

1. ASTM C494, Type S
2. Sodium silicate free
3. Manufacturer must be able to provide a flooring adhesion guarantee and life of the concrete vapor transmission warranty. In order to obtain warranty, product must be installed in compliance with the manufacturer's published data sheet including but not limited to proper on-site representation, mix design review, concrete testing and installation of vapor retarder for slabs on ground.
4. Acceptable Products:
    a. Barrier One by Concrete Moisture Solutions, Inc.

S. Carbon Dioxide (C02) Mineralization:

1.

2.

3.

1. ADHESIVES

Where called for on the drawings or when approved by the SER, provide concrete that has undergone carbonization treatment with carbon dioxide (C02) during mixing, such that C0z is chemically mineralized into the concrete.

C02 injected into the mix must be post-industrial C02 sourced from a nearby emitter. Provide concrete producer's certificate outlining quantity, location and supplier of C02.

Acceptable Product:

a. Carbon Cure by CarbonCure Technologies.

A. Epoxy Bonding Agent for bonding hardened concrete to hardened concrete (existing concrete damp or dry, at least 28 days old, no surface water):

1. ASTM C 881 Type IV, Grade 1, 2 or 3, Class B or C as appropriate for field temperature conditions.

2. Acceptable Products:

a. Acceptable Product: Dural 452 Series by Euclid Chemical Company

b. Rezi-Weld 1000 by W.R. Meadows

c. Sure Bond J58 by Dayton Superior

B. Epoxy Bonding Agent for bonding freshly mixed concrete to hardened concrete (existing concrete damp or dry, less than 28 days old, no surface water):

1. ASTM C 881, Type V, Grade 1, 2, or 3, Class B or C as appropriate for field temperature conditions.

2. Acceptable Products:

a. Dural 452 Gel or 452 MV by Euclid Chemical Company

b. Sikadur 32 Hi-Mod by Sika Corporation

c. Rezi-Weld 1000 by W.R. Meadows

d. Sure Bond J58 by Dayton Superior

C. Anti-Corrosive Epoxy Modified Cementitious Bonding Compound and Corrosion Protection of Reinforcement (bonding agent for existing concrete saturated surface dry, no surface water):

This adhesive shall be a water-based epoxy/cementitious compound for adhesion and corrosion protection of reinforcing members.

1. Acceptable Products:

a. DURALPREP AC by Euclid Chemical Company

b. ARMATEC 110 EpoCem by Sika Corporation

c. MasterEmaco P124 by BASF Corporation

d. Perma Prime 3C by Dayton Superior

2. 5 CURING COMPOUNDS AND SEALERS

A. Interaction with finishes:

1. See architectural Drawings for finish material applied over concrete.

2. Use only curing and sealer compounds that are compatible with finish, waterproofing or roofing material.

B. Curing and Sealing Compound (VOC Compliant, 350 g/l):

1. ASTM C1315, Type I, Class A and/or ASTM C 309, Type 1, Class A or B

2. Water based acrylic, clear, 25% solids curing and sealing compound.

3. Acceptable Products:

a. Super Diamond Clear VOX by Euclid Chemical Company

b. Cure & Seal 1315 J22WB by Dayton Superior

c. VOCOMP-25 by W.R. Meadows

d. Dress & Seal WB 30 or Lumiseal WB by Laticrete International, Inc.

C. Curing Compound-Dissipating/Strippable (VOC Compliant, 350 g/l):

1. ASTM C 309, Type I, Class A or B

2. Water based resin, clear curing compound that begins to dissipate when exposed to UV light and traffic.

3. Acceptable Products:

a. Kurez DR VOX by Euclid Chemical Company

b. Clear Resin Cure J11W by Dayton Superior

c. 1100 by W.R. Meadows

D. Surface Applied Vapor Emission Mitigation

1. Shall conform to state and federal VOC regulaions with zero VOC content.

2. Shall provide a 15 year warranty against flooring failure due to negative-side moisture vapor migration of moisture-born alkalinity.

3. Acceptable Products:

a. CS2000 by Creteseal

E. Liquid Densifier/Sealer:

1. The liquid densifier compound shall be a silicate based compound that penetrates and chemically hardens concrete surfaces.
2. Acceptable Products:
    a. Euco Diamond Hard by Euclid Chemical Company
    b. Acceptable Product: Dayton Superior “Densifier J13"
    c. MasterKure HD 200WB by BASF Corporation
    d. Liqui-Hard by W.R. Meadows

F. Evaporation Retarder:

1. Acceptable Products:
    a. MasterKure ER50 by BASF Corporation
    b. Eucobar by Euclid Chemical Company
    c. Sika Film by Sika Corporation
2. 6 DRY SHAKE HARDENERS

A. Mineral Aggregate Hardener:

1. The specified mineral aggregate hardener shall be a factory-blended mixture of specially processed graded non-metallic aggregate.
2. Acceptable Products:
    a. Euclid Chemical Company, "Surflex" to be used with “Kurez DR VOX”
    b. MasterTop 100 to be used with "MasterKure CC 200WB by BASF Corporation
    c. Quartzplate FF to be used with Dress & Seal WB 30 by Laticrete International, Inc.

B. Non-Oxidizing Metallic Hardener:

1. The specified non-oxidizing metallic floor hardener shall be a mixture of specially processed non-rusting aggregates.
2. Acceptable Products:
    a. Euclid Chemical Company, “Diamond-Plate” to be used with “Kurez DR VOX”

b. MasterTop 210COR to be used with “MasterKure CC 200WB by BASF Corporation

c. Emeryplate FF to be used with Lumiseal WB by Laticrete International, Inc.

7. MISCELLANEOUS CONCRETE AND CONCRETE RELATED PRODUCTS

A. Cementitious Non-Shrink Grout:

1. Provide pre-packaged high-precision, non-shrink, non metallic grout.

2. See General Notes for grout minimum compressive strength.

3. ASTM C 1107

4. Acceptable Products:

a. MasterFlow 928 by BASF Corporation

b. Dry Pack Grout or HI-FLOW GROUT by Euclid Chemical Company

c. Five Star Grout by Five Star Products

d. Sikagrout 328 by Sika Corporation

e. Duragrout by Latticrete International, Inc.

B. Self-Leveling Concrete Topping - Underlayment for Interior Applications:

1. Use self-leveling underlayment concrete formulated to level concrete floors without shrinking, cracking or spalling, and capable of being placed from feathered edge to 1" thickness without aggregate in one pour. If greater than 1" thickness is required, aggregate shall be extended with aggregate in accordance with manufacturer's requirements. Appropriate primer shall be utilized for all underlayment applications.

2. Acceptable Products:

a. K-15 by Ardex

b. FIo-Top or Super FIo-Top by Euclid Chemical Company

c. Sika Level Series by Sika Corporation

C. Moisture-Retaining Covers:

1. ASTM C171
2. A naturally colored, non-woven polypropylene fabric with a non-perforated reflective polyethylene coating containing stabilizers to resist degradation from ultraviolet light. Fabric shall exhibit low permeability and high moisture retention.
3. Acceptable Products:
    a. Hydracure S-16 by PNA Construction Technologies, Inc.
    b. Transguard 4000 by Amorlon a Division of Reef Industries, Inc.
    c. UltraCure NCF by Sika Corporation
    d. Top Cure by Transhield

D. Expanded Polystyrene (EPS) used as Fill - Geofoam

1. Material: Rigid, closed cell polystyrene blocks formed by expansion of polystyrene beads by steam.
2. Comply with the requirements of ASTM D 6817
3. Unless noted otherwise on the drawings, provide the following types of EPS:
    a. Fill between a lower slab and a raised slab area: EPS12 - 2.2 psi compressive resistance minimum at 1% deformation, 10 psi flexural strength minimum
    b. Fill below exterior floor slabs or slabs with truck loading: EPS19 - 5.8 psi compressive resistance minimum at 1% deformation, 30 psi flexural strength minimum
4. Thickness as indicated on Drawings.
5. Execution: Conform to manufacturer's instructions regarding preparation, installation and protection
6. Gripper plates shall be used as needed to restrain EPS from moving laterally in multi-layer applications
7. Contractor shall sequence soil or concrete topping placement to avoid EPS block shift or flotation.
8. Submit the following for review:

a. Manufacturer's product literature including physical properties in compliance with ASTM D 6817 and type specified

b. 10 year physical property warranty

c. Proposed plan layout of fill blocks showing gaps between blocks where required for stabilizing and/or load bearing reinforced concrete ribs as shown on drawings, in details or in notes.

9. Submit the following for record:

a. Summary of test compliance with specified performance characteristics and physical properties

b. Product Certificates showing evidence of third party quality control

10. Acceptable Manufacturers:

a. ACH Foam Technologies

b. Atlas EPS

c. Universal Construction Foam

E. Vapor Retarder: See Thermal and Moisture Protection

F. Non-Slip Aggregate:

1. Abrasive crushed and graded aggregate, high in aluminum oxidegregate which is unaffected by moisture or cleaning compounds.

2. Acceptable Products:

a. Non-Slip Aggergate by Euclid Chemical Company

b. Emery Non-Slip by Dayton Superior

c. A-H Emery Emerundum by Anti-Hydro International, Inc.

8. CONCRETE REPAIR MATERIALS

A. Polymer-Modified Repair Mortar

1. The following patching mortars may be used when color match of the adjacent concrete is not required. Prior approval by the Design Professionals is required.

2. Acceptable Products-Horizontal Surfaces:
    a. Tammspatch II or Tamms Thin Patch by Euclid Chemical Company
    b. Sikatop 122 Plus by Sika Corporation
    c. Meadow-Patch T1 or T2 or Meadow-Crete GPS by W. R. Meadows
    d. Duracrete by Laticrete International, Inc.
3. Acceptable Products-Vertical and Overhead Surfaces:

a)

b)

c)

B. Crack Repair:

MasterEmaco N400 by BASF Corporation

Verticoat, Vertacoat Supreme or Dualtop Gel by Euclid Chemical

Company

SikaTop 123 Plus by Sika Corporation Meadow-Crete GPS by W.R. Meadows

a) Euco Qwikstitch or Dural 50 LM by Euclid Chemical Company

b) MasterSeal 630 by BASF Corporation

c) T78 Methyl Methacrylate Crack Sealer by Transpo Industries, Inc.

A. High Strength Flowing Repair Concrete:
    1. For forming and pouring large volume repairs, provide shrinkage compensated repair concrete with integral corrosion inhibitor.
    2. Minimum compressive strength 8000 psi @ 28-days
    3. Prior approval by the Design Professionals is required for cold weather applications
    4. Acceptable Products:
        a. Eucocrete by Euclid Chemical Company
        b. MasterEmaco S 466 CI by BASF Corporation
        c. Meadow-Crete FNP by W.R. Meadows

B. Epoxy Injection:

1. ASTM C881
2. Acceptable Products:
    a. Masterlnject 1380 by BASF Corporation
    b. Dural Injection Gel by Euclid Chemical Company
    c. Sikadur 35 LV LPL by Sika Corporation
    d. Rezi-Weld LV State by W. R.Meadows

C. Pressure-Injected Foam Resin:

1. Acceptable Products:
    a. De Neef Sealform PURe by GCP Applied Technologies
    b. Crack-Pac Flex-H2o by Simpson Strong-Tie
    c. SikaFix HH LV by Sika Corporation

D. Semi Rigid Joint Filler:

1. Acceptable Products:
    a. MasterSeal CR 190 by BASF Corporation
    b. Euco 700 or Qwikjoint UVR by Euclid Chemical Company
    c. MM-80 by Metzger/McGuire
    d. Rezi-Weld Flex by W. R, Meadows

E. Methyl Methacrylate (MMA)

1. Acceptable Products:
    a. MasterSeal 630 by BASF Corporation
    b. Transpo Industries, Inc. “T-78 Methyl Methacrylate Polymer Crack Healer/Sealer”
    c. MMA #884 by Epoxy Systems

F. Sealant:

1. Silicone or Polyurethane Sealant (as selected based on project requirements such as loading, traffic, bond, coatings, etc.).

2. Joint to be routed and cleaned per manufacturer's written directions.
3. Acceptable Products:
    a. MasterSeal Sealants by BASF Corporation
    b. Sikaflex-1C SL and Loadflex 524 EZ by Sika Corporation
    c. Pourthane NS by W.R. Meadows
    d. Eucolastic 1NS by Euclid Chemical Company

PART 3 - EXECUTION

1. TOLERANCES
    A. Work shall conform to all requirements of ACI 117 except as modified by more stringent requirements in the Project Specifications and/or Drawings.
2. PREPARATION
    A. Subgrade:
        1. Dampen subgrades not covered with membrane by sprinkling immediately before placing concrete.
            a. Omit when subgrade is already damp.
        2. Do not place on water-saturated subgrade unless placing can be done without damage to subgrade (surface is stable) and loading the subgrade does not drive free water to the surface.
        3. Do not place concrete on frozen ground.
    B. Forms:
        1. Coordinate with Section 03 10 00 Concrete Formwork.
        2. Remove dirt, sawdust, nails and other foreign material from formed space.
        3. Dampen wood forms by sprinkling immediately before placing.
        4. Cool metal forms by sprinkling immediately before placing.
    C. Concrete Accessories:
        1. Coordinate with Section 03 10 00 Concrete Formwork.
    D. Dewatering:
        1. Remove water from concrete formwork.

2. Divert any flowing water to sump and remove by pumping.

3. Refer to General Requirements for additional dewatering requirements.

E. Vapor Retarder Placement: See Thermal and Moisture Protection.

3. JOINTS IN CONCRETE

A. Locate construction and contraction joints as indicated on Drawings and on approved joint location submittal.

1. Do not use contraction joints in framed floors or composite slabs.

2. Locate and install construction joints so they do not impair strength or appearance of the structure, as acceptable to Design Professionals.

3. Coordinate location of construction and contraction joints with locations of joints in finish materials where they exist.

a. Construction and contraction joints in slabs or slab on grade with terrazzo finish must be reviewed and approved by the Design Professionals.

4. Maximum joint spacing is as indicated on Drawings.

B. Construction Joints:

1. Construction joints shall be located within the central third of the span. Any concrete spilling over or through the bulkhead shall be removed at the completion of the pour. All surfaces of the concrete shall have reinforcing extending through the joint.

2. Horizontal Joints: Horizontal construction joints other than those shown on the Drawings will not be permitted unless approved by the Architect.

3. Joint Preparation: Forms shall be removed in time to permit roughening of construction joints of structural members by chipping and wire brushing to remove all loose and foreign material and roughen as indicated on the Drawings. The existing concrete at joints shall either be (a) dampened to the point that the surface is saturated, but all standing water has been removed, promptly followed by placement and vibration of fresh concrete, or (b) not required to be dampened, with one of the specified bonding compounds applied as appropriate for the joint condition, following manufacturer recommendations, with placement and vibration of fresh concrete to follow while the epoxy

bonding agent is still tacky. Joints without epoxy bonding agent require fresh concrete with slump 7 inches or greater at horizontal joints, and fresh concrete confined to maintain pressure against the joint at vertical joints. Where such conditions are not present, or where applying water to dampen the surface is impractical, use epoxy bonding agent suitable for dry surfaces

C. Isolation Joints:

1. Interrupt structural continuity resulting from bond, reinforcement or keyway at points of contact between slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls and other locations, as indicated.

D. Contraction Joints in Floor Slabs-on-Grade:

1. Maximum slab area controlled by jointing is 400 square feet.

2. Space joints at 36 times slab thickness unless a smaller spacing is indicated on the Drawings, located to conform to bay spacing wherever possible (at column centerlines, half bays, third bays).

3. Contraction joints can be provided by sawcuts, formed joints or appropriately detailed construction joints.

4. Sawcuts shall be made as soon as possible after slab finishing as may be safely done without dislodging aggregate. The Soff-Cut saw shall be used to a depth of '/‹ of slab thickness immediately after final finishing. Conventional saw shall be used as soon as possible after final finish without raveling to a depth as indicated on the Drawings.

5. Where contraction joints coincide with construction joints, detail joint as indicated on Drawings.

E. Joint Fillers: Coordinate with Section 03 20 00 Concrete Reinforcement and Embedded Assemblies and Thermal and Moisture Protection requirements.

4. MIXING

A. Measurement of Materials: Conforming to ASTM C 94.

B. Mixing: All concrete shall be ready-mixed conforming to ASTM C 94 except as follows:

1. Provide concrete materials, proportions and properties as herein specified in lieu of ASTM C 94.

2. Water, beyond that required by the mix design, shall not be added at the Project site. Addition of water at the Project site shall be made only in the presence of the Testing Agency.

3. Furnish delivery ticket with each load of concrete delivered to the site to the Contractor conforming to the requirements of ASTM C 94.

C. High range water reducing agents (superplasticizer), if added at the batch plant, may be added again at the Project site.

1. If superplasticizers are added at the batch plant, the concrete mix design must account for the delivery time, workability, finishability, and setting time required on the jobsite for proper placing and finishing procedures.

2. If the superplasticizer is redosed at the jobsite in air entrained concrete, air content must be checked after mixing.

D. Discharge of the concrete shall be completed within 1-1/2 hours, after the introduction of the mixing water to the cement and aggregates or the introduction of the cement to the aggregates. If the 1-1/2 hour limit cannot be achieved due to project location or other project specific conditions, hydration control measures to extend the proper workability up to 4 hours maximum can be proposed for approval by the SER. The increased time period along with redosing of the high range water reducer and/or use of hydration controlling/workability retaining admixtures should be agreed upon at the pre-concrete conference.

5. CONCRETE PLACEMENT

A. Prior to Concrete Placement:

1. Mechanical vibrators are required and must be available for placing concrete.

2. Remove debris from space to be occupied with concrete.

3. Notify Design Professionals and Testing Agency 48 hours prior to starting concrete placement.

4. Approved mix designs must be maintained on file in Contractor's Field Office.

5. Reinforcement and accessories shall be in proper locations, clean, free of loose scale, dirt or other foreign coatings that may reduce bond to concrete, and in accordance with Section 03 20 00 and Drawings.

6. Fog spray forms, reinforcing steel, and subgrade just before pouring concrete.

7. Do not place concrete having a slump outside of allowable slump range.

8. Place concrete before initial set has occurred, but in no event after it has been discharged from the mixer more than 30 minutes. All concrete shall be placed upon clean, damp surfaces, free from puddled water, or upon properly consolidated fills or upon Controlled Low-Strength Material with a strength between 50 and 1200 psi. Placement upon soft mud or dry earth is not permitted.

9. Unless adequate protection is provided, concrete shall not be placed during rain.

10. Rain water shall not be allowed to increase mixing water or to damage the surface finish.

11. At surfaces left exposed to view, do not use equipment in placing and finishing concrete that contain aluminum in the finishing edges that come in contact with the concrete surface.

12. Keep subgrade moisture uniform without puddles or dry areas.

13. Place vapor retarder directly below slabs on grade as specified in Contract Documents.

B. For Conduits and Pipes Embedded in Concrete:

1. For concrete slab, wall, beam or column, conform to requirements of ACI 318. For variations from these requirements, submit a written request for Design Professionals' review and response.

2. Conduits and pipes shall not be embedded in concrete slabs on steel deck without approval of Design Professional.

3. Provide sleeves for pipes passing vertically through concrete.

4. Do not embed aluminum materials.

5. Do not cut, bend or displace the reinforcement to facilitate placement of embedded pipes and conduits.

C. Pumping: Pumping shall be done in strict accordance with ACI 304.2R.

D. Placing Concrete in Forms:

1. Clean and prepare forms as specified in Section 03 10 00/Concrete Formwork.
2. Place concrete continuously without interruption between predetermined construction and contraction joints in walls.
3. Deposit concrete in forms in horizontal layers no deeper than 24” and in a manner to avoid inclined construction joints.
4. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
5. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping.
    a. Use equipment and procedures for consolidation of concrete in accordance with ACI 309R.
6. Do not use vibrators to move fresh concrete laterally inside forms from discharge point; shift discharge point as needed.
7. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the machine.
8. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer.
9. Do not insert vibrators into lower layers of concrete that have begun to set.
10. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.
11. Do not vibrate Self-Consolidating Concrete (SCC).

E. Placing Concrete Slabs:

1. Place concrete continuously without interruption between predetermined construction and contraction joints in floors.
    a. Place slabs on grade by the long strip cast method. Refer to ACI 302.1R for recommended methods of placement.
2. Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until completing placement of a panel or section.

3. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement, other embedded items and into corners.

4. Bring slab surfaces to correct level with a straightedge and strike off.

    a. Use highway straight edges, bullfloats or darbies to smooth surface free of humps or hollows.

    b. Do not disturb slab surfaces prior to beginning finishing operations.

5. Maintain reinforcing in proper position on chairs during concrete placement.

6. Do not place materials on slabs or impose loads during period of setting.

F. Placing Concrete on Steel Decks

1. Exercise care during concrete placement on steel decks to prevent concentrated loads or high pile-ups of concrete and to avoid impacts caused by dumping or dropping of concrete on steel decks.

2. Do not use buggies on unprotected areas of deck. If buggies are used to place concrete, furnish and install planked runways to protect deck from damage.

G. Placing Concrete at Construction Joints:

1. To secure full bond at construction joints, surfaces to receive concrete in a subsequent placement shall be left in a roughened state or intentionally roughened by raking while plastic or brushing and chipping immediately after removal.

2. Before new concrete is placed in contact, surfaces of hardened concrete already placed shall be thoroughly cleaned of foreign materials and laitance.

3. At hardened concrete at joints where no bonding agents are used, dampen concrete to achieve a saturated surface dry condition. Leave no standing water. Place and vibrate concrete (slump 7 inches or greater) against horizontal joints. Place and vibrate flowing concrete (slump 8 to 10 inches) while maintaining pressure against vertical joints by confinement.

4. At hardened concrete with joints not meeting conditions required for no bonding agents, apply appropriate specified bonding agent for

conditions present including age and moisture per manufacturer's specifications. Place new concrete while the bonding agent is still tacky.

H. Cold-Weather Placement:

1. Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306R and as specified in this section.

2. When air temperature has fallen to or is expected to fall below 40°F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50°F, and not more than 80°F, at point of placement.

3. Do not use frozen materials or materials containing ice or snow.

    a. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

4. Remove frost, snow and ice from forms, reinforcement and other embedments immediately prior to concrete placement.

5. Use only the specified non-corrosive accelerating admixture previously approved as part of the cold weather mixture. Addition of calcium chloride, salt, thiocyanates or admixtures containing more than 0.05 percent chloride ions is not permitted.

6. Freeze Resistant Concrete per ASTM C1622 and Chapter 9 of ACI 212.3R may be used if approved by SER. The contractor shall prepare a plan for placing, finishing and curing procedures that assure the specified hardened properties are achieved.

I. Hot-Weather Placement:

1. Hot weather is defined as air temperature which exceeds 90°F or any combination of high temperature, low humidity and/or high wind velocity which causes a rate of evaporation in excess of 0.2 pounds per square feet per hour as determined by ACI 305R.

2. When hot weather conditions exist that would impair quality and strength of concrete, place concrete in compliance with ACI 305R and as specified in this section.

3. Cool ingredients before mixing to maintain concrete temperature at time of placement below [95°F].

4. Mixing water may be chilled, or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water.

5. Use of liquid nitrogen to cool concrete is Contractor's option.

6. When concrete placement will occur late in the day and reinforcing steel will be heated by the sun, cover reinforcing steel with water-soaked burlap so that steel temperature will not exceed ambient air temperature immediately before embedding in concrete.

7. When concrete operations must be performed in direct sun, wind, high temperatures, low relative humidity, or other adverse placing conditions, the specified evaporation retarder shall be applied one or more times during the finishing operation to prevent plastic cracking.

6. CONCRETE FINISHES

A. General:

1. Comply with recommendations for concrete finishing established by ACI 302.1R and ACI 304R.

2. Comply with dimensional tolerance limitations given by ACI

3. For shored floor or slab on grade construction: Floor flatness/floor levelness tolerance compliance testing is to be performed prior to the removal of shores and forms but not later than [72] hours of concrete placement by Testing Agency.

4. See architectural Drawings for locations of the various finishes listed below.

5. Comply with the specified overall SOFF and SOFL values listed below:

a. The specified overall area shall be each individual floor.

b. FF/FL shall be measured in accordance with ASTM E 1155.

c. The specified minimum local values of MLFF/MLFL shall be 3/5 of the SOFF/SOFL values listed below.

d. If an individual test section measures less than either of the specified minimum local MLFF/ MLFL numbers, that section may be rejected and remedial measures may be required as specified in CONCRETE SURFACE REPAIRS.

e. If the composite value of the test surface measures less than either of the specified overall SOFF/SOFL numbers, then the entire slab may be rejected and remedial measures may be required.

f. FL numbers shall only apply to supported slabs if the tested with all of the original shoring in place, prior to shoring removal/reshoring.

g. FL numbers shall not apply to unshored slabs or shored slabs with camber.

B. Finish for monolithic slab surfaces to receive concrete floor topping or mortar setting beds for tile and other bonded applied cementitious finish flooring material, as indicated on architectural Drawings:

1. Scratch Finish.

a. Finish surface to overall value of SOFF=20 and SOFL'15.

b. Slope surfaces uniformly to drains where required.

c. After leveling, roughen surface before final set with stiff brushes, brooms, or rakes.

c. Finish for monolithic slab surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, sand-bed terrazzo as indicated on architectural Drawings:

1. Float Finish.

a. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating.

b. Begin floating, using float blades or float shoes only, when surface water has disappeared, or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both.

c. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units.

d. Finish surfaces to overall value of SOFF=20 and SOFL-15.

e. Cut down high spots and fill low spots.

f. Uniformly slope surfaces to drains.

g. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

D. Finishes for Pedestrian Sidewalks and Ramps, Exterior Platforms, Steps, as indicated on architectural Drawings:

    1. Sidewalks and Curbs: Light-to-medium broom finish applied with fiber-bristle broom perpendicular to direction of main traffic route immediately after float finishing.

    2. Ramps: Scored finish as applied perpendicular to direction of main traffic route immediately after float finishing.

    3. Finish surface to overall value of SOFF=20 and SOFL-15.

    4. Texture shall be approved by the Design Professionals from sample panels.

E. Finish for interior floor slab surfaces exposed to view and slab surfaces to be covered with resilient flooring, carpet, paint or another thin film-finish coating system, as indicated on architectural Drawings:

    1. Trowel Finish.

        a. After floating, begin first trowel-finish operation using a power-driven trowel.

        b. Begin final troweling when surface produces a ringing sound as trowel is moved over surface.

        c. The final hand-troweling operation shall result in a smooth surface, free of trowel marks, uniform in texture and appearance.

        d. Grind smooth any surface defects that would telegraph through applied floor covering system.

    2. Finish surface to overall value of SOFF=25 and SOFL-20.

    3. Floor Slopes: Where drains occur, slope floor slabs uniformly to drains, maintaining scheduled slab thickness.

    4. Floor Edges at Expansion Joints: Tool edges minimum 3/8".

    5. Defects: Remove defects of sufficient magnitude to show through floor covering by grinding.

    6. Floor Hardener: Use only where scheduled and in accordance with manufacturer's published instructions.

    7. Dry Cement: Shall not be used during finishing.

F. Finish for thin set ceramic tile or thin set epoxy terrazzo, as indicated on architectural Drawings:

1. Trowel and Fine Broom Finish:
    a. Apply a trowel finish as specified.
    b. Immediately follow by slightly scarifying the surface with a fine broom.
2. Finish surface to overall value of SOFF=35 and SOFL-25.

G. Finishes for Parking Garage Deck, Ramps, Loading Docks:

1. Highway straight edge immediately after screeding concrete.
2. Finish surface to overall values of SOFF=20 and SOFL-15.
3. For Slabs Not Receiving Deck Coating: Medium broom finish with ridges not to exceed 1/8" in height. Texture shall be as approved by the Design Professionals from sample panels.
4. For Slabs Scheduled to Receive Deck Coating: Smooth floated finish which must be verified with coating manufacturer before finishing the slab.
    a. Coordinate with deck coating specified under Thermal and Moisture Protection.
5. Auto Ramps: Rough texture applied perpendicular to direction of traffic. Texture shall be as approved by the Design Professionals from sample panels.

H. Finishes Equipment and Housekeeping Pads

1. Coordinate finish surface to meet equipment manufacturer requirements, if any, for flatness and levelness.

I. Tolerances at Slab Discontinuities

1. Within 2 ft of slab boundaries, construction joints, isolation joints, block-outs, penetrations or other similar discontinuities, where required for travel paths, installation of finishes and partitions, or any other requirements indicated in the Contract Documents, the following equivalent straightedge tolerances shall apply:
    a. Specified local MLFF = 12, use '/‹” over 4 ft, no offset greater than 1/16”
    b. Specified local MLFF = 15, use 1/8” over 4 ft, no offset greater than 1/32"

J. Dry Shake Finish:

1. Non-slip aggregate where indicated on Drawings.
2. Non-oxidizing metallic hardener on loading docks at a rate of 1.5 lbs. per sq. ft. and in other locations so noted on the Drawings.

3. Mineral aggregate hardener at a rate of 1.2 lbs. per sq. ft. where noted on the Drawings.

4. Final finish type, method and tolerance as applicable by location and use.

5. Dry shake finish will be applied only where scheduled and in accordance with the manufacturer's published instructions and the methods and procedures agreed upon at the pre-installation conference.

K. Rough Formed Finish:

1. Acceptable for formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated.

2. Concrete surface shall have texture imparted by form-facing material used, with tie holes and defective areas repaired and patched, and fins and other projections exceeding 1/4” in height rubbed down or chipped off.

L. Architectural Concrete Finish:

1. Using self-consolidating concrete, provide smooth, uniform finish upon form removal with no patching, stoning or other form of repair except washing permitted unless otherwise noted for walls, columns and other surfaces exposed to view. The surface shall match the approved jobsite mock-up panel.

M. Smooth Formed Finish:

1. Required for formed concrete surfaces exposed to view, or scheduled to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or other similar system, as indicated on architectural Drawings:

2. Surface is an as-cast concrete surface obtained with selected form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams.

3. Repair and patch tie holes and defects. Remove fins and other projections completely.

N. Smooth Rubbed Finish:

1. "Smooth Rubbed" finish shall consist of a finish free of fins, joint marks smoothed off, blemishes removed and surfaces left smooth and unmarred.

2. Provide smooth rubbed finish to scheduled concrete surfaces, as indicated on architectural Drawings, which have received smooth form finish treatment not later than one day after form removal.

3. Moisten concrete surfaces and rub with carborundum brick or other abrasive until a uniform color and texture is produced.

    a. Do not apply cement grout other than that created by the rubbing process.

O. Grout-Cleaned Finish:

1. Provide grout-cleaned finish on scheduled concrete surfaces, as indicated on architectural Drawings, that have received smooth-formed finish treatment.

2. Combine one part Portland Cement to one and one-half parts fine sand by volume, and a 50:50 mixture of acrylic or styrene butadiene-based bonding admixture and water to form the consistency of thick paint.

3. Blend standard Portland Cement and white Portland Cement in amounts determined by trial patches so that final color of dry grout will match adjacent surfaces.

4. Thoroughly wet concrete surfaces, apply grout to coat surfaces, and fill small holes.

5. Remove excess grout by scraping and rubbing with clean burlap.

6. Keep surface damp by fog spray for at least 36 hours after rubbing.

P. Unformed Surfaces:

1. At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces.

2. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

1. CURING AND PROTECTION

    A. Normal Conditions:

        1. Protect concrete from premature drying, excessive hot or cold temperature, and damage.

        2. Concrete shall be kept continuously moist and above 50°F for seven days (ASTM C150 Type I cement) or for 10 days (ASTM C150 Type II cement). High early strength concrete usage shall be maintained over 50°F for three days.

        3. Concrete and concrete patching materials shall be cured according to manufacturers published recommendations.

4. Begin curing as soon as free water has disappeared from concrete surface and finishing has been completed.

5. Curing Methods: Cure concrete by curing compound, moist curing, moisture-retaining cover curing, or by combining these methods, as specified. Under extreme hot/dry or windy/dry conditions, moist curing and/or moisture-retaining cover curing should be used.

    a. Curing compound is an acceptable form of curing if all of the following requirements are met:

i. Apply curing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). In accordance with all manufacturer's instructions.

ii. Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions.

iii. Recoat areas subjected to heavy rainfall within 3 hours after initial application.

iv. Maintain continuity of coating and repair damage during curing period.

v. Use curing and sealing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.

vi. Floors to receive covering shall be cleaned thoroughly using a power scrubber and industrial strength detergent.

vii. Hand-brooming and sweeping is not sufficient.

viii. Strippable curing compound may be used in lieu of a moist curing method when approved by the Design Professionals.

    a. Provide moist curing by the following methods:

Keep concrete surface continuously wet by covering with water. Use continuous water-fog spray.

Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4” lap over adjacent absorptive covers.

b. Provide moisture-retaining cover curing as follows:

Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3” and sealed by waterproof tape or adhesive.

(1) Immediately repair any holes or tears during curing period using cover material and waterproof tape

1. Cure slabs on grade, concrete toppings, concrete pour strips, supported slabs, walls and columns, not subject to conditions of hot or cold weather concreting, in accordance with ACI 308.

2. Cure surfaces exposed to deicing salts, brackish water, etc., such as loading dock slabs, parking garage slabs and ramps in accordance with ACI 308 recommendations for moist curing.

3. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by leaving forms in place for the full curing period (equivalent to moist curing).

    a. If forms are removed prior to completion of full curing period, continue curing by methods specified above for Unformed Surfaces, as applicable.

A. Cold-Weather Protection:

    1. When concrete is placed under conditions of cold weather concreting (defined as a period when the mean daily temperature drops below 40°F for more than 3 successive days), take additional precautions as specified in ACI 306R when placing, curing, monitoring and protecting the fresh concrete.

B. Hot-Weather Protection:

    1. When concrete is placed under conditions of hot weather concreting, provide extra protection of the concrete against excessive placement temperatures and excessive drying throughout the placing and curing operations with an evaporation retarder.

        a. Apply according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.

    2. Hot weather curing is required if hot weather conditions occur within a 24-hour period after completion of concrete placement.

C. Floor surfaces, wherever indicated by weather conditions, shall be sprinkled during the interval between finishing operation and the start of curing to positively ensure against the possibility of surface drying.

1. CONCRETE REPAIRS

    A. Perform patching and repairs in accordance with ACI 301.

    B. Contractor shall submit patching and repair methods and materials for review by Design Professionals.

    C. When complete, all patches and repairs shall match color and texture of adjoining surfaces.

D. At surfaces that are exposed to view, prepare test areas at inconspicuous locations for review by Design Professionals to verify repair color and texture match before proceeding with repair.

E. Apply all patching and repair materials in accordance with manufacturer's specifications.

F. Repairing Cracks In Formed and Unformed Surfaces:

1. Contractor shall notify Design Professionals of all cracks wider than 0.02” and all cracks wider than 0.01” that occur in a group of at least three cracks within twelve inches, in concrete. If Design Professionals deem repairs necessary, Contractor shall be responsible for repairing all such cracks per Design Professionals recommendation at no expense to the Owner. Repairs will generally require one or more of the following: Epoxy Injection, Semi-Rigid Epoxy, Pressure Injected Foam Resin, Methyl Methacrylate and/or Sealant with joint routed and cleaned. See Concrete Repair Materials section of this Specification for acceptable products

G. Repairing Formed Surfaces

1. Immediately after stripping forms, patch all honeycombing, defective joints, voids, etc. before the concrete is thoroughly dry.

2. Remove all burrs, fins, and ridges before the concrete is thoroughly dry.

3. Remove stains from rust, grease and oils, from release agents, etc.

4. Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of the Design Professionals.

a. Surface defects, include color and texture irregularities, cracks as defined above, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

b. Chip away defective areas, honeycomb, rock pockets, voids over 1/4" in any dimension and holes left by tie rods and bolts, down to solid concrete but in no case to a depth less than 1" and saw-cut edges to prevent feather edging of fill material.

5. Repair concealed formed surfaces, where possible, containing defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.

6. Clean out form tie holes and fill with dry pack mortar or precast cone plugs secured in place with bonding agent.

7. If honeycombing exposes reinforcement, chip to provide clear space at least 3/4" wide all around steel to allow proper bond.

H. Repairing Unformed Surfaces:

1. High and Low areas in concrete surfaces which are in excess of specified tolerances shall be leveled or ground-smooth.

a. Correct high areas by grinding after concrete has cured at least 14 days.

b. Correct low areas by applying leveling material. Finish leveling material as specified in this section.

2. Repair surfaces containing defects that affect durability of concrete.

a. Surface defects include crazing, cracks as defined above, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.

3. Repair defective areas, except random cracks and single holes not exceeding 1" in diameter, by cutting out and replacing with fresh concrete.

a. Remove defective areas with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around.

I. Filling In: Fill in holes and openings left in concrete for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place.

2. EVALUATION AND ACCEPTANCE OF CONCRETE

A. In accordance with ACI 301, except where otherwise specified.

B. If, at any time during construction, the concrete resulting from the approved mix design deviates from Specification requirements for any reason, such as lack of workability, or insufficient strength, the Contractor shall have his laboratory verify the deficiency and modify the mix design, until the specified concrete is obtained. Modified mix to be submitted for approval per Part 1 - SUBMITTALS.

3. CORRECTIVE MEASURES

A. Conflicts: The Contractor shall be solely responsible for errors of detailing, fabrication, and placement of reinforcement steel; placement of inserts and other embedded items; and the structural adequacy of all formwork.

B. Compensation for Additional Services: Should additional work by Design Professionals such as design, documentation, meetings and/or site visits be

required which are necessitated by failure of the Contractor to perform the work in accordance with the Contract Documents either developing corrective actions or reviewing corrective actions developed by others, the Contractor is responsible for paying for additional work performed by the Design Professionals at their standard firm-wide billing rates plus out-of-pocket expenses incurred at cost + 10%. Additional costs for testing and inspection by the Contractor shall also be compensated by the Contractor.

SECTION 03 37 13 — SHOTCRETE

1. GENERAL
    1. SUBMITTALS
        A. Action Submittals:
            1. Shop Drawings: Illustrate products, installation, and relationship to adjacent construction.
    2. QUALITY ASSURANCE
        A. Installer Qualifications: Firm specializing in work of this Section, with minimum [2] [__] years' experience.
        B. Perform Work in accordance with ACI 506.2.
1. PRODUCTS
    1. MATERIALS
        A. Cement: ASTM C150, Type I, gray.
        B. Fly Ash: ASTM C618.
        C. Aggregate: Maximum 3/8 inch.
        D. Additives: As required by mix design.
        E. Lightweight Aggregate: ASTM C330.
        F. Metal Lath: ASTM C847, flat rib, 3/8 inch high, galvanized, 3.4 pounds per square yard.
        G. Mixes:

1. Minimum 28 day compressive strength: [3,000] [__] PSI.
2. Air entrainment: [4 to 6] [__ to __] percent by volume.
3. Slump: 1/2 to 1-1/2 inches.

2. EXECUTION

1. INSTALLATION

A. Build up shotcrete thickness in multiple passes.

B. Allow each layer to take initial set before applying succeeding layers.

C. Finish surfaces uniform, free of voids and protrusions.

D. Maintain surfaces wet for minimum of 7 days or apply curing compound.

END OF SECTION

STRUCTURAL MASONRY WORK

SECTION 04 05 13 — MASONRY MORTARING

1. GENERAL
    1. SUBMITTALS
        A. Action Submittals:
            1. Samples: [Selection samples.] [Verification samples.]
        B. Informational Submittals:
            1. Test reports: Mortar compressive strength.
2. PRODUCTS
    1. MATERIALS
        A. Portland Cement: ASTM C150, Type [I.] [__.]

**** OR ****

B. Masonry Cement: ASTM C91, Type [N.] [S.] [M.]

C. Firebrick Mortar: ASTM C199.

D. Aggregate: ASTM C144, standard masonry type.

E. Lime: ASTM C207, Type [S.] [SA.]

F. Colorant: Pure mineral oxide type.

G. Water: Potable.

2. MIXES
    A. Mortar Mixes: ASTM C270 using the [Property] [Proportion] Method.
        1. Brick unit masonry: Type [M,] [S,] [N,] [O,] [white] [gray] [____] color.
        2. Concrete unit masonry: Type [M,] [S,] [N,] [O,] [white] [gray] [____] color.
        3. Glass unit masonry: Type [M,] [S,] [N,] [O,] [white] [gray] [____] color.
        4. Stone: Type [M,] [S,] [N,] [O,] [white] [gray] [____] color.
        5. Cast stone: Type [M,] [S,] [N,] [O,] [white] [gray] [____] color.

6. Simulated stone: Type [M,] [S,] [N,] [O,] [white] [gray] [____] color.
7. Brick unit paving: Type [M,] [S,] [N,] [O,] [white] [gray] [____] color.
8. Stone paving: Type [M,] [S,] [N,] [O,] [white] [gray] [____] color.

B. Firebrick Mortar: Mix in accordance with manufacturer's instructions.

3. EXECUTION

1. INSTALLATION

A. Perform Work in accordance with TMS 402/602.

B. Follow requirements specified in other sections.

END OF SECTION

SECTION 04 05 16 — MASONRY GROUTING

1. GENERAL
    1. SUBMITTALS
        A. Informational Submittals:
            1. Test reports: Grout compressive strength and slump.
2. PRODUCTS
    1. MATERIALS
        A. Portland Cement: ASTM C150, Type [I.] [__.]
        B. Aggregate: ASTM C404.
        C. Lime: ASTM C207, Type [S.] [SA.]
        D. Water: Potable.
    2. MIXES
        A. Grout Mix:
            1. ASTM C476, [fine] [coarse] grout.
            2. Compressive strength: Minimum [2500] [__] psi at 28 days.
            3. Slump: [7 to 8] [__ to __] inches.
3. EXECUTION
    1. INSTALLATION
        A. Perform Work in accordance with TMS 402/602.
        B. Follow requirements specified in other sections.

END OF SECTION

SECTION 04 22 00 — CONCRETE UNIT MASONRY

1. GENERAL
    1. SUBMITTALS
        A. Action Submittals:
            1. Product Data: Manufacturer's descriptive data and product attributes for accessories.
            2. Samples: [Selection samples.] [Verification samples.]
    2. QUALITY ASSURANCE
        A. Installer Qualifications: Firm specializing in work of this Section, with minimum [2] [__] years' experience.
        B. Mockup: [4] [__] feet high x [8] [__] feet wide. Approved mockup [may] [may not] remain as part of the Work.
2. PRODUCTS
    1. MANUFACTURERS
        A. Masonry Accessories: Following manufacturers are acceptable if products meet specified requirements:
            1. Blok-Lok. www.blok-lok.com
            2. Heckmann Building Products. www.heckmannbuildingprods.com
            3. Hohmann and Barnard. www.h-b.com
            4. Prosoco. www.prosoco.com
        B. Substitutions: [Refer to the applicable substitution requirements.] [Not permitted.]
    2. MATERIALS
        A. Concrete Masonry Units:
            1. Type: ASTM [C90, [hollow] [solid] load bearing,] [C129, [hollow] [solid] non-load bearing,] [light] [medium] [normal] weight.

2. Size: Nominally [8] [__] inches high x [16] [__] inches long x [[8] [__] inches thick.] [thickness indicated.]

3. Special shapes: [Lintels] [Bond beams] [Solid units] [____].

4. Surface finish: [Split.] [Ground and polished.] [[Two] [four] [__] vertical ribs.] [____.]

**** OR ****

5. Surface finish: ASTM C744 resinous surfacing.

6. Color: [____.] [Custom.] [To be selected from manufacturer's full color range.]

3. ACCESSORIES

A. Mortar: Specified in Section 04 05 13.

B. Grout: Specified in Section 04 05 16.

C. Horizontal Joint Reinforcement: ASTM A951/A951M, [hot-dip galvanized] [stainless] steel.

D. Veneer Ties: Corrugated steel sheet, [7/8] [__] inch wide, minimum [28] [__] gage, hot dip galvanized, ASTM A153/A153M, [B2] [__] coating class.

**** OR ****

E. Veneer Ties: Formed steel wire, [[9] [__] gage] [3/16] [__] inch] thickness, [eye and pintle type,] [two piece adjustable type [with backing plate],] [with barrel screw],] hot dip galvanized, ASTM A153/A153M, Class B.

**** OR ****

F. Veneer Ties: Dovetail anchor type, hot dip galvanized finish to ASTM A153/A153M, [B2] [__] coating class.

G. Fasteners: [Hot-dip galvanized] [Stainless] [Fluoropolymer coated] steel.

H. Reinforcing Bars: ASTM A615/A615M.

I. Flashings: Polyvinyl chloride sheet, minimum [20] [30] [__] mils thick.

**** OR ****

J. Flashings: Rubberized asphalt laminated to plastic film, release paper facing, self-adhering.

**** OR ****

K. Flashings: Copper sheet, ASTM B370, minimum [0.21] [0.27] [__] inch thick.

**** OR ****

L. Flashings: Copper foil laminated on both sides with treated glass fabric, weighing minimum [5] [__] ounces per square foot.

**** OR ****

M. Flashings: Galvanized steel, ASTM A653/A653M, [G60] [G90] [G185] coating class, [26] [__] gage core steel, [pre-coated with PVDF coating, [____] color [to be selected].

**** OR ****

N. Flashings: Stainless steel, ASTM A666, Type [304,] [316,] [____,] minimum [0.015] [0.018] [__] inch thick.

O. Weeps: [Preformed plastic tubes [filled with cotton wicks.] [Prefinished galvanized steel vents with sloping louvers, [____] color [to be selected.]] [Cotton rope.] [Preformed plastic mesh, [____] color [to be selected.]]

P. Mortar Dropping Control: Preformed plastic mesh type.

Q. Joint Sealer: Specified in Joint Sealants.

3. EXECUTION

1. INSTALLATION

A. Perform Work in accordance with TMS 402/602.

B. Lay masonry in [running] [stack] [____] bond [unless otherwise indicated]. Course one masonry unit and one mortar joint to equal [__] inches.

C. Horizontal Reinforcement: install at maximum [16] [__] inches on center vertically, at topmost course, and at first two courses above and below openings.

D. Veneer Ties: Place at rate of one tie per [2.67] [__] square feet at maximum spacing of [32] [__] inches on center horizontally.

E. Tooling Exposed Joints: [Concave] [Flush] [____] profile.

F. Integral Flashings: Install with outer edge flush with outside face of masonry; extend up backup [8] [__] inches minimum and [build into masonry.] [seal.]

G. Weeps: Locate in head joints in first course above flashings at maximum [32] [__] inches on

H. Mortar Dropping Control: Install continuously in cavities above flashings.

I. Control Joints: Install joint backing and joint sealer at control joints in accordance with the Joint Sealants requirements.

J. Installation Tolerances:

1. Alignment of faces of adjacent units: Plus or minus [1/8] [__] inch.

2. Vertical alignment of head joints: Plus or minus [1/2] [__] inch in 10 feet.

3. True plane of wall: Plus or minus [1/4] [__] inch in 10 feet and [1/2] [__] inch in 20 feet or more.

4. Plumb: Plus or minus [1/4] [__] inch in 10 feet noncumulative; [1/2] [__] inch in 20 feet or more.

5. Level coursing: Plus or minus [1/8] [__] inch in 3 feet; [1/4] [__] inch in 10 feet; [1/2] [__] inch in 30 feet.

6. Joint thickness: Plus or minus [1/8] [__] inch.

7. Cross sectional thickness of multi-wythe walls: Plus or minus [1/4] [__] inch.

END OF SECTION

STRUCTURAL METAL WORK

SECTION 05 50 00 — METAL FABRICATIONS

1. GENERAL
    1. SUBMITTALS
        A. Action Submittals:
            1. Shop Drawings: Illustrate products, installation, and relationship to adjacent construction.
        B. Informational Submittals:
            1. Certificate of Compliance: Certification that installed products meet specified design requirements.
    2. SYSTEM DESCRIPTION
        A. Minimum Design Loads:
            1. Vehicular loading:
            2. Uniform load of [500] [__] PSF.
            3. Concentrated load of [2000] [__] pounds.
            4. Maximum deflection under loading: [L/180.] [L/240.]
            5. Guard rails and handrails:
            6. [50] [__] pounds per linear foot applied in any direction at top, transferred via attachments and supports to building structure.
            7. Concentrated [200] [__] pound load applied in any direction at any point along top, transferred via attachments and supports to building structure.
            8. Maximum deflection under loading: [L/120.] [__.]
            9. Ladders:
            10. Ladder assembly: Minimum of two [250] [__] pound loads concentrated between any two consecutive attachments.
            11. Individual rungs: Minimum [250] [__] pound load applied in middle of rung.

12. Ladder fall protection system: Minimum [500] [__] pound load in free fall of 18 inches.
13. Other pedestrian loading:
14. Uniform load of [100] [__] PSF.
15. Concentrated load of [300] [__] pounds.
16. Maximum deflection under loading: [L/180.] [L/240.]
17. System design to be performed by qualified professional engineer licensed in State of [____].

3. QUALITY ASSURANCE

A. Fabricate guard rails and handrails in accordance with ASTM E985.

2. PRODUCTS

1. MATERIALS

A. Steel:

1. Shapes: ASTM A36/A36M.
2. Plate: ASTM A283.
3. Checkered plate: ASTM A1011/A1011M, [diamond] [____] pattern.
4. Sheet: ASTM A1008/A1008M.
5. Pipe: ASTM A501.
6. Tube: ASTM A500.
7. Bars: ASTM A108.

B. Cast Iron: ASTM A48/A48M or ASTM A47/A47M.

C. Aluminum:

1. Extrusions: ASTM B221.
2. Sheet: ASTM B209.
3. Pipe: ASTM B241.

D. Stainless Steel: ASTM A276/A276M or ASTM A666, Type [304] [or] [316].

E. Bar Gratings:

1. Formed steel sheet for [welding:] [riveting:] [pressure locking:] ASTM A1011/A1011M.
2. Steel rod for cross bars: ASTM A510.
3. Aluminum for [riveting] [pressure locking]: ASTM B221.

2. FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Welding:

1. Use welds for permanent connections where possible.
2. Grind exposed welds smooth.
3. Tack welds prohibited on exposed surfaces.
4. Steel shapes, plate, pipe, and tube: Conform to AWS D1.1/D1.1M.
5. Steel sheet: Conform to AWS D1.3/D1.3M.
6. Stainless steel: Conform to AWS D1.6/D1.6M.

3. FINISHES

A. [Exterior] Ferrous Metal: Galvanized; ASTM A123/A123M, to [1.3] [2.0] ounces per square foot.

B. [Interior] Ferrous Metal:

1. Shop painted except steel to be encased in concrete and surfaces to be welded.
2. Surface preparation: SSPC [SP2 - Hand Tool Cleaning or SP3 - Power Tool Cleaning.] [SP6 - Commercial Blast Cleaning.] [____.]

C. Aluminum: Mill finish.

**** OR ****

D. Aluminum: AAMA 611; Architectural Class [I] [II] anodized, clear, [light bronze.] [medium bronze.] [dark bronze.] [black.]

**** OR ****

E. Aluminum: AAMA 2605 fluoropolymer coating containing minimum 70 percent PVDF resins, [custom] [____] color [to be selected from manufacturer's full color range].

**** OR ****

F. Aluminum: AAMA 2604 fluoropolymer coating containing minimum 50 percent PVDF resins, [custom] [____] color [to be selected from manufacturer's full color range].

**** OR ****

G. Aluminum: AAMA 2603 thermosetting modified acrylic enamel coating, [custom] [____] color [to be selected from manufacturer's full color range].

H. Stainless Steel: NAAMM AMP 503; [No. 4 satin.] [No. 8 mirror polished.] [____.]

3. EXECUTION

    1. INSTALLATION

        A. Install items in accordance with approved Shop Drawings.

        B. Welding:

            1. Use welds for permanent connections where possible.

            2. Grind exposed welds smooth.

            3. Tack welds prohibited on exposed surfaces.

            4. Steel shapes, plate, pipe, and tube: Conform to AWS D1.1/D1.1M.

            5. Steel sheet: Conform to AWS D1.3/D1.3M.

            6. Stainless steel: Conform to AWS D1.6/D1.6M.

    2. SCHEDULE

        A. Guard Rails and Handrails: Fabricate from [aluminum] [steel] [stainless steel] [pipe] [or] [tube] stock of sizes [and types] indicated.

        B. Ladders: Fabricate in accordance with ANSI A14.3.

        C. Ladder Fall Protection System:

            1. Meet OSHA CFR 1910.

            2. Include vertical rail with end stops, rung clamps, fall arrester, and attachment hardware.

        D. Bar Grating:

1. NAAMM MBG 531, [welded] [riveted] [pressure locked] type.
2. Top surface: [Non slip.] [Serrated.] [Raised lug.] [____.]

E. Nosings for Exterior Concrete Steps: Cast [iron,] [aluminum,] cross hatched [abrasive] surface, [1/4] [1] [__] inch nosing, [3] [4] [6] [__] inches deep x step width less [6] [__] inches.

F. Bollards: Fabricate from steel pipe of sizes indicated.

END OF SECTION

SEISMIC ISOLATION AND CONTROL SYSTEMS

SECTION 13 48 13 — SEISMIC ISOLATION AND CONTROL SYSTEMS

1. GENERAL
    1. SUMMARY
        A. Section Includes:
            1. Seismic isolator units and associated bearing assemblies located at the seismic isolation plane.
            2. Isolator base plates, sole plates, and anchorage to the supporting concrete structure.
            3. Prototype and production quality control testing of isolator units.
            4. Temporary shipping restraints, installation aids, and isolator protection during construction.
        B. Related Requirements:
            1. Section 03 30 00 “Cast-In-Place Concrete” for isolator pedestals, isolation-level diaphragms, and anchorage embeds.
            2. “Post-Tensioned Concrete” for isolation-level transfer girders, where applicable.
            3. General Requirements for submittal procedures, quality requirements, and Owner-retained independent peer review.
    2. DEFINITIONS
        A. Isolator Unit: A discrete mechanical bearing assembly that uncouples the superstructure from the substructure and/or foundation, permitting relative horizontal displacement while supporting the full gravity load of the isolated structure above.
        B. Isolation Plane (Isolation Interface): The horizontal structural zone, located as indicated on the Drawings, containing the isolator units and separating the fixed-base substructure from the isolated superstructure.
        C. MCER: Risk-Targeted Maximum Considered Earthquake, per ASCE 7.

D. DBE: Design Basis Earthquake, per ASCE 7/ASCE 41, equal to two-thirds of the MCER ground motion unless a site-specific study indicates otherwise. Not to be confused with “Design-Build Entity,” a defined term used elsewhere in the Project’s RFP and Contract Documents; this Section uses “DBE” exclusively in its seismic engineering sense.

E. Total Maximum Displacement: The maximum considered horizontal displacement of the isolation system, including torsional effects, per ASCE 7 Section 17.5.3.

3. PERFORMANCE REQUIREMENTS

A. General: The isolation system shall be designed on a performance basis. Isolator units from any qualified manufacturer meeting the minimum criteria of this Section may be proposed, subject to design by the Design-Build Entity’s structural Engineer of Record and acceptance by the Owner’s independent peer reviewer. This Section does not specify or imply a particular isolator technology (e.g., sliding/pendulum-type, elastomeric, or lead-rubber); the Design-Build Entity’s Engineer of Record shall select an isolator technology and configuration that satisfies the performance criteria herein and the Structural Design Intent Narrative.

B. Risk Category: IV (essential facility), per ASCE 7 Table 1.5-1.

C. Seismic Hazard Basis: Site-specific MCER and DBE ground motion, per ASCE 7 Sections 11.4.8 and 17.3, as established by the Design-Build Entity’s site-specific seismic hazard analysis. Preliminary spectral parameters, where available from the Owner, are for planning reference only and shall be confirmed by the Engineer of Record.

D. Design Displacements: Each isolator unit shall be sized for the Design Displacement (DD) and Maximum Displacement (DM), including additional displacement due to torsion, per ASCE 7 Section 17.5.

E. Vertical Load Capacity: Each isolator unit shall support the full range of gravity, live, and seismic vertical loads delivered to it, including net uplift or tension where applicable, without loss of function, as determined by the Engineer of Record’s analysis.

F. Performance Objective: The isolation system shall be designed to achieve the seismic performance objective established in the Structural Design Intent Narrative for this Project (Maximum Capacity Immediate Occupancy, or successor Owner-elected objective), verified using the acceptance criteria referenced therein.

G. Service-Level Wind Restraint: The isolation system shall provide sufficient initial stiffness or a supplemental wind-restraint mechanism such that the isolated superstructure does not displace under service-level wind loads, per ASCE 7 Section 17.2.4.4.

H. Rated Rotation Capacity: Each isolator unit shall accommodate the angular rotation demand of the top bearing surface relative to the bottom surface, about any horizontal axis, determined by the Engineer of Record, without loss of the required vertical and shear load capacities.

I. Fire Resistance: Isolator units and their means of support shall be substantiated for a fire-resistance rating not less than [2] [3] [___] hours, by fire testing or by a recognized calculation methodology acceptable to the Authority Having Jurisdiction.

4. ACTION SUBMITTALS

A. Product Data: For each isolator type and size proposed, including load-displacement (force-displacement) properties, effective stiffness, effective damping, and manufacturer's standard materials of construction.

B. Shop Drawings: Isolator layout plan referenced to column and wall lines; isolator dimensions, base plate and anchorage details; isolation-plane clearances; and coordination with the isolation-level diaphragm and transfer framing.

C. Design Calculations: Isolator sizing calculations, including Design Displacement, Maximum Displacement, torsional amplification, vertical load capacity check, and rotation demand, sealed by the Engineer of Record.

D. Manufacturer Qualification Data: Evidence of ISO 9001 (or equivalent) quality management certification for isolator design, manufacture, and testing; a minimum of [5] [__] prior installations of comparable isolator type and scale on Risk Category III or IV structures; and evidence of compliance with a recognized seismic isolation product qualification standard acceptable to the Engineer of Record and independent peer reviewer.

5. INFORMATIONAL SUBMITTALS

A. Prototype Test Reports: Per Article 2.5.

B. Production Quality Control Test Reports: Per Article 2.5, for 100 percent of production isolator units, prior to shipment.

C. Material Certifications: Mill certificates or equivalent for structural steel, stainless steel, and elastomeric or sliding-surface materials used in isolator construction.

D. Installation and Field Quality Control Reports: Per Part 3.

E. Independent Peer Review Acceptance: Written acceptance of the isolation system design by the Owner-retained independent peer reviewer, prior to fabrication.

6. QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm regularly engaged in the design, manufacture, and testing of seismic isolation bearings for building structures, certified to ISO 9001 (or equivalent quality management standard) for the design and manufacture of seismic isolation bearings, with a minimum of [10] [__] years of documented experience supplying isolators for Risk Category III or IV buildings.

B. Independent Peer Review: The isolation system design shall be subject to independent structural peer review by a qualified peer reviewer retained directly by the Owner, per ASCE 7 Section 17.2.6 and the Structural Design Intent Narrative. The Design-Build Entity shall incorporate all peer reviewer comments prior to fabrication.

C. Installer Qualifications: A firm with not fewer than [3] [__] prior projects installing seismic isolation bearings of comparable type and scale, or supervised by a manufacturer's field representative for the duration of isolator installation.

D. Substitutions: Where a Design-Build Entity proposes an isolator technology, manufacturer, or product differing from the basis-of-design concept referenced in the Structural Design Intent Narrative, the substitution shall be submitted for review in accordance with the applicable substitution procedures, and shall demonstrate equal or better seismic performance, reliability, and durability, substantiated by equivalent product testing and analysis acceptable to the Engineer of Record and independent peer reviewer.

7. DELIVERY, STORAGE, AND HANDLING

A. Deliver isolator units with manufacturer's temporary shipping restraints in place; do not remove until immediately prior to permanent installation.

B. Store isolator units in a manner that prevents damage to sliding, sealing, or elastomeric surfaces, and protects units from moisture,

dirt, and temperature extremes outside the manufacturer's recommended range.

C. Handle isolator units using manufacturer-approved lifting points and methods; do not lift or support units by their sliding or elastomeric working surfaces.

8. WARRANTY

A. Special Warranty: Manufacturer's standard warranty against defects in materials and workmanship for isolator units, for a period of not less than [2] [__] years from date of Substantial Completion.

2. PRODUCTS

1. MANUFACTURERS

A. Subject to compliance with requirements, provide isolator units from a manufacturer meeting the qualification requirements of Part 1, using an isolator technology accepted by the Engineer of Record and independent peer reviewer as satisfying the performance requirements of this Section.

B. Basis-of-Design Product: Where a specific manufacturer's isolator has been used as the basis for the Owner's preliminary structural concept, that product's performance characteristics are provided for reference only and do not restrict competition; other manufacturers' isolators of equal or better performance, complying with Part 1, are acceptable subject to Engineer of Record and peer reviewer approval.

2. MATERIALS

A. Structural Steel Components (plates, housings, connection hardware): ASTM A36, ASTM A572, or ASTM A588, as appropriate to the component and manufacturer's design.

B. Stainless Steel Sliding or Bearing Surfaces, where applicable: ASTM A240, Type 304 or better.

C. Elastomeric Components, where applicable: Manufacturer's standard compound, formulated and tested for the service life, temperature range, and ozone/UV exposure applicable to this Project's installed condition.

D. Sliding Interface / Bearing Liner Materials, where applicable: Low-friction, self-lubricating composite material with documented long-term friction stability and wear resistance, substantiated by the manufacturer's product qualification testing.

E. Fasteners and Anchor Rods: ASTM F1554 or ASTM A354, grade as required by the Engineer of Record's connection design.

F. Corrosion Protection: Exposed ferrous metal surfaces, other than designated sliding or elastomeric working surfaces, shall be hot-dip galvanized or provided with a zinc-rich primer and high-performance coating system rated for the Project's coastal/tropical exposure, consistent with Section 03 30 00.

3. PERFORMANCE CRITERIA

A. Design Displacement, Maximum Displacement, effective period, and effective damping at the Design Displacement and Maximum Displacement levels: as determined by the Engineer of Record's site-specific analysis, and confirmed by the Owner's independent peer reviewer, in accordance with ASCE 7 Chapter 17.

B. Vertical Load Capacity: as determined by the Engineer of Record for the governing load combinations of ASCE 7 Section 17.2.4.6, including the maximum and minimum vertical loads concurrent with maximum horizontal displacement.

C. Property Modification Factors: The effects of aging, contamination, environmental exposure, temperature, cumulative travel, and loading rate ("scragging" or equivalent, where applicable to the selected technology) shall be incorporated into the isolator property modification factors used in design, per ASCE 7 Section 17.2.8.4.

4. FABRICATION

A. Fabricate isolator units in accordance with the manufacturer's ISO 9001 (or equivalent) quality program and the design calculations accepted by the Engineer of Record and independent peer reviewer.

B. Provide temporary shipping/erection restraints on each isolator unit, removable without damage to the unit, to maintain unit geometry and prevent premature engagement during transport and installation.

5. SOURCE QUALITY CONTROL

A. Prototype Testing: Prior to production, test a minimum of two full-scale prototype units of each isolator type and size proposed for the Project, per ASCE 7 Section 17.8, including cyclic testing at Design Displacement and Maximum Displacement levels and at the range of vertical loads anticipated in service. Prototype units subjected to testing shall not be installed in the Work unless permitted by ASCE 7 and accepted by the Engineer of Record.

B. Production Quality Control Testing: Test 100 percent of production isolator units at a vertical test load and minimum number of displacement cycles established by the Engineer of Record, confirming that friction, stiffness, and damping properties fall within the upper-bound and lower-bound property envelope established by prototype testing. Submit test reports for each unit prior to shipment.

C. Independent Testing Agency: Where prototype or production testing is not performed at the manufacturer's own ISO-accredited test facility, testing shall be performed or witnessed by an independent testing agency acceptable to the Owner.

3. EXECUTION

1. EXAMINATION

A. Verify that isolator pedestals, sole plates, and anchorage embeds are constructed within tolerance, level, and free of defects that would impair isolator installation or performance, before installing isolator units.

B. Do not proceed with installation until unsatisfactory conditions have been corrected.

2. INSTALLATION

A. Install isolator units in the locations and orientations indicated on the accepted shop drawings, in accordance with the manufacturer's written instructions.

B. Set isolator units level and plumb, within the manufacturer's specified installation tolerances, using shims or leveling devices as required.

C. Provide anchorage of isolator base plates and sole plates to the supporting concrete in accordance with the Engineer of Record's connection design, using anchors qualified for the applicable load and displacement demands.

D. Remove temporary shipping restraints only when directed by the manufacturer's field representative and only after the isolator unit is in its final, permanently supported condition.

E. Protect installed isolator units from construction traffic, debris, welding spatter, and incompatible chemical exposure until Substantial Completion.

3. FIELD QUALITY CONTROL

   A. Special Inspection: Provide special inspection of isolator installation, including verification of isolator type, size, and orientation; base plate and anchorage installation; level and plumb tolerances; and clearance to the seismic gap, in accordance with the Puerto Rico Building Code and ASCE 7 Chapter 17.

   B. Manufacturer's Field Services: Provide a manufacturer's field representative to inspect and verify correct installation of isolator units at intervals sufficient to confirm compliance with the manufacturer's installation requirements.

   C. Post-Installation Verification: Verify and document as-installed isolator elevations, orientation, and clearance to the seismic gap at all perimeter and interior locations.

4. PROTECTION

   A. Protect the isolation plane, seismic gap, and installed isolator units from accumulation of construction debris, mortar droppings, or rigid materials that could compromise the design displacement capacity, for the duration of construction.

   B. Coordinate with mechanical, electrical, and plumbing trades to ensure that no rigid element is installed across the isolation interface without the flexible or sliding connection required by Section [__] and the Structural Design Intent Narrative.

END OF SECTION 13 48 13

EARTHWORK AND FOUNDATION WORK

SECTION 31 61 00 — FOOTINGS

1. GENERAL

   Work of this Section shall conform to requirements of Drawings and general provisions of the Contract, including General and Supplementary Conditions and applicable General Requirements specifications.

2. SCOPE

   The work covered by this Section shall include all labor, material, equipment, permits, engineering and other services necessary for the fabrication and installation of footings and related work, complete, in accordance with the Drawings and as specified herein.

3. RELATED WORK SPECIFIED IN OTHER SECTIONS

   Submittals Quality Control

   Quality Assurance: Structural Testing and Inspection Concrete Reinforcement and Embedded Assemblies Cast-In-Place Concrete

   Thermal and Moisture Protection

4. CODES AND STANDARDS

   Section 01 45 00

   Section 03 20 00

   Section 03 30 00

A. Building Code: Footing work shall conform to the requirements of the Building Code identified on the structural General Notes, and OSHA requirements, except where more stringent conditions or criteria occur in the standards referenced below and on the Drawings.

B. Standards:

   1. ACI 117 — Standard Specifications for Tolerances for Concrete Construction and Materials.

   2. ACI 301 — Standard Specifications for Structural Concrete.

   3. ACI 315 — Details and Detailing of Concrete Reinforcement.

4. ACI 318 — Building Code Requirements for Reinforced Concrete.
5. American Concrete Institute “Manual of Concrete Practice”, various committee reports as referenced herein.
6. American Society for Testing and Materials "ASTM Standards in Building Codes", various standards as referenced herein.
7. AWS D1.4 — Structural Welding Code-Reinforcing Steel.

C. Definitions:

1. See Section 03 30 00.
2. The term Contractor's Geotechnical Engineer in this Specification is defined as the Contractor's representative specifically authorized to perform the responsibilities defined herein.

5. CONTRACTOR QUALIFICATIONS

A. The Footing Installer shall be a company which specializes in installing footings, with a minimum of 10 years of documented successful experience. Installation shall be performed by skilled workmen thoroughly experienced in the necessary execution.

B. The Contractor's Field Supervisor shall have 10 years of experience in installing footings and provide full-time supervision.

C. The Contractor's Professional Surveyor shall have 10 years of previous experience in laying out foundation locations to perform surveys, layouts, and measurements for footing work. The Contractor's Professional Surveyor shall be licensed in the state where the project is located. Conduct layout work for each footing to lines and levels required before excavation, and actual measurements of each footing's horizontal location, top elevations, deviations from specified tolerances, and other required data.

6. SUBMITTALS

A. Required Submittals - Where the SUBMITTALS section of this Specification is in conflict with the applicable submittal requirements, the more stringent requirements for the Contractor apply. Required submittal items are listed here; see below for detailed requirements. Do not submit items not requested.

(1) Submittal Schedule

(2) Footing Construction Methods

(3) Installer Qualifications

(4) Shop drawings

(5) Construction Log

(6) Contractor's Survey Report

(7) Submittals required by Related Documents

(8) Mill Certificates

(9) Contractor's Concrete Testing Agency Reports

(10) Product Data

1. **Submittal Schedule:** See Section 03 30 00.

2. **Footing Construction Methods:** Submit for record, footing construction procedures developed by the Footing Contractor.

3. **Installer Qualifications:** Submit proof of qualifications as stated in the CONTRACTOR QUALIFICATIONS section of this Specification.

Shop drawings in accordance with 03 20 00 and 03 30 00, and as noted.

a. Concrete mix designs in accordance with Section 03 30 00.

b. Footing reinforcement in accordance with Section 03 20 00 and 03 30 00.

c. Footing layout drawing showing the location of each footing (with respect to building gridlines), size and depth of footing, and top of footing elevation.

4. Construction Log: Testing Agency shall document, sign, and submit for record, a record of each footing construction, including:

   a. Footing designation, top and where possible bottom elevation, and size of footing.

   b. Size, length, and location of installed reinforcement.

   c. Deviation of centerline plan location.

   d. Actual allowable soil bearing capacity

   e. Inspection and testing

   f. Method of concrete placement, time of beginning and ending concrete discharge for each truck, (including any delays in concreting and location of construction joints in shafts) and any deviation from planned construction methods.

g. Volume of concrete supplied to footing and ratio of actual volume to theoretical volume.

5. Contractor's Survey Report: Submit for record plans sealed and signed by a Professional Surveyor licensed in the state where the project is located, indicating as built plan locations of footing centerlines (with respect to building gridlines), top and where possible bottom elevations, and identifying deviations of footing centerlines from design plan locations. Footings that are outside of specified tolerances shall be specifically identified on the plan.

Submittals required by Related Documents.

6. **Mill Certificates:** Per Specification section 03 20 00, submit for record certified reports for physical and chemical properties of following materials:

   a. Reinforcement bars.

7. **Contractor's Concrete Testing Agency Reports:** Submit for record

   a. Reports of field observations.

   b. Reports of field quality control tests, as related to concrete and reinforcement.

   c. Immediately notify the Design Professionals of any deviations from the Drawings.

8. Product Data: Submit for record for each type of product identified in Part 2. Product Data shall be clearly marked to indicate all technical information which specifies full compliance with this section and Contract Documents, including published installation instructions and ICC reports, where applicable, for products of each manufacturer specified in this section.

A. Submittal Process: See Section 03 30 00.

B. SER Submittal Review: See Section 03 30 00.

C. Substitution Request: See Section 03 30 00.

D. Request for Information (RFI): See Section 03 30 00.

1. DELIVERY, STORAGE, AND HANDLING

   A. See Sections 03 20 00 and 03 30 00.

2. PRE-INSTALLATION CONFERENCE

   A. Conduct meeting at Project Site to comply with applicable General Requirements.

3. PROJECT SITE CONDITIONS

A. Geotechnical Information: Contractor to examine site, records of test borings, soil samples, and Geotechnical Reports that are available from the Owner. Soil boring test results are provided by the Owner for information. Soil boring test results are not intended as representations or warranties of the continuity of the reported conditions. It is expressly understood that the Owner will not be responsible for interpretation or conclusions drawn by Contractor from the Geotechnical Report. At no additional cost to the Owner, evaluate the available data and provide additional test borings and other investigations as necessary for installing footings.

B. Site Survey: Survey of site, existing utilities, and existing construction available from the Owner represent conditions known to Owner. Other obstructions may be encountered.

4. QUALITY ASSURANCE BY CONTRACTOR'S TESTING AGENCY

A. See Section 01 45 00.

5. QUALITY CONTROL BY CONTRACTOR

A. See Section 03 30 00.

B. The Contractor's Geotechnical Engineer shall be qualified to perform the type of work required by the Project. The Engineer shall be a Licensed Professional Engineer in Puerto Rico. The engineer shall develop a site dewatering plan and advise on footing construction techniques, including assistance in the development of construction procedures and the development of solutions to construction problems.

6. OBSERVATIONS AND CORRECTIONS BY DESIGN PROFESSIONALS

A. See Section 03 30 00.

7. PERMITS AND WARRANTY

A. Permits: See Section 03 30 00.

Drawings and calculations prepared by the Contractor's Licensed Professional Engineer in Puerto Rico for temporary shoring and/or earth retention shall be submitted to the City, State, or other governing authority for review.

B. Warranty: See Section 03 30 00.

PART 2 - PRODUCTS

1. CONCRETE

A. See Section 03 30 00.

2. REINFORCEMENT

A. See Section 03 20 00.

PART 3 - EXECUTION

1. PROTECTION OF EXISTING UTILITIES AND STRUCTURES

    A. Before installing footings adjacent to known existing utilities, notify utility owner to ensure that protective work will be coordinated and performed by Contractor in accordance with requirements of the owner of utility or building. If any existing service lines, utilities, and utility structures to remain in service are uncovered or encountered during work, protect the uncovered element from damage and provide support where necessary.

    B. Should uncharted or incorrectly charted piping or other utilities be encountered during footing excavation, immediately notify the Owner, Design Professionals and utility owner. Cooperate with Owner and utility owner in keeping their respective services, utilities and facilities in operation. Repair damaged utilities to entire satisfaction of Owner and utility owner concerned.

    C. Do not interrupt existing utility service facilities occupied and used by Owner and others, except when permitted in writing by the Design Professionals and then only after acceptable temporary utility services have been provided.

    D. Protect structures, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, vibration, and other hazards created by footing operations.

2. SITE DEWATERING

    A. Before installing footings, provide site dewatering based on the Contractor's site dewatering plan.

    B. Provide and maintain pumping equipment to keep excavations free of water before placing concrete. If excessive water is encountered and drilling operations must be halted, consult the Geotechnical Engineer before using alternate methods of construction.

    C. If excessive seepage is coming in from below the bottom of the footing excavation, removal by pumping within the excavation is inappropriate, as this may loosen the bearing soils and reduce the bearing soil capacity; therefore, an alternate means of dewatering will be required.

3. GENERAL FOOTING EXCAVATION

    A. Tolerances: Plan location tolerance is 2% of footing dimension but no greater than 2 inches, whichever is greater, If indicated tolerances are exceeded, see “Footing Corrective Measures” in Part 3.

    B. Forming Sides of Footings:

1. Provide forms for footings and grade beams if soil or other conditions are such that earth trench forms are unsuitable.

2. When trench forms are used, provide an additional 1” of concrete on each side of the minimum design profiles and dimensions indicated.

C. Cleanup of Footing Bottom: Excavate bottom to a level plane. Remove loose materials or free water as determined by Contractor's Geotechnical Engineer.

D. Bottom of adjacent footings that are at different elevations should never result in an excavation slope between footings greater than 1.0 vertical to 1.5 horizontal unless otherwise noted in the drawings or geotechnical engineering report. If steeper slopes occur, the EOR should be notified before any concrete is placed.

4. ADDITIONAL EXCAVATION AND FOOTING DEPTH

A. Do not excavate below elevations noted by Contractor's Geotechnical Engineer without prior review by Contractor's Geotechnical Engineer.

B. Where Contractor's Geotechnical Engineer determines that soil encountered at design bearing elevation is not capable of providing minimum design bearing capacity, perform additional excavation as recommended by Contractor's Geotechnical Engineer.

C. If obstructions are encountered that interfere with new construction, remove such existing elements or develop corrective methods. The Contractor shall propose corrective actions and their recommendations in writing and submit them for review by the Design Professionals. Efforts shall be made to address obstructions at no additional cost to the Owner.

5. DISPOSAL OF EXCAVATED MATERIALS

Dispose excavated materials off site in a manner that will not interfere with other construction activities. Keep construction site at all times clean and free of soil and other debris that could affect progress of other construction activities.

6. FOOTING REINFORCEMENT

A. Fabrication in accordance with 03 20 00 from approved shop drawings.

7. FOOTING BEARING STRATA

A. Footing Bearing Stratum Criteria and Verification

1. Footings shall be founded on soil strata with bearing capacity indicated on Drawings. Footings shall not be excavated until test results by Contractor's Geotechnical Engineer confirm allowable bearing values indicated on Drawings, but shall be excavated immediately thereafter.

2. Each footing bearing strata must be inspected and be acceptable to the Contractor's Geotechnical Engineer before placing concrete

3. Footing excavations to acceptable bearing strata shall not be left exposed to weather for more than 48 hours before footing concrete is placed.

8. CORRECTIVE MEASURES

A. If unforeseen field conditions require corrective installation methods, immediately notify the Design Professionals.

1. Where a change to the construction installation method result in an as-built footing in compliance with the Contract Documents, submit installation method for record.

2. Where the as-built footing does not meet the design intent of the Contract Documents. The Contractor shall propose corrective actions and their recommendations in writing and submit them for review by the Design Professionals.

B. If footings are installed outside allowable tolerances, develop and provide corrective methods at no extra cost to the Owner including calculations based on actual locations of footings, taking into account eccentricity between final centerline of footing and design location of column centerline. The Contractor shall propose corrective actions and their recommendations in writing and submit them for review by the Design Professionals. Calculations shall be sealed and signed by a Professional Engineer licensed in Puerto Rico.

END OF SECTION

4.0 ELECTRICAL PRELIMINARY TECHNICAL SPECIFICATIONS

ELECTRICAL PRELIMINARY TECHNICAL SPECIFICATIONS

RFP / DESIGN-BUILD USE NOTICE

These electrical preliminary technical specifications are revised for use as RFP/bridging performance criteria for the selection of a Design-Build Entity for the New Puerto Rico Trauma Hospital. They establish minimum architectural requirements, quality criteria, design intent and coordination expectations, and are not issued as final permit or construction specifications by themselves.

The selected Design-Build Entity shall verify existing and proposed conditions, coordinate all disciplines, perform required engineering and code analysis, prepare and submit the final permit and construction documents, and obtain all required approvals through Puerto Rico licensed design professionals of record.

References in these sections to “Contractor” mean the selected Design-Build Entity after award. References to “Architect,” “Engineer,” “A/E,” “Resident Engineer,” or similar review parties mean the applicable Design Professional(s) of Record and/or ASEM/Owner review representative, as applicable under the RFP and final Design-Build Agreement.

Named products, manufacturers and details are minimum quality benchmarks unless the RFP expressly states otherwise. Proposed equals, substitutions, delegated design items, shop drawings, product data and samples shall demonstrate compliance with the RFP Bridging Documents, applicable codes, healthcare requirements and the final Design-Build Agreement.

ELECTRICAL TABLE OF CONTENTS - RFP / DESIGN-BUILD BRIDGING CRITERIA

For RFP use, sections identify minimum design-build performance criteria to be advanced, coordinated, signed and sealed by the selected Design-Build Entity's licensed design professionals of record.

SECTION 16100 BASIC ELECTRICAL MATERIALS AND METHODS 1
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SECTION 16100 BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: General administrative, procedural, and material requirements applicable to all electrical work under this Contract, including but not limited to raceways and fittings, outlet and junction boxes, wire and cable, supporting devices, cable tray, electrical identification, grounding and bonding materials, surge protection devices, firestopping, corrosion-resistant and hurricane-rated materials, concrete equipment pads, and the general execution, coordination, and testing requirements that apply across all electrical systems described in the Bridging Document.

B. Related Sections: The following Sections build upon the basic materials and methods established in this Section and govern system-specific design and installation requirements. Where a conflict exists between this Section and a system-specific Section, the more stringent requirement shall govern.

1. Section 16112 - Raceways and Conduits
2. Section 16120 - Wire and Cable
3. Section 16131 - Outlet, Pull and Junction Boxes
4. Section 16140 - Wiring Devices
5. Section 16155 - Motor Power and Control Wiring
6. Section 16200 - Fire Alarm System
7. Section 16300 - Nurse Call System
8. Section 16440 - Disconnect Switches
9. Section 16470 - Panelboards
10. Section 16511 - Lighting Fixtures
11. Section 16550 - 38 kV Power Transformers
12. Section 16600 - Double-Ended Substation
13. Section 16700 - Automatic Transfer Switches
14. Section 16742 - Telephone and Data Raceway System
15. Section 16800 - Paralleling Switchgear
16. Section 16900 - Diesel Engine-Driven Generators

C. Project Description: The Project consists of a new 215,880 SF, ten-story acute care trauma facility (Basement, Ground/1st through 9th Levels, Interstitial Level, and Roof/Heliport) to be constructed on the campus of the Puerto Rico Medical Center (Centro Médico), San Juan, Puerto Rico, for Owner ASEM - Puerto Rico Health Care

Foundation. The facility has a licensed capacity of 110 beds with surge capacity to 182 beds and will be structurally and functionally integrated with the existing ASEM Central Services Building at three levels. The Project is delivered under a Design-Build (D&B) method, with this Section and the referenced Bridging Document serving as the Owner's Basis of Design (BOD) performance criteria.

D. This is a performance specification. Specific equipment ratings, quantities, and configurations identified herein reflect the Owner's Basis of Design as established in the Bridging Document and are provided to establish minimum performance, quality, and capacity requirements. The D&B Contractor's Engineer of Record shall verify all ratings and quantities by complete engineering calculation and shall be responsible for the final design.

1.02 REFERENCES

The publications listed below form a part of this Specification to the extent referenced. The D&B Contractor is responsible for determining any additional codes, amendments, or local requirements adopted in Puerto Rico at the time of permit application. Where conflicts exist among referenced codes and standards, the most stringent requirement shall govern.

A. Federal and Local Codes and Agencies:

1. Puerto Rico Building Code (PRBC), incorporating the 2018 International Building Code (IBC), 2018 International Fire Code (IFC), and 2018 International Energy Conservation Code (IECC), each with Puerto Rico amendments, latest editions adopted in Puerto Rico
2. Puerto Rico Department of Health (PRDOH) - Hospital Licensure Regulations, including Regulation 9184
3. Puerto Rico Electric Power Authority (PREPA) manuals, standards, and regulations, including the Reglamento Complementario al Código Eléctrico Nacional
4. LUMA Energy - utility interconnection, metering, and service requirements
5. Junta Reglamentadora de Telecomunicaciones de Puerto Rico (JRTC) - telecommunications point-of-connection endorsement
6. Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR) - professional engineering licensure and standing
7. Americans with Disabilities Act (ADA) - 2010 ADA Standards for Accessible Design
8. Federal Aviation Administration (FAA) Advisory Circular AC 150/5390-2 - Heliport Design

B. NFPA Standards:

1. NFPA 70 - National Electrical Code (NEC), latest edition adopted in Puerto Rico
2. NFPA 99 - Health Care Facilities Code

3. NFPA 72 - National Fire Alarm and Signaling Code
4. NFPA 101 - Life Safety Code
5. NFPA 110 - Standard for Emergency and Standby Power Systems
6. NFPA 20 - Standard for the Installation of Stationary Pumps for Fire Protection
7. NFPA 780 - Standard for the Installation of Lightning Protection Systems
8. NFPA 30 and NFPA 37 - Flammable and Combustible Liquids Code; Stationary Combustion Engines
9. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems
10. NFPA 70E - Standard for Electrical Safety in the Workplace

C. NEC / NEMA / IEEE / Industry Standards:

1. NEC Article 517 - Health Care Facilities; Articles 700/701/702 - Emergency, Legally Required Standby, and Optional Standby Systems; Article 230 - Services; Article 240 - Overcurrent Protection; Article 250 - Grounding and Bonding; Article 310 - Conductors
2. IEEE 241 (Gray Book), IEEE 142 (Green Book), IEEE 1100 (Emerald Book), IEEE 80 (Substation Grounding), IEEE C37.2, IEEE 1584, IEEE 1247
3. NEMA MG-1 (Motors and Generators); NEMA PB-1 (Panelboards)
4. ANSI/TIA-569 (Telecommunications Pathways and Spaces)
5. ASHRAE 90.1 - Energy Standard for Buildings
6. IEC 62040-3 (UPS Performance)
7. UL 96A, UL 924, UL 1449, UL 1584 listings as applicable to specific equipment
8. ACI 318 - Building Code Requirements for Structural Concrete (duct bank and manhole design)
9. UL 1008 (Transfer Switch Equipment), UL 1558 (Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear), UL 2200 (Stationary Engine Generator Assemblies)
10. ASCE 7 - Minimum Design Loads (wind and seismic criteria)

D. Healthcare Facility Guidelines: Facility Guidelines Institute (FGI) Guidelines for Design and Construction of Hospitals, latest edition; Joint Commission Environment of Care standards; IES RP-29-20 (Lighting for Hospitals and Healthcare Facilities).

1.03 DEFINITIONS

AHJ Authority Having Jurisdiction.

ATS Automatic Transfer Switch.

BOD Basis of Design - the Owner's Bridging Document establishing minimum performance and design criteria for the D&B Contractor.

CIAPR Colegio de Ingenieros y Agrimensores de Puerto Rico - the professional licensing body for Puerto Rico engineers.

D&B Design-Build - the project delivery method under which the Contractor is responsible for both the design and construction of the Work.

EES Essential Electrical System - the NFPA 99 Category 1 emergency power system comprising the Life Safety, Critical, and Equipment System branches.

IPP Isolated Power Panel - an ungrounded power distribution panel serving life-critical patient care equipment in an operating room, per NEC 517.160.

LIM Line Isolation Monitor - continuously monitors an isolated power system for total hazard current.

PEGP Patient Equipment Grounding Point - a dedicated bonding point at a patient care station for portable equipment grounding.

PE Professional Engineer licensed in the Commonwealth of Puerto Rico and an active member in good standing of CIAPR.

SPD Surge Protective Device, UL 1449 listed.

1.04 DESIGN REQUIREMENTS

A. All electrical distribution equipment serving both essential (Life Safety, Critical, and Equipment System branches) and non-essential (Optional Standby) building loads shall be designed with a minimum 10% spare capacity for future load growth.

B. This Bridging Document-based Basis of Design shall be used by the D&B Contractor, together with all referenced codes and standards, as the minimum performance criteria for the electrical systems. The D&B Contractor's Engineer of Record shall perform complete engineering calculations (load calculations, short-circuit and protective device coordination studies, arc flash hazard analysis, voltage drop calculations, and fault current studies) to confirm and finalize all equipment ratings.

C. Design Submission Phases: The D&B Contractor shall submit design documents for Owner review at Schematic Design (SD), Design Development (DD), and Construction Documents (CD) phases. Fault current studies shall be submitted at DD phase; arc flash hazard analysis shall be completed prior to energization and labeling of equipment.

D. Seismic Isolation: The building incorporates a seismic isolation plane at the Interstitial Level. All electrical conduits, cable trays, and equipment crossing this plane shall be designed and installed with flexible connections and seismic loops to accommodate differential movement between the isolated and non-isolated structure (see Part 2).

E. Hurricane and Coastal Environment: All outdoor and exposed electrical equipment shall be designed for a minimum 180 mph design wind speed (Category 5 hurricane) per ASCE 7 and the PRBC, and for the applicable seismic loads per the PRBC. All exterior enclosures shall be corrosion-resistant (NEMA 3R stainless steel or fiberglass, as scheduled) suitable for Puerto Rico's coastal/tropical marine environment.

F. Heliport Airspace: All rooftop electrical equipment (antenna masts, generator exhaust stacks, and similar projections) shall comply with FAA heliport obstruction clearance requirements per AC 150/5390-2 and shall not obstruct the heliport approach/landing zone.

1.05 SUBMITTALS

A. Action Submittals:

1. Product data for raceways, boxes, wire and cable, supporting devices, cable tray, electrical identification products, grounding and bonding components, surge protection devices, and firestop systems
2. Shop drawings showing equipment layout, dimensions, clearances, and connection details for all major equipment referenced in the Electrical Systems Sections
3. Coordination drawings showing raceway and cable tray routing, seismic isolation plane crossings, and clearances coordinated with structural, mechanical, and fire protection systems
4. PE-sealed calculations: load calculations, voltage drop calculations, short-circuit study, protective device coordination study, and arc flash hazard analysis, each signed and sealed by the Puerto Rico-licensed Engineer of Record

B. Informational Submittals:

1. Qualification data for the Engineer of Record, testing agency, and specialty subcontractors
2. LUMA-endorsed drawings for the utility interconnection, prior to commencing site work related to the utility service
3. JRTC-endorsed drawings for the telecommunications point of connection, prior to commencing telecommunications rough-in work
4. Field quality-control test reports (see Part 2)
5. Manufacturer's installation instructions

C. Closeout Submittals: Operation and maintenance (O&M) manuals; record (as-built) drawings; final test reports; warranty documentation; training documentation.

1.06 QUALITY ASSURANCE

A. Engineer of Record: The D&B Contractor shall engage licensed Professional Engineers for all electrical systems. The Engineer of Record responsible for the electrical design shall be a Professional Engineer licensed to practice in the Commonwealth of Puerto Rico and an active member in good standing of CIAPR. All design documents and drawings shall be signed and sealed by the Puerto Rico-licensed PE.

B. Regulatory Requirements: Work shall comply with PREPA(LUMA), PRDOH, PRBC, and AHJ requirements. The D&B Contractor is responsible for all permits, inspections, and regulatory approvals for electrical systems.

C. Installer Qualifications: Electrical work shall be performed by licensed electricians under the direct supervision of a licensed Master Electrician, experienced in healthcare facility construction of similar scope and complexity.

D. Testing Agency Qualifications: Field testing (insulation resistance, ground resistance, protective device coordination field settings, and arc flash verification) shall be performed by a qualified testing agency independent of the installing contractor, with personnel certified in accordance with NETA (InterNational Electrical Testing Association) standards or equivalent.

E. Pre-Installation Conference: Convene a pre-installation conference prior to commencing work on each major system (substation, generators, switchgear, fire alarm) to review coordination requirements, seismic isolation plane crossings, and interface with the existing ASEM Central Services Building.

1.07 DELIVERY, STORAGE, AND HANDLING

Deliver materials and equipment in original, undamaged, factory packaging with manufacturer's labels intact. Store materials in a clean, dry, ventilated space protected from Puerto Rico's high ambient humidity, direct sun exposure, and potential storm/flood conditions. Elevate materials above grade during storage. Protect equipment with sensitive electronic components from moisture and condensation using manufacturer-recommended space heaters or equivalent means until permanently energized. Do not install moisture-damaged or corroded materials.

1.08 PROJECT CONDITIONS

A. Site Environment: The Project site is located in a tropical, coastal, hurricane- and seismic-prone environment. All design and installation shall account for high ambient temperature and humidity, salt-air corrosion exposure, elevated lightning ground flash density, and the potential for extended utility outages during storm events.

B. Existing Facility Interface: The Project is structurally and functionally integrated with the existing, occupied ASEM Central Services Building at three levels. The D&B Contractor shall coordinate all electrical interfaces and interconnections with ASEM

facilities management and shall ensure no interruption to active electrical, fire alarm, or life safety services in the existing hospital during construction. Work affecting existing ASEM systems shall be scheduled and sequenced with ASEM's written approval.

1.09 COORDINATION AND SEQUENCING

A. Utility Coordination: The D&B Contractor shall initiate the LUMA 38 kV interconnection process immediately upon contract award. LUMA approval of the utility interconnection and substation design shall not be allowed to become the critical path of the Project schedule, given the potentially significant lead time associated with utility review and approval.

B. Telecommunications Coordination: The D&B Contractor shall coordinate evaluation and endorsement of the telecommunications point of connection with JRTC and the corresponding service provider(s).

C. Interdisciplinary Coordination: Coordinate electrical raceway, cable tray, and equipment locations with structural (equipment pads, seismic isolation plane, penetrations), mechanical (VFD-driven equipment, duct smoke detectors, fire/smoke damper actuation), fire protection (waterflow/tamper switch monitoring), and the Owner's structured cabling contractor (rough-in pathway sizing and room provisioning only).

D. Owner-Furnished / Owner-Installed Systems: Coordinate rough-in provisions (conduit, backboxes, cable pathways, and room/space provisioning) for systems furnished and installed by others, including structured cabling, public address devices, CCTV and access control devices, and surgical field lighting.

1.10 WARRANTY

Provide a minimum one-year warranty against defects in materials and workmanship for all electrical work under this Section, commencing at Substantial Completion. Extended warranty periods for specific major equipment (e.g., emergency generators, UPS batteries, switchgear) are specified in the applicable system-specific Section.

1.11 OWNER TRAINING

The D&B Contractor shall provide training of the Owner's facilities staff on all electrical systems, with a minimum of 8 hours of hands-on training per major system (including, at minimum, emergency generators and paralleling switchgear, normal and emergency power switchgear, fire alarm system, lighting control system, and UPS systems). Training shall be conducted by manufacturer-certified or factory-trained personnel and documented on video for the Owner's future reference.

PART 2 - EXECUTION

2.01 EXAMINATION

Verify site, structural, and existing-facility conditions, including the location of the seismic isolation plane, structural pad locations, and the interface points with the existing ASEM Central Services Building, before commencing installation. Notify the Owner's Representative in writing of any discrepancies between the Contract Documents and field conditions before proceeding.

2.02 INSTALLATION - GENERAL

A. Install raceways, boxes, wire, and cable per manufacturer's instructions and NEC requirements, maintaining the minimum 10% spare capacity required by Section 1.4.A in all distribution equipment.

B. Maintain physical and electrical separation between the Essential Electrical System (Life Safety, Critical, and Equipment System branches) and the Optional Standby (non-essential) system throughout, per NEC 700.10 and NFPA 99; Life Safety Branch and Critical Branch wiring shall not be combined on a single automatic transfer switch or share raceway with each other except as specifically permitted by NEC 517.

C. Conductor and raceway routing shall avoid routing above patient care spaces where not required, and shall avoid electrical rooms serving as a pass-through for unrelated systems' piping (no water piping above electrical equipment; floor drains not permitted in electrical rooms).

D. Minimum bend radii for raceways and medium-voltage cable shall conform to NEC and manufacturer's requirements; conductors shall not be pulled with a tension exceeding cable manufacturer's rating.

E. The D&B Contractor shall provide all required interconnection control wiring between the paralleling switchgear, the double-ended substation, and the emergency generators, complete and functional, including all synchronizing, status, metering, and interlocking control circuits necessary for the automatic transfer, automatic bus transfer, and generator paralleling schemes to operate as a fully coordinated system.

2.03 UNDERGROUND DUCT BANK AND MANHOLE INSTALLATION

Install concrete-encased PVC duct banks for all underground electrical distribution per NEC and PREPA underground standards. Provide separate, physically independent manholes for each of the two 13.2 kV feeders between the outdoor substation yard and the Building Basement substation, with no shared manhole between the two feeders, to maintain source redundancy. Provide a minimum of one spare conduit per medium-voltage feeder duct bank. Seal all conduit entries into the building with fire-stopped sleeves.

2.04 SEISMIC ISOLATION PLANE CROSSINGS

At the Interstitial Level, install all conduits, cable trays, bus connections, and equipment crossing the seismic isolation plane with flexible connections and seismic loops, engineered and installed to accommodate the full design differential movement of the isolation system without damage, loss of continuity, or loss of grounding integrity. Coordinate exact crossing locations and required movement capacity with the structural Engineer of Record.

2.05 GROUNDING AND BONDING INSTALLATION

A. Install a copper building ground grid or ring below grade around and beneath the building footprint, connected to ground rods per NEC 250.50 and IEEE 142; install a separate outdoor substation ground grid designed per IEEE 80, with combined grid resistance not to exceed the value required by LUMA and IEEE 80 for the available fault current; install an indoor substation ground ring interconnected to the building ground ring.

B. Bond all metallic equipment enclosures, raceways, cable trays, transformer tanks, and generator housings to the building grounding system.

C. In all Category 1 patient care spaces (operating rooms, ICU rooms, Trauma Stabilization cubicles, patient rooms), bond all exposed conductive surfaces within the patient care vicinity to the reference grounding point per NFPA 99 and NEC 517.13; install a Patient Equipment Grounding Point at the head wall/bed location in each ICU, operating room, and Trauma Stabilization station.

D. Do not ground the isolated (ungrounded) secondary of any operating room isolated power panel; connect the IPP equipment enclosure to the reference grounding point per NEC 517.160 and NFPA 99.

E. Install surge protective devices at the required locations; verify SPD installation is coordinated with the lightning protection system down-conductor and grounding network.

2.06 IDENTIFICATION AND LABELING

Install nameplates, wire markers, and panelboard directories at completion of each system's installation. Perform arc flash hazard analysis at DD phase per Section 1.4.C, update the analysis to reflect final as-built equipment and protective device settings, and install arc flash labels on all switchgear and panelboard compartments prior to energization, per NFPA 70E and IEEE 1584.

2.07 FIRESTOPPING INSTALLATION

Install firestop systems at all fire-rated penetrations per the listed system's installation instructions, immediately following installation of the penetrating raceway, cable, or cable tray. Do not conceal penetrations until inspected and accepted.

2.08 FIELD QUALITY CONTROL

A. General: Notify the Owner's Representative and testing agency a minimum of 5 working days prior to each required field test. Correct deficiencies and retest before proceeding to subsequent construction phases.

B. Insulation Resistance Testing: Perform insulation resistance (megger) testing on all feeders and medium-voltage cables prior to energization, per manufacturer's and NETA guidelines.

C. Ground Resistance Testing: Perform fall-of-potential ground resistance testing of the building ground grid and the substation ground grid per IEEE 80 and LUMA requirements; document and submit results.

D. Continuity and Functional Testing: Perform continuity testing of all grounding and bonding connections; perform functional testing of automatic transfer switches, the automatic bus transfer scheme at the double-ended substation, and all associated interlocking schemes.

E. Protective Device Coordination: Field-set all protective devices per the short-circuit and protective device coordination study; verify selective coordination between main breakers, tie breaker, and downstream feeder breakers.

F. Submit written test reports for all field quality-control testing as part of the closeout submittals required by Section 1.5.C.

2.09 CLEANING AND PROTECTION

Protect installed electrical materials and equipment from construction dust, moisture, and physical damage until Substantial Completion. Clean equipment interiors and exteriors of construction debris prior to energization. Repair or replace, at no cost to the Owner, any materials or equipment damaged or corroded due to inadequate protection during construction.

2.10 DEMONSTRATION AND CLOSEOUT

Provide Owner training. Submit record (as-built) drawings, O&M manuals, final test reports, and warranty documentation prior to Substantial Completion, as required by Section 1.5.C.

END OF SECTION 16100

SECTION 16112 RACEWAYS AND CONDUITS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Rigid galvanized steel conduit (GRS), rigid nonmetallic (PVC) conduit, electrical metallic tubing (EMT), flexible and liquid-tight flexible metal conduit, conduit fittings, conduit supports, conduit coatings, surface raceways, wireways and auxiliary gutters, and underground concrete-encased duct banks and manholes for the medium-voltage feeders, forming a complete, integrally grounded raceway system for the Project.

B. Related Sections: Section 16100 - Basic Electrical Materials and Methods (general material, seismic, and corrosion-resistance requirements applicable to this Section).

1. Section 16120 - Wire and Cable (conductors installed in the raceways of this Section, including the 13.2 kV feeder cable installed in the duct banks and manholes of this Section).
2. Section 16131 - Outlet, Pull and Junction Boxes (termination points for the raceway system).
3. Section 16550 - 38 kV Power Transformers (underground medium-voltage duct banks/manholes within the substation yard).
4. Section 16600 - Double-Ended Substation (13.2 kV feeder duct banks and manholes terminating at the Building Basement substation).
5. Section 16742 - Telephone and Data Raceway System (related pathway/conduit provisioning for structured cabling and other low-voltage systems).

1.02 DEFINITIONS

A. Duct Bank: An assembly of two or more conduits encased together in concrete, used to route underground electrical feeders between structures or between yard equipment and a building.

B. Manhole: An underground precast or cast-in-place concrete structure providing access for pulling, splicing, and maintaining underground feeder cables at duct bank junctions, direction changes, and required length intervals.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Materials shall bear Underwriters Laboratories (UL) labels.

B. The raceway system shall form a complete, mechanically and electrically continuous, integrally grounded pathway for conductors from service entrance to outlets, sized and constructed with sufficient strength and capacity to permit installation, pulling-in, splicing, and future replacement of conductors without strain or injury to the raceway or the conductors.

1.04 SUBMITTALS

A. Product Data: Manufacturer's literature, including printed installation instructions and recommendations, before starting work. Submit samples if requested.

B. Shop Drawings: Coordination/routing drawings for underground duct bank and manhole layout, including manhole locations, dimensions, and duct bank structural design calculations, signed and sealed by a Puerto Rico-licensed engineer, for duct banks and manholes designed per ACI 318 for the Project's seismic design category; routing drawings for raceways crossing the Interstitial Level seismic isolation plane, coordinated with the structural Engineer of Record.

C. Certificates: UL listing documentation for all raceway products, fittings, and firestop systems; test reports for mandrel testing and pull-rope installation of underground ducts prior to cable installation.

1.05 QUALITY ASSURANCE

A. Regulatory Requirements: Work shall comply with NFPA 70 - National Electrical Code (NEC), latest edition adopted in Puerto Rico, and with the Puerto Rico Building Code (PRBC), and all applicable PREPA, PRDOH, and AHJ requirements.

B. Electrical Component Standard: Components and installation shall comply with NFPA 70 - National Electrical Code (NEC), latest edition adopted in Puerto Rico.

1.06 DESIGN REQUIREMENTS

A. Spare Capacity: Raceway systems shall be sized to provide the minimum 10% spare capacity for future load growth required by the Bridging Document and Section 16100.

B. Underground 13.2 kV Feeder Duct Banks and Manholes: Two independent 13.2 kV feeder duct bank and manhole runs shall be provided between the 38 kV substation yard and the Building Basement double-ended substation, one per feeder; each feeder's duct bank and manhole run shall be physically independent of the other feeder's run, with no shared manhole between the two feeders, to maintain separation and redundancy between the two sources per the Bridging Document, Section 4.3. A minimum of one spare conduit shall be provided in each medium-voltage feeder duct bank for future use.

C. Seismic Isolation Plane: All raceways crossing the building's Interstitial Level seismic isolation plane shall include flexible connections and engineered seismic loop

assemblies sized for the maximum design differential displacement of the seismic isolation system, per the Bridging Document.

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. Conduit shall be sized according to the NEC, unless otherwise noted. Feeders and home runs shall not be less than 3/4 inch diameter.

B. Rigid Conduit:

1. Galvanized Rigid Steel Conduit (GRS): Hot-dip galvanized or electro-galvanized, with corrosion-resistant coating on the inside, threaded, standard-weight steel conduit complying with ANSI C80.1 (latest edition) and NEC Article 344 (Rigid Metal Conduit).
2. Rigid Nonmetallic Conduit: Schedule 40 PVC, rated 90 degrees C, complying with ANSI/UL 651 (latest edition) and NEC Article 352 (Rigid Polyvinyl Chloride Conduit).

C. Electrical Metallic Tubing (EMT):

1. Galvanized steel tubing with a smooth interior coat of lacquer enamel or zinc coat.
2. Complying with ANSI C80.3 (latest edition), UL 797, and NEC Article 358 (Electrical Metallic Tubing).

D. Flexible Metal Conduit:

1. Steel: Flexible galvanized steel conduit ("Greenfield") complying with UL 1 and NEC Article 348 (Flexible Metal Conduit).
2. Liquid-Tight: Flexible galvanized steel conduit with an oil- and water-resistant overall plastic sheath, complying with UL 1 and NEC Article 350 (Liquidtight Flexible Metal Conduit).
3. Minimum size for flexible metal conduit is 1/2 inch, except 3/8 inch where allowed by NEC Article 348 for connections to lighting fixtures.

E. Conduit Fittings:

1. Rigid Steel Conduit: Zinc- or cadmium-plated steel, or galvanized malleable iron, complying with ANSI C80.1 and C80.3. Fittings shall be threaded type. Die-cast zinc alloy fittings are not allowed.
2. Rigid PVC Conduit: 90 degrees C, PVC fittings, UL listed. Fittings shall match the conduit and comply with ANSI/UL 651 (latest edition).
3. EMT Fittings: Zinc- or cadmium-plated steel, or malleable iron, of the compression type, or stainless steel multiple-point locking (set-screw) type.

Connectors shall have insulated throats. Fittings shall comply with ANSI C80.3 (latest edition). Die-cast zinc alloy fittings are not allowed.

4. Flexible Metal Conduit Fittings: Steel or malleable iron only, with insulated throat, complying with Federal Specification W-F-406B. Die-cast zinc alloy fittings are not allowed.
5. Bushings and connectors shall incorporate an insulating insert of at least 150 degrees C-rated plastic or 105 degrees C-rated nylon. Conduit bushings made entirely of nonmetallic material are not allowed. Grounding and bonding bushings shall have a clamp-type terminal for the copper conductor.
6. Expansion Fittings and Sealing Fittings: UL listed, with ground continuity means.

F. Conduit Supports:

1. Straps: Formed, zinc-coated steel or malleable iron one-hole pipe straps or conduit clamps, sized for the conduit or tubing.
2. Fastenings: Zinc-coated or cadmium-plated steel screws, bolts, toggles, and expansion anchors as required.
3. Electrical steel channels shall be equivalent to Unistrut P-3000 Series. Provide trapeze, clamps, supports, and concrete inserts, galvanized steel or plated steel, with galvanized conduit clamps and threaded 1/4 inch diameter minimum suspension rods.
4. For individual branch-circuit EMT or flexible metal conduit concealed above accessible hung ceilings only, spring-steel "caddy clip" conduit clamps may be used.

G. Conduit Coatings: Steel conduit buried directly in the earth shall receive a factory-applied PVC coating or two coats of fibrated emulsion conduit coating, complying with the manufacturer's application recommendations.

H. Surface Raceways: Provided only where specifically indicated. UL listed, complying with Federal Specification W-C-582 and NEC Article 386 (Surface Metal Raceways) and Article 388 (Surface Nonmetallic Raceways).

1. Manufacturers: Walker (Division of Butler Manufacturing Co.); Wiremold.
    a. Walker, Division of Butler Manufacturing Co.
    b. Wiremold.
2. Pull Wires: Galvanized steel or nylon rope of sufficient strength to pull the maximum-size conductors through the trade-size conduit; minimum strength 200 lbs.
3. Fire Stopping: Material shall be UL labeled and FM approved for fire ratings consistent with the penetrated barriers; sleeves shall be Schedule 40, welded, black steel pipe, sized as indicated.

a. Material shall be UL labeled and FM approved for fire ratings consistent with the penetrated barriers.

b. Sleeves: Schedule 40, welded, black steel pipe sleeves, sizes as indicated.

4. Warning Signs: Lettering 1-1/2 inch high, black on yellow background, with the legend "WARNING! NOT TO BE USED AS WALKWAY, LADDER, OR SUPPORT FOR LADDERS OR PERSONNEL." Materials and fastening per the Identifying Devices specification.

I. Wireways and Auxiliary Gutters:

1. Hot-dip galvanized, code-gage sheet steel, complete with knockouts, enclosures, and removable covers unless indicated as hinged. Manufacturers: Hoffman; Lee Products; Keystone; Square D.

a. Hoffman.

b. Lee Products.

c. Keystone.

d. Square D.

2. Exterior locations shall have weathertight, gasketed covers, joints, and drip-proof rain shields; paint after installation with exterior enamel paint.

3. Wireways and gutters shall comply with NEC Article 376 (Metal Wireways) and Article 366 (Auxiliary Gutters).

J. PVC-Coated Rigid Steel Conduit (Coastal/Corrosion-Resistant Applications): 40-mil factory-bonded PVC coating over hot-dip galvanized rigid steel conduit, with matching PVC-coated fittings, for exterior, corrosive, and coastal-exposed locations in lieu of uncoated GRS, per the corrosion-resistance and hurricane-environment requirements of Section 1.6.D.

2.02 UNDERGROUND DUCT BANKS AND MANHOLES FOR MEDIUM-VOLTAGE FEEDERS

A. Concrete-Encased Duct Banks: Schedule 40 PVC conduit (per Section 2.1.B.2) encased in a reinforced concrete envelope with a minimum 3-inch concrete cover, designed as per PREPA underground manual. Separate, physically independent duct banks shall be provided for each of the two 13.2 kV feeders routed from the 38 kV substation yard to the Building Basement double-ended substation, with no shared duct bank or manhole between the two feeders, per Section 1.6.B.

B. Spare Conduits: A minimum of one spare conduit shall be provided in each medium-voltage feeder duct bank for future use.

C. Manholes: Precast or cast-in-place reinforced concrete manholes, sized as per PREPA standards for the conductors, bends, and pulling tensions contained; separate manholes shall be provided for each of the two feeders, with no manhole

shared between the two feeders. Each manhole shall be provided with pulling irons, cable racks, a sump, ladder rungs, and a gasketed, traffic-rated cover; all metallic manhole hardware shall be bonded to the building grounding system per Section 16100.

D. Building Wall Penetration: Conduit entry into the Building Basement Main Electrical Room shall be made via a sleeve with a fire-stopping seal.

E. Warning Tape: Continuous warning tape identifying the buried electrical/medium-voltage service shall be installed above all underground duct banks per the NEC and applicable utility requirements.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Do not proceed with the work of this Section until conditions detrimental to the proper and timely completion of the work have been corrected in an acceptable manner.

3.02 INSTALLATION

A. Provide, where indicated and where required, ducts, conduits, tubing, wireways, and gutters to form a complete and integrally grounded raceway system. The system shall be installed according to the NEC and local code requirements. Components of the system shall be of sufficient size, strength, and capacity to allow for placement, pulling-in, or other installation of conductors, wires, cables, splices, taps, and terminations, whether included in this Contract or for future use, without strain or injury to those items being installed.

B. Provide pull wires in empty raceways where no conductors are installed under this Contract. Allow 10 inches minimum slack at each end of the pull wire and securely caulk in place.

C. The minimum size of rigid conduit and flexible metallic conduit shall be according to the NEC except as follows:

1. Unless otherwise specified under Part 2 - Products or shown on the Drawings.
2. Unless otherwise shown on the Drawings, telephone conduits shall be not less than 1 inch trade size.
3. Feeders and home runs shall not be less than 3/4 inch diameter.

D. Check sizes of raceways to determine that the green equipment grounding conductor specified, shown, or required can be installed in the same raceway with the phase and neutral conductors according to the percentage-of-fill requirements of the NEC. If necessary, increase the duct, conduit, tubing, or raceway sizes shown or specified to accommodate the conductors without additional cost to the Owner.

E. Raceway and Conduit Use Locations: Unless indicated otherwise, the conduit types specified shall be used in the locations below. Any deviation from this schedule shall be submitted for approval, with corresponding price adjustments, before installation. Any conduit installed that is not of the specified type shall be removed and replaced with the specified type at no additional cost to the Owner.

1. Exterior Raceways:
    a. Below-grade, concrete-encased: Schedule 40 PVC.
    b. Flexible conduit: PVC-jacketed, with liquid-tight fittings.
    c. Conduit exposed to the weather: GRS (PVC-coated GRS per Section 2.1.J in coastal/corrosive exposures).
    d. Gutters, wireways, and troughs shall be of the gasketed, raintight type.
2. Interior Raceways:
    a. Under slabs on grade: Schedule 40 PVC.
    b. Embedded in concrete walls or floors on or below grade: Schedule 40 PVC.
    c. Embedded in concrete walls or floors above grade: Schedule 40 PVC.
    d. For exposed work: GRS.
    e. Concealed in drywall: EMT.

F. Raceway and Conduit Installation:

1. Conduit Routing:
    a. Route feeders, home runs, and conduits as indicated, except for minor deviations as accepted.
    b. Maintain a minimum separation of 12 inches between conduits containing emergency feeders and conduits containing normal feeders.
    c. The routing of conduit shown on the plans is general.
    d. Before installing any work, examine the working layouts of all other trades to determine exact locations and clearances.
    e. Where equipment is installed by other trades requiring connection as specified in this Section, determine exact conduit entry locations from the approved shop drawings.
    f. Modifications to conduit runs shown on the electrical drawings, based on this Section, shall be made without additional cost to the Owner, and shall be subject to the Owner's Engineer's approval.
    g. In determining clearances, conduit shall not be run within 6 inches of any heated pipe or duct; if unavoidable, the conduit must be kept at least 1 inch from the outer covering.

2. Conduits Penetrating Waterproof Membranes Under Floor Slabs on Grade:
    a. Coordinate installation of conduits before installation of the waterproof membrane.
    b. The membrane shall be sealed watertight to the conduits before the slab is poured over the membrane.
    c. Provide Schedule 40 galvanized steel pipe sleeves for conduits penetrating floor slabs.
3. Conduits Penetrating Waterproof Membranes on Walls: Provide properly coordinated Schedule 40 galvanized steel pipe sleeves for conduits in concrete forms. The membrane shall be sealed watertight to the conduits.
4. Conduit Embedded in Concrete:
    a. Conduit embedded in poured concrete shall be of the specified type, unless otherwise indicated.
    b. EMT shall not be installed underground, in slabs on grade, in wet locations, in hazardous areas, or for circuits operating at more than 600 volts.
    c. The outside diameter of any conduit buried in concrete shall not exceed one-third of the thickness of the structural slab, wall, or beam in which it is placed. The conduit shall be located entirely within the middle third of the member whenever possible.
    d. Lateral spacing of conduits buried in concrete slabs shall be not less than three diameters, except where the drawings indicate the concrete slab has been specially designed to accommodate a closer spacing of conduits entering signal or electric closets, panelboards, etc., or the arrangement is accepted by the Owner's Engineer.
    e. In general, conduits shall not be run through beams, except where clearly indicated on the Drawings, specified, or allowed by the Owner's Engineer.
    f. No vertical conduit passing through horizontal concrete beams shall interfere with reinforcing. Where accepted by the Owner's Engineer, horizontal conduit may pass through beams, provided it is not closer than 6 inches clear and is confined to the upper half of the beam section.
    g. Properly support conduit to be embedded to maintain correct location and spacing during concreting operations. If necessary, provide suitable metal supports for this purpose.
    h. Where a concrete-embedded conduit passes through an expansion or contraction joint in the structure, install the conduit at right angles to the joint and provide an approved conduit expansion fitting at the joint, installed according to the manufacturer's instructions. Paint the conduit

with an approved bituminous compound for 1 foot on either side of the expansion joint.

i. At any one point, not more than two lines of conduit shall intersect in any portion of a slab; any additional conduit shall be rerouted through other areas, or run under the slab and stubbed through the slab at required locations. Conduits and pipes shall have a minimum cover of 1 inch of concrete; conduit shall not be installed in slabs 3 inches thick or less; aluminum conduit shall not, under any conditions, be buried in concrete slabs; slab-installed conduit shall be stubbed within the webbing of block and extended vertically concurrently with the laying of block, with the centerline of block partitions determined from column centerlines.

5. Conduit Bending, Cutting, and Placement:

a. Conduit bends and offsets shall be avoided where possible.

b. Required bends shall be made with standard benders designed for the purpose, with a minimum radius of 6 times the internal conduit diameter.

c. Make conduit bends according to the NEC unless otherwise shown on the Drawings. Use of a pipe tee or vise for bending conduit is not allowed.

d. Conduit that is crushed or deformed shall not be installed.

e. Bends shall be free from dents or flattening. Bends totaling more than 360 degrees are not allowed in conduit between any two terminations or pull boxes.

f. Make no bends in surface raceways; use factory-formed fittings for surface raceways.

g. Raceways shall not contain more than two 90-degree bends or the equivalent. Provide additional junction or pull boxes to meet this requirement.

h. The ends of conduit shall be carefully reamed out free from burrs before installation and after threading; cuts shall be made square; coupling of conduits by means of running threads is not allowed; where it is impossible to run the conduit and coupling sections together, an Erickson coupling or other accepted combination coupling shall be used; joints shall be made up tight; joints in conduits concealed in slab, floor fill, earth, etc., shall be made using approved silicone paint on the threads.

i. Prevent lodgement of plaster, dirt, or trash in raceways, boxes, fittings, and equipment during the course of construction. Clogged raceways shall be entirely freed of obstructions or replaced.

j. During installation of conduit, unfinished runs and terminations in pull boxes, cabinets, etc., shall be capped until conductors are installed.

k. Plastic caps designed for this specific purpose shall be used to cover and align conduits before concrete pours, and shall remain on conduit stub-ups until the conduit is extended. Caps shall have self-aligning, interlocking male or female wings molded on each side; duct or electrical tape and wire are unacceptable.

6. Conduit Connections:

a. Conduit runs shall be mechanically and electrically continuous . Unless otherwise specified, each conduit shall enter and be securely connected to a cabinet, junction box, pull box, or outlet box by means of a locknut on the outside and a bushing on the inside, or by means of a liquid-tight, threaded, self-locking, cold-weld-type wedge adapter. Where the nominal circuit voltage exceeds 250 volts, rigid conduit shall have one inside and one outside locknut; EMT or flexible metal conduit shall have one wrench-tight locknut; locknuts shall be the bonding type with sharp edges for digging into the metal wall of the enclosure; locknuts and bushings or self-locking adapters are not required where conduits are screwed into tapped connections; protect vertical runs of conduit terminating in the bottoms of wall boxes or cabinets, etc., from the entrance of foreign material before conductors are installed.

b. Plastic conduit joints shall be made by brushing plastic solvent cement on the inside of the plastic coupling fitting and on the outside of the conduit ends; slip the conduit and fitting together, until seated, with a slight twist to set the joint tightly, then rotate the conduit one-half turn to distribute the cement evenly. Remove excess cement built up on the conduit surface.

c. The end of each conduit 1 inch and smaller shall be provided, where it enters a junction box, outlet box, cabinet, etc., with a locknut and bushing. For conduits 1-1/4 inch and larger, use insulated bushings with a ground stud; if fully insulated bushings are used, provide additional locknuts inside the box or cabinet before installing the bushing. Provide conduit entering main distribution switchboard feeder pull boxes with an insulated bushing with a ground stud regardless of size.

d. Install the conduit system complete before any conductors are drawn in. Each run of conduit shall be blown through and swabbed after plaster is finished and dry, and before conductors are installed.

e. Install conduit to drain any collected moisture to the nearest outlet or pull box, where possible.

f. Where metallic conduit is exposed to different temperatures, seal the conduit to prevent condensation and passage of air from one area to another.

g. Light and power conduit shall run from a permanent and continuous ground return back to the service ground connection point. Conduits used on systems entirely isolated from the light and power distribution system shall be electrically continuous and grounded in an approved manner. Ground cable trays to the conduit system.

7. Conduit Penetrations and Supports:

   a. Sleeves, conduits, or other pipes passing through floor slabs, beams, or walls shall be located so as not to impair the strength of the structure.

   b. Conduits penetrating walls or smoke partitions shall be fire-stopped (sealed). Filling materials for openings in floors shall be fire-resistive and finished to prevent the passage of water, smoke, and fumes. Filling material for openings in walls shall be fire-resistive where it occurs in firewalls and shall be installed to prevent the passage of air, smoke, or fumes. Where conduit and wiring pass through fire walls or floor slabs, the Contractor shall fill the opening with fireproof sealant.

   c. Roof penetrations shall be made using approved flashings and counter-flashings. Do not penetrate cant strips or expansion joint covers with conduits. Do not run conduits up through the roof nearer than 12 inches from the toe of the cant strip. Where conduits penetrate exterior walls near flashings, the penetration shall be at least 3 inches above the flashing reglet.

   d. Where conduits passing through openings are exposed in finished rooms, the finishes of the filling materials shall match and be flush with the adjoining floor, ceiling, or wall finishes.

   e. Where unused sleeves or slots are provided for future installation of conduit, etc., they shall be suitably identified if not readily recognizable.

   f. Run conduits exposed in unfinished spaces, mechanical equipment spaces, where specifically indicated on the Drawings, or with the express permission of the Owner's Engineer. Feeder conduits shall be run exposed or in hung ceilings, except as noted; exposed conduits shall be run parallel to building walls or partitions, using approved conduit fittings, and shall be securely supported with malleable iron pipe straps, angle iron pipe straps, angle iron or steel channel racks, or other approved means as required for clearance of other piping or ductwork; wood hangers and perforated sheet metal hanger straps are not allowed; spacing of conduit supports shall not exceed 7 feet; horizontal feeder conduit banks shall have their hangers fastened to the building structure by approved means; hangers for banks consisting of 1 or 2 conduits may be fastened from inserts in the slab; auxiliary steel for fastening shall be furnished and installed under this Section.

g. Support individual conduits not larger than 1-1/2 inch diameter by means of one-hole pipe straps or individual pipe hangers. Support individual horizontal conduits larger than 1-1/2 inch diameter by individual pipe hangers.

h. Conduit located in hung ceilings shall be supported in an approved manner similar to exposed conduits.

i. Branch-circuit conduits above suspended ceilings may be supported from the floor construction above or from the main ceiling support members; the finished installation shall not interfere with the removability of ceiling panels. Individual branch conduits above suspended ceilings with removable panels may be supported from the ceiling suspension wires, provided the load imposed on any individual wire is not greater than 64 lbs, including the ceiling weight.

j. Unsupported vertical drops over 10 feet from bus ducts or at motors shall be in rigid steel conduit. For vertical drops of less than 10 feet, EMT may be used. Brace conduit to prevent swaying.

k. Space conduits installed against concrete or masonry surfaces away from the surface by clamp backs or other approved means.

l. In dry locations, spring-steel fasteners, clips, or clamps specifically designed for supporting exposed single conduits may be used instead of pipe straps or pipe hangers. Hanger rods used with spring-steel fasteners shall be not less than 1/4 inch diameter steel with a corrosion-resistant finish; spring-steel fasteners shall be specifically designed for supporting single conduits or EMT; type, size, and spacing of spring-steel fasteners with accessories shall be approved by the Owner's Engineer and the Contractor, with applicable load and rating data submitted for approval; wire shall not be used for support, and nails are not allowed for the support of conduit.

m. Where 2 or more horizontal conduits or EMT run parallel and at the same elevation, they shall be supported on multiple trapeze pipe hangers. Each conduit or EMT shall be secured to the horizontal hanger member by a U-bolt, one-hole strap, or other suitably designed and approved fastener.

n. U-bolts, clamps, attachments, and other hardware necessary for hanger assembly, and for securing hanger rods and conduits, shall be provided. Each multiple hanger shall be designed to support a load equal to or greater than the sum of the weights of the conduits, wires, and hanger, plus 200 lbs. Hardware shall be hot-dip galvanized after fabrication.

8. Fittings:

a. Expansion Fittings: Each buried conduit, or conduit rigidly secured to the building construction on opposite sides of a building expansion joint, and each long run of exposed conduit that may be subject to excessive

stresses, shall be provided with an expansion fitting. Expansion fittings shall be made of hot-dip galvanized malleable iron and shall have a factory-installed packing that prevents the entrance of water, a pressure ring, and a grounding ring.

b. In addition to the grounding ring, a separate external copper bonding jumper, secured by grounding straps on each end of the fitting, shall be provided.

c. Sealing Fittings: Sealing fittings for use with rigid steel conduits shall be of the threaded, zinc- or cadmium-coated, cast or malleable iron type. Fittings used to prevent the passage of water vapor shall be of the continuous-drain type.

d. Sealing fittings shall be installed and sealed according to the manufacturer's recommendations at suitable, approved, accessible locations. In concealed work, each fitting shall have an access door or panel to allow access to the fitting.

e. Compression fittings shall be made up tight according to the manufacturer's recommendations. Screw-type fittings are not allowed.

9. Conduit Fastening: Fasten raceways as follows:

a. To wood: Wood screws, sheet metal screws, or screw-type nails.

b. To hollow masonry: Toggle bolts or expansion bolts as required; unused holes shall not be filled.

c. To concrete or solid brick masonry: By expansion bolts, in holes drilled to a depth of more than 1-1/2 inch.

d. To steel work: Machine screws, welded threaded studs, or spring-tension clamps. Raceways or pipe straps shall not be welded to steel structures.

e. To light steel construction partitions: Sheet metal screws. Bar hangers may be attached with saddle ties of 16-gage double-strand zinc-coated steel wire.

f. Nail-type nylon anchors with lock washers and nuts may be used instead of expansion bolts or machine screws.

g. Explosive charge-setting devices are not allowed for any type of fastening on the Project.

h. Conduits, tubing, or raceways shall be continuous from outlet to outlet, cabinet, junction box, or pull box.

i. Surface wireways and auxiliary gutters shall be fastened according to the manufacturer's directions, with fastenings appropriate for the surface as specified.

j. Cable supports in vertical raceways shall be provided according to NEC Article 300.19.

10. Flexible Conduit:
    a. Flexible conduit shall be used for connections to motors and other electrical equipment subject to movement, vibration, misalignment, or cramped quarters, or where noise transmission is to be eliminated or reduced. Flexible conduit used for these purposes shall be of the liquid-tight type where installed in exterior locations; in a moisture- or humidity-laden atmosphere where condensation may accumulate; in corrosive atmospheres; where water or spray from wash-down operations is frequent or possible; or wherever there is a possibility of seepage or dripping of oil, grease, or water.
    b. Flexible conduit shall be used for short connections to control devices, recessed fixtures, and similar items, with enough slack to avoid tension. The connection between the structure and the first point of attachment to vibrating equipment shall be flexible.
11. Empty Conduits: Where empty conduit or tubing is indicated for wiring to be installed in the future, install the conduit or tubing according to the preceding requirements, with the following additional requirements:
    a. No length of run shall exceed 75 feet for 3/4 inch size, or 150 feet for 1 inch or larger sizes.
    b. Raceways shall not contain more than two 90-degree bends or the equivalent.
    c. Install additional pull or junction boxes to comply with the above limitations, whether or not indicated.
    d. Inside radii of bends in conduits of 1 inch or larger shall be not less than 10 times the nominal diameter.
    e. Provide a pull wire in empty raceways.

3.03 UNDERGROUND DUCT BANK AND MANHOLE INSTALLATION

A. Install underground duct banks and manholes per Section 2.2, maintaining minimum separation between duct banks and from other underground utilities per the NEC, PREPA and maintaining the physically independent, separate routing of the two 13.2 kV feeder duct bank and manhole runs required by Section 1.6.B.

B. Install manholes at the spacing required for cable-pulling tension and at all required direction changes, per the manufacturer's and Section 16120 requirements.

C. Seal all conduit entries into the building with fire-stopped, watertight sleeves per Section 2.2.D.

D. Mandrel-test and pull a rope through all underground ducts prior to cable installation by others under Section 16120.

3.04 SEISMIC ISOLATION PLANE CROSSINGS

Install flexible connections and seismic loop assemblies at all raceways crossing the Interstitial Level seismic isolation plane, per Section 1.6.C, coordinated with the structural Engineer of Record for exact crossing locations and required movement capacity.

3.05 FIELD QUALITY CONTROL

A. Inspect all raceway for damage, proper support, grounding continuity, and firestopping prior to concealment; correct deficiencies before proceeding.

B. Verify that empty raceways have been fitted with pull wires with the required slack, and that unfinished conduit runs and terminations remain capped until conductors are installed.

C. Verify that underground ducts have been mandrel-tested and fitted with a pull rope prior to cable installation, per Section 3.3.D.

END OF SECTION 16112

SECTION 16120 WIRE AND CABLE

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Copper building wire and cable, 600 volt AC and below, for all light, power, and control circuits; and 15 kV-class medium-voltage shielded power cable for the two 13.2 kV underground feeders between the outdoor yard substation and the Building Basement double-ended substation; together with all conductor identification, splicing, termination, and testing requirements associated with this Section's products.

B. Related Sections:

1. Section 16100 - Basic Electrical Materials and Methods
2. Section 16112 - Raceways and Conduits
3. Section 16131 - Outlet, Pull and Junction Boxes
4. Section 16140 - Wiring Devices
5. Section 16155 - Motor Power and Control Wiring
6. Section 16440 - Disconnect Switches
7. Section 16470 - Panelboards
8. Section 16511 - Lighting Fixtures
9. Section 16550 - 38 kV Power Transformers
10. Section 16600 - Double-Ended Substation
11. Section 16700 - Automatic Transfer Switches
12. Section 16800 - Paralleling Switchgear
13. Section 16900 - Diesel Engine-Driven Generators

1.02 REFERENCES

NFPA 70 (National Electrical Code), latest edition adopted in Puerto Rico; NEC Article 310 (Conductors for General Wiring), Article 250 (Grounding and Bonding), and Article 517 (Health Care Facilities); NEMA WC 70/ICEA S-95-658 (600 V nonshielded power cable) and UL 44/UL 83 (thermoset- and thermoplastic-insulated wires) - these current designations supersede the previously referenced NEMA WC-5, NEMA WC-7, IPCEA S-61-402, and IPCEA S-66-524, all of which have been withdrawn; ICEA S-93-639 and AEIC CS8 (5 kV-46 kV shielded medium-voltage power cable); IEEE 400 (field testing of shielded power cable systems after installation); IEEE 383 and IEEE 1202 (cable flame test); NFPA 99 (Health Care Facilities Code) ; PREPA Standards.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Materials shall bear Underwriters Laboratories (UL) labels.

1.04 SUBMITTALS

A. Submit product data and descriptive literature before starting work.

B. Medium-Voltage Cable Submittals: For the 13.2 kV feeder cable, submit cable pulling calculations, manufacturer's ampacity and minimum bending radius data for the duct bank/manhole configuration, and factory test reports (partial discharge and AC high-potential withstand) prior to shipment to the site. Submit a fault current, ampacity, and voltage-drop calculation confirming cable sizing, signed and sealed by the Engineer of Record and coordinated with the fault current study required at Design Development phase per the Bridging Document, Section 4.3.

1.05 QUALITY ASSURANCE

A. Medium-voltage cable terminations and splices shall be performed only by personnel certified by the cable/termination kit manufacturer or otherwise qualified and acceptable to the Owner.

B. All calculations and design documents required under this Section shall be signed and sealed by the Engineer of Record, a Professional Engineer licensed to practice in the Commonwealth of Puerto Rico and a member in good standing of the Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR), per the Bridging Document.

1.06 DESIGN REQUIREMENTS

A. Conductors shall be copper only. Aluminum conductors are not permitted for branch circuit, feeder, service, or medium-voltage cable applications, consistent with the copper-conductor Basis of Design established throughout the Bridging Document (copper transformer windings, copper switchgear bus, copper building ground grid).

B. Conductor and cable ampacity shall be sized per NEC Article 310, coordinated with the short-circuit withstand rating established by the fault current study, and shall include not less than 10 percent spare capacity for future load growth, per Section 16100 and the Bridging Document.

C. Voltage drop limits are established in Section 3.2.C of this Section.

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. Wire and Cable:

1. Wire and cable shall be soft annealed 98 percent conductivity copper with 600 volt AC thermoplastic insulation unless otherwise noted.

2. Wire and cable shall be new and manufactured not more than 12 months before installation.
3. Each coil or reel shall bear UL label and wire marked with AWG or circular mil wire size, voltage rating, insulation type, type stranding, and the manufacturer's name.
4. Unmarked wire found installed shall be replaced at no additional cost to the Owner.
5. Wiring shall comply with NEMA WC 70/ICEA S-95-658 (600 V nonshielded wire and cable), UL 44/UL 83, and NEC Article 310.

B. Light and Power Wiring Circuit Conductors:

1. Light and power wiring circuit conductors may be stranded in sizes No. 10 AWG and smaller, and concentric strand Class B for conductors No. 8 AWG and larger.
2. Stranded copper conductors may be used for final connections to individual recessed lighting fixtures, devices, and for control and signal circuit wiring only with crimp-on type terminations.

C. Wiring Insulation shall be as follows:

1. THWN-2, 90°C.

D. Color Coding:

1. Wire of Size No. 8 and smaller shall be factory color coded 600 volt, THWN-2. Sizes larger than No. 8 may be factory color coded or color coded with 3M tape or accepted equivalent. Should tape be used, it shall cover not less than 6 inches of cable within the enclosure.
2. Colors to be used in coding shall be: 120/208 Volt System - Neutral White, Phase A Black, Phase B Red, Phase C Blue, Ground Green; 277/480 Volt System - Neutral Gray, Phase A Brown, Phase B Orange, Phase C Yellow, Ground Green. Isolated ground conductors shall be green with a continuous yellow stripe, per NEC 517.160. Electrical grounding and static conductors may be bare wire only where allowed by the NEC; within patient care spaces, NEC 517.13 requires an insulated copper equipment grounding conductor - not bare wire - run with the branch circuit conductors in addition to the metallic raceway.
3. All other colors (violet, traced, etc.) shall only be used for switch legs, control, or communication circuits.
4. Conductors for control wiring shall be color coded, using different color coding than the energy conductor coding specified above. Control wires shall be numbered.

E. Minimum Wire Size: Use No. 12 AWG for control over 200 feet, unless otherwise noted. Control wiring may be No. 14 AWG if distance is less than 200 feet.

1. Fire alarms and intrusion systems shall have cable and wiring according to manufacturer's specifications or as specified.

F. Wire and Cable Connectors and Terminations:

1. For splices in branch circuit conductors solid or stranded size No. 10 AWG and smaller, use UL listed soft plastic wire nut with sharp self-cutting interior threads, 3M Scotchlok, Ideal Supernut, or T&B Piggy of the size to match the wire.
2. For terminations of stranded or solid wire in size No. 10 AWG and smaller at equipment terminals, use UL listed, tin-plated copper, 600 volt vinyl insulated compression type ring or fork type equivalent to T&B "Sta-Kon" or Burndy "Vinylug".
3. For No. 8 AWG and Larger: T&B "Locktite" connectors, Burndy "Versitap" connectors, or OZ-Gedney solderless connectors, with insulating covers, tape, or heat shrink insulation system.
    a. Terminations and splices in feeders may be made with solderless pressure type connectors complete with composition insulating covers, field insulating tape, or heat shrink insulation system.
    b. Connectors and lugs for 250 mcm cable and larger shall be of the 2-hole type and for compression type shall have at least 2 indents.
    c. Compression lugs and connectors shall be tin plated wrought copper, of size to match the cable.
4. Splices in underground exterior wiring shall be made fully waterproof by potting or encapsulating.
5. Insulating tapes shall be of a type approved for the application and shall be flame retardant. Tapes shall be as manufactured by 3M or Bishop Electric.
6. Cable Ties: T&B "Ty-Rap" or Burndy "Unirap".
7. Cable Identification: Branch circuits wire markers 3M "Scotch Code" or accepted equivalent. For feeder sizes, non-ferrous metal stencil tags.
8. Thermal Fusion Connections: "Catalytic thermal weld" by Cadweld or accepted equivalent.

2.02 MEDIUM-VOLTAGE POWER CABLE (15 KV CLASS)

A. General: Provide 15 kV-class, single-conductor, shielded copper power cable for the two independent 13.2 kV underground feeders routed from the outdoor yard substation 15 kV primary switchgear (Section 16550) to the duplex primary switch and fuse assemblies at the Building Basement double-ended substation (Section 16600), per the Bridging Document, Section 4.3.

B. Conductor: Soft-drawn, stranded copper; one conductor set per phase per feeder; sized by the D&B Contractor based on load calculation, voltage drop (2 percent

maximum, per Section 3.2.C), and short-circuit withstand rating per the fault current study; ampacity per NEC Article 310 and the manufacturer's engineering data for the actual duct bank configuration, number of conductors, and soil/duct bank thermal resistivity.

C. Insulation and Shielding: Tree-Retardant Cross-Linked Polyethylene (TRXLPE) insulation, 15 kV class, 133 percent insulation level extruded semiconducting conductor and insulation shields; copper tape or concentric wire neutral/shield, continuously grounded at both ends and at every splice; overall jacket rated for direct-burial and duct bank service, moisture- and corrosion-resistant for Puerto Rico's underground coastal environment.

D. Configuration: Single-conductor cable sets, installed as two independent, physically separated feeder cable sets - one per underground duct bank/manhole run - so that damage to or loss of one feeder cannot affect the other, per the Bridging Document, Section 4.3.

E. Standards Compliance: ICEA S-93-639, AEIC CS8, and NEC Article 310; UL listed where a UL product category exists.

F. Acceptable Manufacturers: Okonite, General Cable, Southwire, Prysmian, or approved equal

PART 3 - EXECUTION

3.01 INSPECTION

A. Do not proceed with the work of this section until conditions detrimental to the proper and timely completion of the work have been corrected in an acceptable manner.

3.02 INSTALLATION

A. Wire and Cable Installation:

1. Wire and cable shall be suitably protected from weather or damage during storage and handling and shall be in first-class condition when installed.
2. Conductors shall not be pulled into conduit until raceway system is substantially complete. Wiring shall be continuous within conduit runs. Splices will be allowed only at outlet and junction boxes. Joints shall be mechanically and electrically secure.
3. Pulling lubricants, if used, shall comply with UL requirements for the type of conduit material and cable insulation being used.
4. Care shall be taken to prevent cutting and abrasion of cable insulation during the pulling of feeders.

a. Ropes used for pulling of feeders shall be made of polyethylene or other suitable nonmetallic material.

b. Pulling lines shall be attached to conductor cables by means of either woven basket grips or pulling eyes attached directly to the conductors.

c. Rope hitches shall not be used.

d. Cables to be installed in a single conduit shall be pulled in together.

e. Where polyethylene insulation is used and a pulling lubricant is required, the lubricant shall be certified by the manufacturer to be non-injurious to such insulation.

5. Do not bend cables during installation, either permanently or temporarily, to radius less than 12 times the outer diameters, except where conditions make the specified radius impracticable and shorter radii are allowed by the NEC and NEMA Standards. Medium-voltage shielded cable shall additionally comply with the manufacturer's minimum bending radius per Section 3.3.B.
6. Neatly and securely bundle conductors located in branch circuit panelboards, cabinets, control boards, switchboards, and motor control centers. Use nylon bundling straps.
7. Provide suitable installation equipment to prevent cutting or distortion of conduits during the pulling of feeders. Use masking or other means to prevent obliteration of cable identification when solid color coating or colored tracers are used.
8. Control wiring color codes shall be of type as required by its equipment manufacturer. Interconnections of control wiring shall be on numbered terminal strips.
9. Where 2 neutrals are installed in same conduit, their sets of wiring shall be grouped and clearly identified by permanent tags or other means.
10. At each outlet, a loop or end of wire not less than 9 inches long shall be left for connection to lead.
11. Leading end of each conductor pulled shall be carefully examined for damage to jacket. If damage is evident, cable shall be extended and further checked for damage, with good cable only to remain.
12. Cables in junction and pull boxes shall be properly trained and racked.
13. Branch circuit wiring in panelboard gutters shall be installed vertically in the gutter with a 90-degree bend at the supply circuit breaker; wire shall enter the circuit breaker lug horizontally.
14. Install cable supports and boxes at vertical feeders and according to the schedule in the NEC. Boxes shall be built of heavy steel plates not less than No. 10 USS gage fastened to an angle iron frame with removable covers secured by

brass machine screws. The cable support shall be of the split wedge type that clamps each conductor firmly and tightens due to the weight of the conductor.

B. Wire and Cable Splicing and Terminations:

1. Splices and terminations of conductors shall be made using specified materials and methods installed according to the manufacturer's recommendations.
2. Splices in branch circuit wiring shall be made by stripping conductor insulation, twisting conductors until mechanically secure, and installing a self-threading insulated type connector. Splices are not allowed within panelboards.
3. Conductors shall be squarely cut and fully inserted into the lug barrel or connector. Insulation shall be stripped without cutting the conductor or removing strands, exposing the conductor for the minimum distance required for connection. Splice connectors shall be of a type and be so installed that the conductor is fully insulated by a skirt of such design, or taped so cold flow of the conductor insulation will not be induced when the conductor is positioned in its final operating position.
4. Do not combine conductors under the same lug. Provide individual lugs for individual conductors. Re-tighten bolt type connectors 24 to 48 hours after initial installation and before taping.
5. Connectors shall be insulated by approved type, integral or separate cover, or by means of taping with approved plastic or rubber and friction tapes to provide insulating value equal to that of the conductors being joined. The number and size and combinations of conductors allowed by UL as listed on manufacturers' packaging of connector shall be strictly complied with.
6. Terminations at equipment terminal blocks shall be made using compression type connectors suitable to match terminal type.
7. Continuity of neutral on multi-wire branch circuits shall not be made on any device at terminal blocks, but shall be spliced and a tap brought out, thereby assuring no openings of the neutral in the replacement of a device.
8. Feeders shall be identified by means of nonferrous tags or pressure-sensitive labels securely fastened to all cables, feeders, and power circuits in vaults, pull boxes, manholes, switchboard rooms, terminations of cables, etc. Tags or labels shall be stamped or printed to include the feeder number, source, and equipment supplied. If suspended type tags are provided, they shall be attached by nylon cable ties or other nonconductive permanent means.
9. Branch circuit conductors shall be identified at supply circuit breakers, with the circuit number using pressure sensitive adhesive wire markers.
10. Circuiting work shall comply with the following:
    a. Loads on panel busses shall be balanced on phases as evenly as possible.

b. No neutral conductor shall be common to more than 1 circuit conductor connected to the same phase leg of the supply system.

c. Circuiting of panelboards shall allow breakers to be grouped logically by functions.

C. Voltage Drops:

1. Total Allowable Drop for Service Source to Load: Limit to a maximum drop of 5 percent. Increase wire size, where necessary, to comply with this requirement.

a. Branch Circuits: Limit to a maximum drop of 3 percent.

b. Service Source to Individual Panelboards: Limit to a maximum drop of 2 percent.

c. 13.2 kV Medium-Voltage Feeders (Building Substation): Limit to a maximum drop of 2 percent, per the Bridging Document, Section 4.3.

3.03 MEDIUM-VOLTAGE CABLE INSTALLATION

A. Install the two 13.2 kV feeder cable sets in the separate, independent underground duct banks and manholes specified in Section 16112, maintaining physical separation between the two feeders for their entire routing from the 15 kV primary switchgear (Section 16550) to the Building Basement double-ended substation (Section 16600); no shared manhole or duct bank between the two feeders.

B. Do not bend medium-voltage shielded cable to a radius less than that recommended by the cable manufacturer for the cable's construction; do not exceed the cable manufacturer's maximum pulling tension or sidewall bearing pressure.

C. Terminate medium-voltage cable only with factory-engineered stress-cone or molded termination and splice kits, installed only by personnel certified by the termination kit manufacturer, per Section 1.5.A.

D. Before energizing, perform insulation resistance (megger) testing and an AC high-potential or very-low-frequency (VLF) withstand/partial discharge test per IEEE 400 on each completed feeder run; submit signed and dated test reports to the Owner as a condition of Substantial Completion.

3.04 FIELD QUALITY CONTROL

A. Perform insulation resistance (megger) testing on all 600 V feeders and branch circuits prior to energization.

B. Perform continuity and phase-rotation verification on all three-phase circuits prior to energization.

C. Document and submit all test results, including the medium-voltage acceptance test reports required by Section 3.3.E, as part of Project closeout.

END OF SECTION 16120

SECTION 16131 OUTLET, PULL AND JUNCTION BOXES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Outlet boxes, device boxes, pull boxes, and junction boxes for power and lighting circuits, and rough-in boxes for communications, nurse call, fire alarm, public address, CCTV, and access control systems, complete as shown on the Drawings and specified herein.

B. Related Sections:

1. Section 16100 - Basic Electrical Materials and Methods.
2. Section 16112 - Raceways and Conduits.
3. Section 16140 - Wiring Devices.
4. Section 16200 - Fire Alarm System (pull station and horn/visual boxes).
5. Section 16300 - Nurse Call System (device rough-in boxes).
6. Section 16511 - Lighting Fixtures (fixture outlet boxes).
7. Section 16742 - Telephone and Data Raceway System (data/voice outlet box rough-in).

1.02 REFERENCES

NFPA 70 - National Electrical Code (NEC), latest edition adopted in Puerto Rico, including Article 314 (Outlet, Device, Pull, and Junction Boxes, Conduit Bodies, and Fittings) and Article 517 (Health Care Facilities); NEC Article 406.12 (Tamper-Resistant Receptacles); UL 514A (Metallic Outlet Boxes); UL 514B (Conduit, Tubing, and Cable Fittings); UL 514C (Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers); UL 50 and NEMA 250 (Enclosures for Electrical Equipment - Environmental Ratings, including NEMA 3R and 4X); ASCE 7 and the Puerto Rico Building Code (PRBC) for wind and seismic design loads; NFPA 99 - Health Care Facilities Code, latest edition.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements:

1. Materials shall bear Underwriters Laboratories (UL) labels for the intended application and location.
2. Box size shall comply with NEC 314.16 for the number and size of conductors, devices, and fittings contained in each box.
3. Box size shall comply with NEC 314.28 for the number and size of conduits entering and exiting each pull or junction box, and for the bending space required for the conductors contained.

4. Boxes serving Category 1 patient care spaces shall additionally comply with NEC Article 517 and NFPA 99.

1.04 DESIGN REQUIREMENT

A. Seismic Design: Boxes and their conduit connections crossing the building's seismic isolation plane at the Interstitial Level shall be provided with flexible connections/seismic loops coordinated with Section 16112 to accommodate differential seismic movement; box supports elsewhere shall be designed and anchored for the seismic loads required by the PRBC

1.05 SUBMITTALS

A. Submit manufacturer's literature and technical data for each box type before starting work.

B. Submit a mounting height schedule for outlet, device, and rough-in boxes, coordinated with the Owner's Representative, architectural drawings, and applicable accessibility requirements.

1.06 QUALITY ASSURANCE

All boxes shall be UL listed/labeled for the intended location and installation method. Boxes for exterior, damp, or wet locations shall be listed for that environment per UL 514A/UL 50/NEMA 250. Boxes serving patient care areas shall be sized and installed in accordance with NEC Article 517 and NFPA 99.

PART 2 - PRODUCTS

2.01 OUTLET BOXES - GENERAL

A. Provide outlet boxes at required locations, where shown on the Drawings, and as specified.

1. Fixture studs shall be securely fastened in an acceptable manner.
2. Plaster covers shall have depths suitable to the finish being applied to the walls.
3. Sheet steel boxes shall be properly drilled and tapped.
4. There shall be no more holes in any outlet box than are required for the entering conduits.
5. Depth of boxes shall allow for easy wire pulling and proper installation of wiring devices.

B. Outlet boxes shall be galvanized steel or corrosion-resistant malleable iron alloy, UL 514A listed for the intended location.

2.02 OUTLET BOX SCHEDULE BY APPLICATION

A. For Recessed Ceiling Fixtures: 4-inch square sheet steel box with blank cover and suitable hanger bar; box to be fastened to ceiling suspension members in an acceptable manner not more than 1 foot from the fixture opening.

B. For Surface or Stem-Mounted Ceiling Fixtures from Slab with Concealed Conduit: 4-inch sheet steel octagon concrete ring of a depth suitable to the construction and furnished with a top cover having a 3/8-inch fixture stud.

C. For Ceiling and Wall Bracket Outlets on Exposed Conduit in Dry Locations: 4-inch octagon sheet steel box with 3/8-inch fixture stud.

D. For Surface-Mounted Ceiling Fixtures or Hung Ceilings: 4-inch octagon sheet steel hung-ceiling box with suitable hanger bars and 3/8-inch fixture stud, fastened to the ceiling suspension in an acceptable manner.

E. For Surface-Mounted Wall Bracket Fixtures with Concealed Conduit: 4-inch square sheet steel box with round opening plaster cover and 3/8-inch fixture stud.

F. For Ceiling and Wall Bracket Outlets on Exposed Conduit at Damp or Wet Locations: Corrosion-resistant, gasketed cast box (feraloy, aluminum, or equivalent) or fiberglass (FRP) box, NEMA 3R or better; plain cast iron is not acceptable in Puerto Rico's coastal/marine climate.

G. For Switches and Receptacles in Tile, Plastered, or Gypsum Board Walls: 4-inch square sheet steel box or multi-gang box with proper plaster covers as required; two gangs may be provided by means of a 4-inch square box with a two-gang plaster cover.

H. For Switches and Receptacles in Enameled or Face Brick Walls, Unfinished Walls, and Woodwork: Single or multi-gang sheet steel utility boxes as required.

I. For Switches and Receptacles on Exposed Exterior Conduit Work: Type FS or FD cast device box, NEMA 3R (or better) with stainless steel, fiberglass, or other corrosion-resistant construction and hardware, rated for the project's 180 mph design wind speed per ASCE 7/PRBC where exposed to wind-borne debris.

J. For Telephone or Data Outlets: 4-11/16-inch square by 2-1/2-inch deep box with single- or double-gang plaster/mud ring as required, sized for the conductor and pathway fill specified in Section 16742.

2.03 FIRE ALARM, SIGNAL, AND SPECIALTY BOXES

Boxes for fire alarm or signal systems, pilot lights, nurse call, and other specialty equipment shall be as recommended by the manufacturer of the enclosed equipment, coordinated with Section 16200 and Section 16300, and sized per NEC 314.16/314.28.

2.04 WET AND DAMP LOCATION BOXES

A. Provide gasketed, weathertight, screw-cover, code-gage boxes with weatherproof conduit hubs for pull boxes with multiple conduit entries; boxes and hubs shall be stainless steel, hot-dip galvanized steel, or fiberglass (FRP) - corrosion-resistant materials suitable for the Puerto Rico coastal/marine climate - rather than unprotected ferrous materials.

B. Provide cast metal hub-type fittings, corrosion-treated or stainless steel, with gaskets for individual conduit runs.

C. All exterior and exposed junction/pull boxes shall be NEMA 3R minimum per Section 1.4.A of this Section, rated for the project's 180 mph design wind speed.

2.05 EXTENSION RINGS

A. Do not use extension rings to increase the volume of boxes, except where necessary due to multiple conduit run conflicts.

1. Where such conflicts occur, an extension ring may be allowed for changes in direction of conduit to make necessary clearances.
2. Not more than one extension ring may be used for each box where necessary.

2.06 PULL AND JUNCTION BOXES

A. Where indicated on the Drawings or where necessary for compliance with NEC 314.28 for cable installation, install junction and pull boxes of the proper size for conduits over 1 inch trade size. Pull and junction boxes shall be of adequate size to accommodate installation of conductors without excessive bending that could damage insulation.

B. Pull and junction boxes shall be of all-steel construction, spot- or seam-welded at joints, hot-dip galvanized after fabrication, and UL listed/labeled per UL 50 and NEMA 250 (superseding the legacy Fed. Spec. WJ-800 reference in the original project boilerplate, which has been withdrawn).

C. Boxes shall be drip-proof with screw-attached covers. Each box shall have a turned-in lip welded at the joint to develop full strength. The lip shall be drilled and tapped for 1/8-inch or 3/16-inch round-head screws, symmetrically placed. To provide adequate length of thread, nuts shall be tack-welded on the inside of the lip, or the lip shall be made double thickness.

D. Pull and junction boxes shall be sufficiently rigid to withstand moderate twisting strains. Steel boxes shall comply with the following gage schedule:

1. 100 cubic inches or less: No. 14 gage steel.
2. Between 101 and 8,500 cubic inches: No. 12 gage steel.
3. Larger boxes: No. 10 gage steel.
4. Barriers and reinforcing angles shall be supplied as required.

E. Exterior and exposed pull and junction boxes shall additionally comply with the corrosion-resistance and wind-rating requirements of Section 2.4 of this Section.

2.07 PATIENT CARE AREA BOXES

A. Boxes serving Category 1 patient care spaces (Operating Rooms, Trauma ICU, Trauma Stabilization, ED, and similar spaces) shall be sized to accommodate hospital-grade receptacles (NEMA 5-20R) and isolated-ground receptacles per Section 16140, without exceeding NEC 314.16 box-fill limits.

B. Isolated-ground device boxes shall be identified in accordance with Section 16140 (orange isolated-ground devices) and installed to preserve the equipotential grounding and bonding required by NFPA 99 and NEC 517.13.

C. Boxes for tamper-resistant receptacles in pediatric patient care rooms, corridors, waiting rooms, and similar areas shall be sized per NEC 406.12 and Section 16140 device requirements.

2.08 ROUGH-IN BOXES FOR COMMUNICATIONS AND LIFE SAFETY SYSTEMS

A. Data/Voice Outlets: Provide a minimum of two (2) outlet boxes and conduit stub-outs per patient room, per workstation, and per nursing station location, with additional locations at imaging, Operating Rooms, and special areas per program, sized per Section 16742. Faceplates, jacks, and cable terminations are furnished and installed by the Owner's structured cabling contractor.

B. CATV Outlets: Provide outlet boxes and conduit stub-outs at waiting areas and patient rooms. Coaxial cabling, splitters/taps, and head-end equipment are furnished and installed by the Owner's structured cabling/CATV contractor.

C. Public Address, CCTV, and Access Control: Provide backboxes and conduit pathways only; devices and equipment are furnished and installed by others and coordinated with the Owner's Representative.

D. Nurse Call: Provide device rough-in boxes coordinated with Section 16300 for the complete nurse call system, including wiring and equipment furnished under that Section.

PART 3 - EXECUTION

3.01 INSPECTION

Do not proceed with the work of this Section until conditions detrimental to the proper and timely completion of the work have been corrected in an acceptable manner.

3.02 INSTALLATION

A. Locations of outlets shown on the electrical Drawings are approximate only.

1. Do not scale drawings.

2. Consult architectural plans, sections, elevations, and details for exact locations of outlets, equipment, rooms, and spaces having furring or hung ceilings.
3. Verify door swings on architectural drawings for properly locating light switches.
4. Coordinate wall outlet locations with cabinets and equipment. Offset and adjust as required at no additional cost to the Owner.

B. Determine the proper position of outlets and receptacles. Relocate any outlet or receptacle without additional cost to the Owner if improperly located.

C. The owners engineer reserves the right to change the location of any outlet, apparatus, or equipment up to the time of rough-in without additional cost to the Owner, provided conduit runs are not substantially increased.

D. Fasten and secure boxes to the building structure independent of the conduit. Provide acceptable plaster stops for boxes to be set in plastered walls and ceilings.

E. Boxes and supports shall be fastened as follows:
1. To concrete or brick: Bolts and expansion shields.
2. To hollow masonry: Toggle bolts, or bolts and expansion shields.
3. To steel work: Machine screws or welded studs.
4. Explosive charge-setting devices are not allowed.

F. Recessed wall outlets shall be flush with the wall surface. Install box in wall with cover to allow the block or wall surface to fit tight against the lip of the cover.

G. Where shown together on the plans, switches shall be ganged in one outlet.
1. Switches and receptacles shall be ganged together only where the plans specifically indicate such combinations.

H. Outlets for duplex receptacles shall be arranged for vertical mounting of the receptacles except as specifically indicated on the plans.

I. Barriers shall be provided as necessary to isolate voltage classes.

J. Under no circumstances shall outlet boxes for adjoining spaces be placed back to back in partition walls.

K. Circuit breakers and switches shall not be grouped or ganged in outlet boxes unless arranged so that the voltage between exposed live metal parts of adjacent switches does not exceed 300 volts. Provide barriers between 120-volt and 277-volt switches where ganged together.

L. Align rows of outlet boxes for ceiling lights.

M. Unless noted, specified, or directed otherwise, wall outlets shall be centered above the finished floor as follows:

1. Convenience outlets: 18 inches to bottom of box.
2. Utility outlets: 18 inches to bottom of box.
3. Exit lights: 6 inches over doorway.
4. Switch outlets: 46 inches to bottom of box.
5. Special purpose outlets: as directed.
6. Telephone/data outlets: 18 inches to bottom of box.
7. Fire alarm visuals, with or without horns: 78 inches to bottom of box.
8. Fire alarm horns: 6 inches minimum below adjacent surface, but not less than 8 feet 6 inches nor greater than 10 feet 0 inches above finished floor.
9. Fire alarm pull stations: 46 inches to bottom of box.

N. Refer to architectural drawings for additional mounting heights, and to accessibility requirements applicable to the Project.

O. Pull and junction boxes shall be provided at locations required to reduce the length of cable pull or reduce the number of elbows between outlets.

P. Provide blank covers for outlet boxes where devices or wiring have been removed or are not installed.

Q. Paint exposed boxes to match the color of the wall or ceiling to which they are mounted.

R. Where several feeders pass through a common pull box, tag each feeder to clearly indicate electrical characteristics, circuit number, and panel designation.

S. Color code covers of each box and panel, except for the normal power system, for identification as follows:

1. Emergency power: Red.
2. Fire alarm: Orange.
3. Security alarm: Blue.
4. Telephone/data: Green.
5. Controls: Purple.

3.03 SEISMIC AND WIND PROTECTION

A. Provide flexible connections/seismic loops at all box-to-conduit connections crossing the building's seismic isolation plane at the Interstitial Level, coordinated with Section 16112.

B. Anchor exterior and exposed boxes and supports for the project's 180 mph design wind speed per ASCE 7 and the PRBC.

3.04 FIELD QUALITY CONTROL

Verify box fill in accordance with NEC 314.16, grounding continuity, corrosion-resistant construction at exterior/wet locations, and secure, plumb mounting prior to closing walls or ceilings.

END OF SECTION 16131

SECTION 16140 WIRING DEVICES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Wiring devices throughout the facility, including specification-grade snap switches; hospital-grade duplex convenience receptacles; ground fault circuit interrupter (GFCI) receptacles; isolated ground receptacles for patient care and sensitive electronic equipment locations; tamper-resistant (TR) receptacles; special purpose receptacles; isolated power system receptacles at Operating Room isolated power panels; and associated cover plates. All wiring devices in patient care areas shall comply with NEC Article 517 and NFPA 99 for a Category 1 healthcare occupancy.

B. Related Sections:

1. Section 16100 - Basic Electrical Materials and Methods
2. Section 16112 - Raceways and Conduits
3. Section 16120 - Wire and Cable
4. Section 16131 - Outlet, Pull and Junction Boxes
5. Section 16470 - Panelboards (branch circuit panelboards and Operating Room Isolated Power Panels (IPPs) feeding devices specified in this Section)

1.02 REFERENCES

NEMA WD 6 (Wiring Devices - Dimensional Requirements); NEC (NFPA 70), latest edition adopted in Puerto Rico, including Article 406 (Receptacles, Cord Connectors, and Attachment Plug Caps), Article 410, Article 517 (Health Care Facilities), and Section 406.12 (Tamper-Resistant Receptacles); NFPA 99 (Health Care Facilities Code), latest edition, including Section 517.16/6.3.4 equivalent isolated ground and isolated power system provisions; UL 498 (Attachment Plugs and Receptacles); UL 514A (Metallic Outlet Boxes); UL 514C (Non-metallic Outlet Boxes); Federal Specification W-S-896E (switches); Puerto Rico Building Code (PRBC).

1.03 SUBMITTALS

A. Submit properly identified manufacturer's literature and data before starting work, including catalog data for hospital-grade, isolated ground, GFCI, and tamper-resistant device types, clearly identifying device color, ampere/voltage rating, and NEC/NFPA 99 compliance.

1.04 QUALITY ASSURANCE

A. Comply with the following:

1. Convenience outlets installed within 6 feet of water supplies, wet locations, patient bathrooms, scrub sinks, janitor rooms, and toilet rooms shall have ground fault circuit interrupter (GFCI) protection per NEC and NFPA 99.
2. Outdoor outlets shall be weatherproof outdoor GFCI type.
3. Outlets, switches, and boxes located adjacent to cooling towers or in other corrosive environments shall be rated NEMA 4X.
4. Hospital-grade duplex receptacles (NEMA 5-20R) are required at all receptacles serving patient care areas (Operating Rooms, Trauma ICU, Trauma Stabilization, Emergency Department, and all Category 1 patient care spaces) per NEC Article 517 and NFPA 99, and per the Bridging Document minimum receptacle count and circuit spacing criteria of the FGI Guidelines.
5. Isolated ground receptacles (orange) are required at nursing stations, imaging equipment locations, and other sensitive electronic equipment locations as required by the Bridging Document and NEC 517.16.
6. Tamper-resistant (TR) receptacles are required in pediatric patient care rooms/areas, corridors, waiting rooms, and similar public/patient-accessible areas per NEC 406.12.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Wiring devices shall be as manufactured by Hubbell, Bryant, Leviton, or Pass and Seymour.

2.02 SWITCHES

A. Comply with NEMA WD 6 and NEC (NFPA 70).
   a. Comply with Fed. Spec. W-S-896E, specification grade, quiet type.
   b. Rated at 20 amps, 277 volts AC, horsepower rated for 1 HP at 120 volts.
   c. Provide for back (not push-in) or side wiring.
   d. Key type switches shall be keyed identically.
   e. Manufacturers: Hubbell CSB 120 Series or accepted equivalent by Bryant, Leviton, or Pass and Seymour.

2.03 DUPLEX CONVENIENCE RECEPTACLES

   a. Comply with NEMA 5-20R as applicable, be of hospital grade, back (not push-in) and side wired, U-slotted grounding type, 3-wire, rated 20 amp, 125 volts AC.
   b. Double Duplex: Consist of 2 receptacles under a common plate. Single receptacles shall be similar to duplex receptacles.

c. Manufacturers: Hubbell or accepted equivalent by Bryant, Leviton, or Pass and Seymour.

2.04 GROUND FAULT (GFCI) RECEPTACLES

a. NEMA 5-20R type, hospital grade, rated at 20 amps, 120 volts, with 5 +/- 1 mA trip threshold and UL nominal trip time of 0.025 sec.

b. Provide at all locations listed in Article 1.4 (within 6 feet of water supplies, wet locations, patient bathrooms, scrub sinks, janitor rooms, toilet rooms, and exterior locations), and elsewhere as indicated on Drawings.

c. Manufacturers: Hubbell, Pass and Seymour, or accepted equivalent by Bryant or Leviton.

2.05 ISOLATED GROUND RECEPTACLES

A. Provide isolated ground (IG) duplex receptacles at nursing stations, imaging equipment locations, and other sensitive electronic equipment locations as indicated on Drawings or as required by the Bridging Document, per NEC 517.16.

B. Comply with NEMA 5-20R, hospital grade, back (not push-in) or side wired, 20 amp, 125 volts AC, with an insulated (isolated) grounding terminal connected by an insulated equipment grounding conductor back to the applicable panelboard ground bus, independent of the branch circuit box/conduit ground path.

C. Isolated ground receptacles shall be orange in color (or shall bear a distinctive orange triangle marking) to distinguish them from standard grounding-type receptacles, per NEC and industry convention.

D. Manufacturers: Hubbell IG series (or equivalent isolated ground hospital-grade device) by Bryant, Leviton, or Pass and Seymour.

2.06 TAMPER-RESISTANT RECEPTACLES

A. Provide tamper-resistant (TR) duplex receptacles, NEMA 5-20R, hospital grade where located in pediatric patient care rooms/areas, corridors, waiting rooms, and similar patient/public-accessible areas per NEC 406.12.

B. TR receptacles shall incorporate integral spring-loaded shutters requiring simultaneous insertion of both blades to open, and shall otherwise comply with the applicable device article of this Section (Duplex Convenience Receptacles, Ground Fault Receptacles, or Isolated Ground Receptacles) for the location served.

C. Manufacturers: Hubbell, Bryant, Leviton, or Pass and Seymour tamper-resistant series.

2.07 SPECIAL PURPOSE RECEPTACLES

a. Comply with NEMA 5-20R, of hospital grade, back (not push-in) or side wired.

b. Provide ratings and type as indicated on Drawings.

2.08 ISOLATED POWER SYSTEM RECEPTACLES - OPERATING ROOMS

A. Each of the five (5) Trauma Operating Rooms is served by two (2) dedicated Isolated Power Panels (IPPs) per NFPA 99 and NEC 517.160, specified under Section 16470 - one fed from the Optional Standby (Non-Essential) branch and one fed from the Critical Branch, each with its own Line Isolation Monitor (LIM).

B. Receptacles fed from each OR isolated power circuit shall be NEMA 5-20R, hospital grade, and shall be clearly and permanently labeled by source branch - "Optional Standby IPP" or "Critical Branch IPP" - so that life-critical patient care equipment can be readily distinguished and connected to the Critical Branch IPP receptacles.

2.09 WIRING DEVICE COLORS

A. Wiring devices shall be ivory color for non essential and red for critical loads unless noted otherwise.

B. Isolated ground receptacles shall be orange per Article 2.5.C of this Section.

2.10 COVER PLATES

A. Plates to be stainless steel 304.

B. Underwriters Laboratories (UL) requirements:

1. Metallic Outlet Boxes: UL 514A.
2. Non-metallic Outlet Boxes: UL 514C.

C. Outlets in kitchenettes shall have brushed stainless steel plates.

D. Provide ganged switches to a maximum of three. If more are required on Drawings, provide in multiples of two or three.

E. Provide weatherproof receptacles with cast aluminum, spring loaded dock-type gasketed wet location cover, suitable for Puerto Rico's coastal/tropical exterior environment.

PART 3 - EXECUTION

3.01 EXAMINATION

Do not proceed with the work of this section until conditions detrimental to the proper and timely completion of the work have been corrected in an acceptable manner.

3.02 INSTALLATION

A. Install wiring devices according to manufacturer's recommendations.

B. Verify location of wiring devices before rough-in of outlet boxes and conduit with Architectural Drawings for door swings and furniture details. Duplex receptacles in finished areas shall be vertically mounted.

C. Boxes mounted back-to-back are not allowed.

D. Install devices tightly within box with screws provided. Do not rely upon plate for device alignment and support to assure devices are grounded to box. In receptacles, use self-grounding screws, separate ground conductor or bond wire to box.

E. Isolated ground receptacles shall be wired with an insulated equipment grounding conductor routed with the branch circuit conductors back to the isolated ground bus of the serving panelboard, kept separate from the box/conduit grounding path, per NEC 517.16

END OF SECTION 16140

SECTION 16155 MOTOR POWER AND CONTROL WIRING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Complete power circuit wiring and control circuit wiring and connections for all permanent mechanical and electrical equipment requiring motor power and/or control supply, including but not limited to air handling units (AHUs), cooling tower fans, chilled water and condenser water pumps, booster pumps, sump pumps, DOAS units, fire pump, medical gas compressors and vacuum pumps, non-life-safety elevator motor loads, and other motor-driven equipment shown on the Drawings or scheduled in the mechanical, plumbing, fire protection, or vertical transportation documents. Work of this Section extends from the load side of the panelboard, motor control center, disconnect switch, or variable frequency drive (VFD) up to and including the connections at the motor or controller terminals, together with all associated control circuit wiring, interlock wiring, and connections to control devices.

B. Related Sections:

1. Section 16100 - Basic Electrical Materials and Methods.
2. Section 16112 - Raceways and Conduits.
3. Section 16120 - Wire and Cable.
4. Section 16131 - Outlet, Pull, and Junction Boxes.
5. Section 16140 - Wiring Devices (horsepower-rated toggle switches used as control or fractional-horsepower disconnecting devices).
6. Section 16200 - Fire Alarm System (fan shutdown, smoke control interlocks, and elevator recall interlocks with motor control wiring of this Section).
7. Section 16440 - Disconnect Switches (fusible and non-fusible safety switches and VFD/motor disconnect means; this Section covers the power and control wiring and connections to and beyond those disconnects, not the disconnect switches themselves).
8. Section 16470 - Panelboards (source panelboards feeding motor branch circuits).
9. Section 16700 - Automatic Transfer Switches (normal/emergency source connections for motor loads assigned to the four load categories).

1.02 REFERENCES

NEC Article 430 (Motors, Motor Circuits, and Controllers); NEC Article 440 (Air-Conditioning and Refrigerating Equipment); NEC Article 695 (Fire Pumps); NEC Article 517 (Health Care Facilities) and Articles 700/701/702 (Emergency, Legally Required Standby, and Optional

Standby Systems); NFPA 20 (Stationary Pumps for Fire Protection); NFPA 92 (Smoke Control Systems); NFPA 70E (arc flash); NFPA 99 (Health Care Facilities Code); NEMA MG-1 (Motors and Generators); NEMA ICS 2 (Industrial Control Devices, Controllers, and Assemblies); UL 508 (Industrial Control Equipment); Puerto Rico Building Code (PRBC), latest edition adopted in Puerto Rico, for seismic and wind load anchorage of motor control equipment.

1.03 SYSTEM DESCRIPTION

A. Materials shall bear Underwriters Laboratories (UL) labels.

B. Motor power and control wiring materials shall be as specified in Section 16100, Section 16112, and Section 16120, and shall be coordinated with the disconnect switches and VFD/motor disconnects specified in Section 16440 and the panelboards specified in Section 16470.

1.04 SUBMITTALS

A. Submit manufacturer's literature and technical information for motor starters, motor control centers, and control devices before starting work. Refer to temperature control and Building Management System (BMS) suppliers.

B. Submit an equipment/feeder schedule cross-referencing each motor, VFD, and controller to its source panelboard or motor control center, feeder/branch circuit designation, disconnect switch (Section 16440), and load category assignment (Normal, Life Safety, Critical, Equipment System, or Optional Standby), coordinated with the Mechanical Contractor's VFD submittals and the Section 16700 ATS load calculation.

C. Submit control wiring diagrams and sequence of operations for motor interlock schemes (fan/pump interlocks, smoke control, fire alarm shutdown, and elevator recall), coordinated with the Temperature Control Section, the Building Management Section, and Section 16200.

1.05 QUALITY ASSURANCE

Motor starters, motor control centers, and control devices shall be UL listed/labeled and rated for the horsepower, voltage, and duty of the equipment served per NEC Article 430 and NEMA MG-1/ICS 2. Fire pump motor controller wiring and connections shall comply with NFPA 20 and NEC Article 695. Motor power and control equipment installed outdoors or in exposed/coastal locations shall be coordinated with the corrosion-resistant, hurricane-rated enclosure requirements of Section 16100 and Section 16440.

1.06 DESIGN REQUIREMENTS

A. Emergency and Standby Power Coordination: Motors and motor control equipment serving loads assigned to the Life Safety Branch, Critical Branch, Equipment System, or Optional Standby (Non-Essential) System shall be connected to their designated normal and emergency sources as indicated on the Drawings and per Section 16700. Large motor loads (e.g., elevators within the Equipment System category, large HVAC

equipment such as chillers within the Optional Standby System) may be served by their own dedicated, individually-sized Automatic Transfer Switch rather than a single shared ATS; where so served, this Section's control wiring shall include the time-delay and sequencing controls required to prevent generator overload upon retransfer or cold-start reacceleration of multiple motors.

B. Variable Frequency Drives: VFDs for chilled water pumps, condenser water pumps, cooling tower fans, AHU fans, DOAS units, and booster pumps are furnished by the Mechanical Contractor. Power feeders from the source panelboard to each VFD, and from each VFD to its motor, shall be sized and installed under this Section per the VFD manufacturer's input/output current requirements, coordinated with the input/output line reactors and harmonic mitigation filters furnished with the VFD, and with the disconnect means specified in Section 16440.

C. Seismic and Hurricane Considerations: Conduits and cables serving motor power and control circuits that cross the building's seismic isolation plane at the Interstitial Level shall be provided with flexible connections/seismic loops to accommodate differential movement, per the project's seismic isolation design. Motor control equipment mounted on angle iron racks or free-standing supports shall be anchored per PRBC seismic and wind load requirements (Category 5 hurricane, 180 mph design wind speed).

D. Minimum 10% spare capacity per Section 16100, Section 1.4.A shall be maintained in motor control center bus and starter bucket space provisions.

PART 2 - PRODUCTS

2.01 EQUIPMENT - GENERAL

Materials for the power and control circuit wiring system shall be as specified in the applicable Sections of the Specifications (Section 16112 - Raceways and Conduits; Section 16120 - Wire and Cable; Section 16131 - Outlet, Pull, and Junction Boxes).

2.02 HORSEPOWER-RATED TOGGLE SWITCHES

Horsepower-rated toggle switches used as control or fractional-horsepower disconnecting devices shall be 20 or 30 ampere type as specified in Section 16140 - Wiring Devices. Disconnect switches for motors, VFDs, and other equipment requiring a NEC Article 430/440 disconnecting means, including fire pump and mechanical equipment disconnects, shall be as specified in Section 16440 - Disconnect Switches.

2.03 MOTOR STARTERS AND MOTOR CONTROL CENTERS

A. Individually mounted combination motor starters: NEMA-rated (not IEC-rated unless specifically indicated), with thermal overload protection sized for the actual motor nameplate full-load current, control power transformer (fused primary and

secondary) for 120 V control circuits, and horsepower-rated disconnect per Section 16440.

2.04 VARIABLE FREQUENCY DRIVE POWER AND CONTROL WIRING INTERFACE

VFDs are furnished by the Mechanical Contractor. Under this Section, provide the power feeder from the source panelboard (Section 16470) through the disconnect means (Section 16440) to each VFD, the power wiring from each VFD to its motor (using VFD-rated cable where required by the manufacturer to limit motor terminal voltage reflection), and the control/interlock wiring between each VFD and the associated temperature control/BMS points, including run/stop, speed reference, status, and fault contacts.

PART 3 - EXECUTION

3.01 INSPECTION

Do not proceed with the work of this Section until conditions detrimental to the proper and timely completion of the work have been corrected in an acceptable manner.

3.02 INSTALLATION - MOTOR POWER

A. Provide, as shown on the Drawings and/or required by actual site conditions, complete power circuit and control wiring and connections for permanent mechanical equipment requiring electrical power and control supply.

B. Power circuit wiring under these Specifications shall encompass work up to and including connections at motor terminals, unless specific indications to the contrary. References to motors and motor starters in this Section apply equally to electric heaters and controllers.

C. In addition to providing all runs of power circuiting, the following specific items of work are required under this Section:

1. Receive from other trades at grade level, handle, and provide storage for motor starters and control equipment, if required.
2. Install and connect individually mounted motor starters, including thermal overload switches, from fractional horsepower motors.
3. Provide suitable angle iron racks, anchored per PRBC seismic and wind load requirements, for mounting such starters where the Drawings indicate them to be standing free from walls, columns, or wherever field conditions may require such mounting.

D. Furnish and install power circuit safety switches as shown on the Drawings and as required by the NEC (see Section 16440 for disconnect switch products). Verify other locations according to mechanical contractors and Shop Drawings.

E. Assume responsibility for the safe and proper operation of motorized equipment to the extent that it is affected by work included in this Section.

1. Cooperate with the other trades in making tests required to assure safe and proper operation is achieved. Any special electrical equipment necessary for these tests shall be made available as specified. Provide proper phasing for the correct rotation of motors.

F. Provide power feeders and connections for VFD-driven equipment (chilled water pumps, condenser water pumps, cooling tower fans, AHU fans, DOAS units, booster pumps) per Section 2.4 of this Section, coordinated with the Mechanical Contractor's VFD furnishing and the disconnect means of Section 16440.

3.03 INSTALLATION - MOTOR CONTROL

A. Provide control circuit wiring and connections for mechanical equipment as indicated and scheduled on the plans and as specified, and according to approved engineering Drawings submitted under the Temperature Control Section and the Building Management Section of these Specifications. Coordinate HVAC control drawings and specifications.

B. Other trades shall present control devices and wiring work as follows:

1. When delivered by other trades, motor starter actuating devices required in starter covers shall be mounted as part of the starters.

2. Devices for remote actuation of motor starters requiring air, water, pneumatic, or other non-electrical piping connections, and devices to be mounted in tanks and ducts, will be provided in place by other trades.

3. Devices for remote actuation of motor starters, which are not required in starter covers, and that only require electrical connections, such as push button stations and electrical contacting thermostats, shall be delivered by other trades in suitable enclosures and ganged together in single enclosures where required. These devices shall be installed and wired under this Section.

C. In addition to providing general runs of power and control circuiting throughout the Project as shown on the plans and/or as required by field conditions, control shop drawings, and as specified, comply with the following specific items of motor control circuit wiring:

1. Provide connections at motor starter actuating devices and starters with necessary accessories.

2. Mount motor starter actuating devices not indicated above as being set in place by other trades.

3. Modify factory internal wiring of motor starters if and where required by the indicated control schemes, including fan interlocks for the fire alarm system per Section 16200.
4. Provide wiring for interlocks between fans, pumps, and other equipment forming part of a common HVAC system according to control schemes indicated, including the following:
    a. Interlocks between supply and exhaust fans forming part of a common air system, as required, such that shutdown of one fan initiates coordinated shutdown or reduced-speed operation of the other per the approved control sequence.
    b. Smoke control fan shutdown, restart, and speed-override interlocks per NFPA 92, with the fire alarm system (Section 16200) serving as the life-safety control interface for smoke control functions (fan shutdown, fire/smoke damper actuation, and stair pressurization fan start); the Building Management System shall monitor smoke control fan status but shall not control life-safety smoke control functions.
    c. Elevator recall interlock wiring between the fire alarm system (Section 16200) and elevator controllers, to initiate elevator recall to the designated floor upon smoke detection at elevator lobbies or the elevator machine room, per NFPA 72 and ASME A17.1; coordinate final connections with the elevator equipment supplier.

D. Include in the work any modifications to the control wiring made necessary by variations due to differences between the manufacturers of mechanical and control equipment, or due to other project conditions, without additional cost to the Owner.

E. Accept responsibility for providing complete electric control circuit wiring required for the permanent equipment furnished by the trades involved in the Project and the Owner, without additional cost to the Owner.

3.04 COORDINATION WITH EMERGENCY AND STANDBY POWER

A. Coordinate the load category assignment (Life Safety, Critical, Equipment System, or Optional Standby) of each motor load with Section 16700, so that the corresponding Automatic Transfer Switch feeds the correct branch.

B. Where a large motor load (e.g., an elevator or major piece of Equipment System or Optional Standby equipment) is served by its own dedicated ATS rather than a shared ATS, provide time-delay and sequencing control wiring to stagger motor starting/reacceleration and prevent generator overload upon transfer or retransfer, consistent with the generator load-add/load-shed scheme.

C. Coordinate motor nameplate full-load and locked-rotor (starting inrush) current data with the Section 16700/generator plant load calculation, so that motor starting inrush is properly accounted for in emergency source sizing.

3.05 FIELD QUALITY CONTROL

A. Verify correct phase rotation at each motor prior to initial start-up; correct wiring as required to achieve the proper direction of rotation.

B. Functionally test all fan/pump interlocks, smoke control interlocks, and elevator recall interlocks with the fire alarm system and Building Management System, per the approved control sequence, prior to Substantial Completion.

C. Verify VFD power and control wiring, including harmonic mitigation reactor/filter connections, with the Mechanical Contractor prior to VFD start-up.

D. Perform insulation resistance testing on motor power feeders and record thermal overload settings for each motor starter, coordinated with the motor nameplate data, prior to energization.

END OF SECTION 16155

SECTION 16200 FIRE ALARM SYSTEM

PART 1 - GENERAL

1.01 RELATED SECTIONS

A. Related Sections: Section 16100 - Basic Electrical Materials and Methods; Section 16112 - Raceways and Conduits; Section 16120 - Wire and Cable; Section 16131 - Outlet, Pull and Junction Boxes.section 16300 Nurse Call system.

1.02 SUMMARY

A. Section Includes:

1. This specification describes an addressable Fire Detection and alarm signaling system. The control panel shall be intelligent device addressable, analog detecting, low voltage and modular, with digital communication techniques, in full compliance with all applicable codes and standards. The features and capacities described in this specification are required as a minimum for this project and shall be furnished by the successful contractor.
2. The system shall include all required hardware, raceways, interconnecting wiring and software to accomplish the requirements of this specification and the contract drawings, whether or not specifically itemized herein.
3. All equipment furnished shall be new and the latest state-of-the-art products of a single manufacturer, engaged in the manufacturing and sale of analog fire detection devices for over ten years.
4. The system as specified shall be supplied, installed, tested and approved by the local Authority Having Jurisdiction, and turned over to the owner in an operational condition.
5. In the interest of job coordination and responsibilities, the installing contractor shall contract with a single supplier for fire alarm equipment, engineering, programming, inspection and tests. The installing contractor shall be capable of providing a "UL Listing Certificate" for the complete system.
6. The system specified shall be that of Cerberus® PRO Fire Safety or other owners approved equal.
7. The system shall support approved smart-infrastructure integration (SII) and be capable of bi-directional data exchange with other building systems where required.
8. This project is a ten-story acute care trauma hospital. The system shall comply with all applicable high-rise fire alarm provisions of NFPA 101 and the Puerto Rico Building Code (PRBC), including fire command center provisions and communication with the fire department, and shall provide floor-by-floor and

zone-by-zone alarm annunciation throughout the entire facility, from Basement through Roof Level, per the project's Basis of Design.

9. The new Trauma Hospital fire alarm system shall be coordinated and integrated with the existing fire alarm system serving the adjacent ASEM Central Services Building, including provision of a dedicated fire alarm zone, with its own initiating devices, for the Level 2 corridor connector between the two buildings.

1.03 DEFINITIONS

A. ASME: American Society of Mechanical Engineers.

B. Broadcast Media: The speakers, radio, cell phone, and other media that will carry the selected message to the selected audience.

C. FACP: Fire alarm control panel.

D. NAC: Notification Appliance Circuit. A circuit used to monitor and activate notification appliances or devices.

E. FM: FM Global (Factory Mutual).

F. Furnish: To supply the stated equipment or materials.

G. Install: To set in position and connect or adjust for use.

H. LED: Light-emitting diode.

I. NFPA: National Fire Protection Association. Definitions in NFPA 72 apply to fire alarm terms used in this Section.

J. NICET: National Institute for Certification in Engineering Technologies.

K. Provide: To furnish and install the stated equipment or materials.

L. UL: Underwriters Laboratories.

M. AHJ: Authority Having Jurisdiction. Local authority (such as a fire marshal), presiding over the occupancy of the building(s).

N. Cerberus DMS: Cerberus Danger Management Station.

O. VESDA: Very Early Smoke-Detection Apparatus.

P. ASSD: Air Sampling Smoke Detection.

Q. VEWFD: Very Early Warning Fire Detection.

R. ISOtechnology™: Devices with built-in isolation.

S. NRTL: Nationally Recognized Testing Laboratory (UL, ULC, FM, ETL, etc.).

1.04 SYSTEM DESCRIPTION

A. Basic Cerberus® PRO Fire Safety -- The system shall be a complete, electrically supervised fire detection and notification system, with a microprocessor-based operating system having the following capabilities, features, and capacities:

1. The local system shall provide status indicators and control switches for all of the following functions:
    a. Audible and visual notification alarm circuit zone control.
    b. Status indicators for sprinkler system water-flow and valve supervisory devices.
    c. Any additional status or control functions as indicated on the drawings, including but not limited to; emergency generator functions, fire pump functions, door unlocking and security with bypass capabilities.

B. Cerberus® PRO Fire Safety Intelligent Voice Communication -- The system shall be complete, electrically supervised evacuation system using one-way communication with microprocessor-based operating system having the following capabilities, features and capacities:
    1. Listed for emergency and non-emergency use.
    2. Listed for MNS from any control point to 'Request/Grant/Deny' and integrated with FC922-924 and FV922-924 (no separate MNS panel).
    3. Ability to support one internal and up to four remote microphone stations per FV922-924 control panel for one-way paging, and up to 160 microphones in a voice network.
    4. Ability to provide manual voice control.
    5. Two channel message player supporting 300 messages (38 pre-recorded). The system shall support MP3 and WAV files.
    6. Minimum of (1) simultaneous audio channel for each networked panel.
    7. Amplifiers shall be rated for 25V or 70.7V RMS, 50 watts. Voice amplification shall be supervised and backed up with like amplifiers. Back up shall be one or two per node.
    8. Ability to provide separate booster amplifier. Amplifiers shall be rated for 25V or 70.7V RMS, 100 watts.
    9. Amplifiers shall be approved for transmission of 520Hz audio signal used in sleeping accommodations.
    10. Multiple nodes shall provide peer-to-peer voice capability in order to eliminate a single point of failure.
    11. Audio shall be synchronized between nodes in order to take into account common areas.
    12. Speakers shall have the ability to play coded audio tones.
    13. The system shall provide status indicators and control switches for all of the following functions:
        a. Audible and visual notification alarm circuit zone control.

b. Speaker circuit zone control.

c. Status indicators for sprinkler system water flow and valve supervisory devices.

d. Any additional status or control functions as indicated on the drawings, including but not limited to: emergency generator functions, fire pump functions, door unlocking and security with bypass capabilities.

14. Emergency voice/alarm communication messages shall achieve a minimum Speech Transmission Index (STI) of 0.7 in all occupied areas per NFPA 72, consistent with the intelligibility criteria established for the facility's public address system, and shall override all public address system functions upon fire alarm activation.

1.05 PERFORMANCE REQUIREMENTS

A. General Performance: System devices shown shall comply with NFPA 72 and all contract documents and specification requirements.

B. All interconnections between this system and the monitoring system shall be arranged so that the entire system can be UL-Certificated.

C. The system shall have Class B (former Style 4) circuits for each floor. The system shall operate in the alarm mode upon actuation of any alarm initiating device. The system shall remain in the alarm mode until all initiating device(s) are reset and the fire alarm control panel is manually reset and restored to normal.

D. The system shall be capable of the following configurations. Both configurations are permitted on the same network.

1. The system shall support up to 252 addressable devices, which may be divided in any ratio on one, two, three, or four separate, isolated Class B circuits.

2. The system shall support two loops of 252 addressable devices, each of which may be divided in any ratio on one, two, three, or four separate, isolated Class B circuits.

E. The system shall support H-series devices and Cerberus® PRO series devices.

F. The system shall support X-Series I/O modules and X-Series manual pull stations with built-in isolation capability with ISOtechnology™.

G. The system shall have an optional digital alarm communication transmitter.

H. The system shall provide an off-normal warning prior to reset for all active devices.

I. The system shall be capable of remote monitoring via Cerberus Remote, a proprietary software system that provides a graphical representation of the fire alarm control panel at a remote PC when connected via Ethernet to the system. The display will show the exact state of the panel, including blinking LEDs, and with menu buttons for control.

J. The system shall be capable of being configured via a PC Tool.

K. The system shall provide the following functions and operating features:

1. The FACP and auxiliary power panels shall provide power, annunciation, supervision and control for the system.
2. Provide Class B (formerly style 4) initiating device circuits.
3. Provide Class B (formerly style 4) notification appliance circuits. Arrange circuits to allow individual, selective, and all-call voice and visual notification by zone. Notification Appliance circuits shall be zoned to correspond with the building fire barriers and other building features.
4. NACs shall be synchronized throughout the entire building.
5. Provide electrical supervision of the primary power (AC) supply, presence of the battery, battery voltage, and placement of system modules within the control panel.

L. The system shall provide a field test function where one person can test the complete system or a specific area while maintaining full operational function of other areas not being tested. Alarms, supervisory signals, trouble signals shall be logged in system history during the walk-test.

M. Alarm functions shall override trouble or supervisory functions. Supervisory functions shall override trouble functions.

N. Fire alarm signal initiation shall be by one or more of the following devices:

1. Manual pull station.
2. Heat detector.
3. Addressable area smoke detectors.
4. Addressable multi-criteria, dual optical smoke detectors.
5. Addressable multi-criteria smoke detectors with built-in Carbon Monoxide (CO) sensor.
6. Standard addressable duct smoke detector.
7. Specialized duct smoke detector.
8. Projected beam detector.
9. Automatic sprinkler system water flow switch.

O. Activation of any system fire, supervisory, trouble, or status initiating device shall cause the following actions and indications at all network Person Machine Interfaces using an LCD display with multiple detail screens.

1. Fire Alarm Condition:

a. Sound an audible alarm and display a custom message defining the building in alarm and the specific alarm point initiating the alarm on an LCD display.

b. Log into the system history archives all activity pertaining to the alarm condition.

c. Sound the ANSI 117-1 signal with synchronized audible notification appliances and synchronized strobes throughout the facility.

d. Audible signals shall be silenced from the fire alarm control panel by an alarm silence switch. Visual signals shall be programmable to flash until system reset or alarm silencing, as required.

e. A signal dedicated to sprinkler system water flow alarm shall not be silenced while the sprinkler system is flowing at a rate of flow equal to a single head.

f. Activation of any smoke detector in a single elevator lobby or an elevator equipment room shall, in addition to the actions described, cause the recall of that bank of elevators to the 1st floor and the lockout of controls, per NFPA 72 and ASME A17.1. In the event of recall initiation by a detector in the first-floor lobby, the recall shall be to the alternate floor as determined by the AHJ.

g. Where indicated on drawings, heat detectors in elevator shaft and machine rooms shall activate an elevator power shunt trip breaker. The heat detectors shall be rated at a temperature below the ratings of the sprinkler heads in respective locations to ensure that the power shall be shut off before activation of the sprinkler system.

h. System-operated duct detectors, as coordinated with local requirements, shall accomplish HVAC shutdown and fire/smoke damper actuation; see Article 1.05.S below for the complete smoke control coordination requirements.

i. Magnetic door holders on smoke barrier and corridor doors normally held open shall release upon alarm; other door closure devices shall operate by floor or by local requirements.

2. Supervisory Condition:

a. Display the origin of the supervisory condition report at the local fire alarm control panel LCD display.

b. Activate supervisory audible and dedicated visual signal.

c. Audible signals shall be silenced from the control panel by the supervisory acknowledge switch.

d. Record within system history the initiating device and time of occurrence of the event.

3. Trouble Condition:
    a. Display at the local fire alarm control panel LCD display, the origin of the trouble condition report.
    b. Activate trouble audible and visual signals at the control panel and as indicated on the drawings.
    c. Audible signals shall be silenced from the fire alarm control panel by a trouble acknowledge switch.
    d. Trouble conditions that have been restored to normal shall be automatically removed from the trouble display queue and not require operator intervention. This feature shall be software selectable and shall not preclude the logging of trouble events to the historical file.
    e. Trouble reports for primary system power failure to the master control shall be automatically delayed for a period of time equal to 25% of the system standby battery capacity to eliminate spurious reports as a result of power fluctuations.
    f. Record within system history, the occurrence of the event, the time of occurrence and the device initiating the event.

P. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

Q. Initiating Device Locations: Addressable manual pull stations shall be provided at all exit doors and exit stairwell entries per NFPA 72; In addition manual pull stations to be spaced no further than a travel distance of 200 ft along the route of egress. All inititation devices requires access for inspection, testing and periodic maintenance. Duct detectors must be accessible for inspection testing and maintenance as per NFPA90A; addressable photoelectric smoke detectors shall be provided in all corridors, lobbies, common areas, waiting areas, electrical/mechanical rooms, telecommunications rooms, and storage rooms; heat detectors shall be provided in kitchens, laundry, and other spaces inappropriate for smoke detectors; duct smoke detectors shall be provided on all HVAC supply air ducts with a capacity of 2,000 CFM or greater, per NFPA 90A. Final initiating device locations shall be directed and confirmed in accordance with IBC 2018 (as adopted by the Puerto Rico Building Code) and NFPA 101.

R. Notification Appliance Locations: Addressable speaker/strobe combination appliances, with ADA-compliant candela ratings, shall be provided in all corridors, public areas, common areas, and mechanical rooms. Visual-only strobes (without audible sounder) shall be provided in Operating Rooms, ICU rooms, and other spaces where audible alarms may be clinically inappropriate, coordinated with the Owner; see for the corresponding product requirement.

S. Smoke Control Coordination: The fire alarm system shall serve as the control interface for all HVAC smoke control functions per NFPA 92, including air handling

unit/fan shutdown, fire and smoke damper actuation, and stair pressurization fan start. Coordination with the Building Management System (BMS) is required: the fire alarm system shall exercise life-safety smoke control, while the BMS shall provide status monitoring only, per the project's Basis of Design.

T. Sprinkler System Integration: Waterflow switches and tamper (post indicator valve, PIV) switches from the automatic sprinkler (fire protection) system shall be monitored and integrated into the fire alarm system per NFPA 72 and NFPA 13. Tamper switches shall report as distinct supervisory signals, separate from waterflow alarm signals.

U. Off-Site Monitoring: The system shall be monitored 24 hours a day, 7 days a week, by a UL-listed central station per NFPA 72, with not less than two (2) independent primary and secondary communication paths (telephone line, cellular, and/or IP network), per Article 2.06 below.

V. Essential Power and Standby Duration: Primary power to the FACP shall be furnished from the Essential Electrical System Life Safety Branch per NFPA 99 and NEC Articles 700 and 517. Secondary standby battery power shall provide not less than 24 hours of supervisory (standby) capacity followed by not less than 15 minutes of full system alarm/in-alarm voice evacuation load, per NFPA 72, in addition to the spare-capacity allowances of Articles 1.05.K.5, 1.06.B.3, and 1.06.B.5 of this Section.

1.06 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories. Complete manufacturer's catalog data including supervisory power usage, alarm power usage, physical dimensions, and finish and mounting requirements.

B. Power calculations. Battery capacity calculations. Battery size shall be a minimum of 125% of the calculated requirement. Provide the following supporting information:

1. Supervisory power requirements for all equipment.
2. Alarm power requirements for all equipment.
3. Power supply rating justification showing power requirements for each of the system power supplies. Power supplies shall be sized to furnish the total connected load in a worst-case condition plus 25% spare capacity.
4. Voltage drop calculations for wiring runs demonstrating worst-case condition.
5. NAC circuit design shall incorporate a 20% spare capacity for future expansion.

C. Submit manufacturer's requirements for testing Signaling Line Circuits and device addresses prior to connecting to control panel. At a minimum the following tests shall be required: device address, the usage (Alarm, Supervisory, etc.), environmental compensation, temperature ratings for thermal detectors and smoke

detector sensitivities. This requirement shall need approval before any wiring is connected to the control panel.

D. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
2. Wiring Diagrams: For power, signal, and control wiring.
3. Complete drawings covering the following shall be submitted by the contractor for the proposed system:
    a. Floor plans in a CAD compatible format at a scale of 1/8" = 1'-0" showing all equipment and raceways, marked for size, conductor count with type and size, showing the percentage of allowable National Electric Code fill used.
    b. Provide a fire alarm system function matrix as referenced by NFPA 72, Figure A-7-5.2.2(9). Matrix shall illustrate alarm input/output events in association with initiation devices. Matrix summary shall include system supervisory and trouble output functions. Include any and all departures, exceptions, variances or substitutions from these specifications and/or drawings at time of bid.
4. Installation drawings, shop drawings, and as-built drawings shall be prepared by an individual experienced with the work specified herein.
5. Incomplete submittals shall be returned without review, unless with prior approval of the Engineer.

E. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from Installers of the items involved:

1. Light fixtures.
2. HVAC registers.
3. Fire protection equipment interfaces.
4. Special suppression system interfaces.

F. Qualification Data: For qualified Installer, Applicator, manufacturer, fabricator, professional engineer, testing agency, and factory-authorized service representative.

G. Source quality-control reports.

H. Field quality-control reports.

I. Operation and Maintenance Data: For all fire alarm equipment, to include in operation and maintenance manuals.

J. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

K. Final Device Locations: Final locations of all manual pull stations, smoke detectors, heat detectors, and duct smoke detectors shall be submitted for confirmation of compliance with IBC 2018 (as adopted by the Puerto Rico Building Code) and NFPA 101, and coordinated with the Owner's Representative prior to rough-in, per Article 1.05.Q above.

1.07 QUALITY ASSURANCE

A. Manufacturer Qualifications: The publications listed below form a part of this publication to the extent referenced. The publications are referenced in the text by the basic designation only. The latest version of each listed publication shall be used as a guide unless the authority having jurisdiction has adopted an earlier version.

1. FM Global (Factory Mutual (FM)): FM Approval Guide.
2. National Fire Protection Association (NFPA):
    a. NFPA 70 National Electrical Code.
    b. NFPA 72 National Fire Alarm and Signaling Code.
    c. NFPA 90A Standard for the Installation of Air Conditioning and Ventilating Systems.
    d. NFPA 101 Life Safety Code.
    e. NFPA 720 Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment.
    f. NFPA 92 Standard for Smoke Control Systems (fan shutdown, damper actuation, and stair pressurization coordination).
    g. NFPA 13 Standard for the Installation of Sprinkler Systems (waterflow and tamper switch interface coordination).
3. Underwriters' Laboratories, Inc. (UL) equipment standards, latest edition:
    a. UL Fire Protection Equipment Directory.
    b. UL Electrical Construction Materials Directory.
    c. UL 38 -- Manually Actuated Signaling Boxes for Use with Fire Protection Signaling Systems.
    d. UL 228 -- Door Holding Devices.
    e. UL 268 -- Smoke Detectors for Fire Protective Signaling Systems.

f. UL 268A -- Smoke Detectors for Duct Application.
g. UL 464 -- Audible Signal Appliances.
h. UL 497A -- Secondary Protectors for Communications Circuits.
i. UL 521 -- Heat Detectors for Fire Protective Signaling Systems.
j. UL 864 -- Control Units for Fire Protective Signaling Systems.
k. UL 1283 -- Electromagnetic Interference Filters.
l. UL 1449 -- Transient Voltage Surge Suppressors.
m. UL 1971 -- Signaling Devices for the Hearing Impaired.
n. UL 2075 -- Gas and Vapor Detectors and Sensors.
o. UL 2572 -- Mass Notification Systems.

4. International Code Council:
   a. International Building Code.
   b. International Fire Code.
   c. Puerto Rico Building Code (PRBC) -- incorporates the above ICC codes by reference, with 2018-edition Puerto Rico-specific amendments (or the latest edition adopted in Puerto Rico at time of permit application), which shall govern over the base ICC editions where more stringent.
5. State and Local Building Codes as adopted and/or amended by the Authority Having Jurisdiction; 2010 ADA Standards for Accessible Design, and/or Puerto Rico local equivalency standards as adopted by the Authority Having Jurisdiction.
6. Puerto Rico Department of Health (PRDOH) -- Hospital Licensure Regulations, including Regulation 9184; Cuerpo de Bomberos de Puerto Rico (Puerto Rico Fire Department), as the local Authority Having Jurisdiction for fire alarm system approval, permitting, and final acceptance.
7. The manufacturer shall have a minimum of 15 years production experience in the manufacture and design of high sensitivity air sampling-type smoke detection systems.
8. ISO 9001 (successor to ISO 9002).

B. Supplier Qualifications:
   1. The manufacturer of the supplied products must utilize multi-channel product distribution on a national basis to be considered for this bid. The manufacturer must have factory branches as well as independent distributors to allow the end user with the ability to utilize factory trained and authorized competitive service providers after system installation and commissioning.
   2. Provide the services of a factory trained and certified representative or technician, experienced in the installation and operation of the type of system

provided. The representative shall be licensed in the Commonwealth of Puerto Rico if required by law.

3. The technician shall supervise installation, software documentation, adjustment, preliminary testing, final testing and certification of the system. The technician shall provide the required instruction to the owner's personnel in the system operation and maintenance.
4. The suppliers shall furnish evidence they have an experienced service organization, which carries a stock of spare and repair parts for the system being furnished.
5. The equipment supplier shall be authorized and trained by the manufacturer to calculate, design, install, test, and maintain the air sampling system and shall be able to produce a certificate stating such upon request.

C. Installer Qualifications:

1. Before commencing work, submit data showing that the manufacturer has successfully installed fire alarm systems of the same scope, type and design as specified.
2. The contractor shall submit copies of all required licenses and bonds as required by the Authority Having Jurisdiction in Puerto Rico.
3. The manufacturer representative shall employ on staff a minimum of one NICET certified designer, technician and/or a professional engineer, licensed in the Commonwealth of Puerto Rico and a CIAPR member, as required by the AHJ.
4. The contractor shall be qualified by UL for certifying fire alarm systems.
5. Contractors unable to comply with the provisions of Qualification of Installers shall present proof of engaging the services of a subcontractor qualified to furnish the required services.

D. Testing Agency Qualifications: Qualified for testing indicated.

E. Source Limitations for fire alarm equipment: Obtain fire alarm equipment from single source.

F. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: 25 or less.
2. Smoke-Developed Index: 50 or less.
3. Combustion Characteristics: ASTM E 136.

G. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

H. Pre-installation Conference: Conduct conference at Project site.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to project site in original, unopened packages with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, and shelf life if applicable.

B. Store materials inside, under cover, above ground, and kept dry and protected from physical damage until ready for use. Remove from site and discard wet or damaged materials.

1.09 PROJECT CONDITIONS

A. Installed products or materials shall be free from any damage including, but not limited to, physical insult, dirt and debris, moisture, and mold damage.

B. Environmental Limitations: Do not deliver or install products or materials until spaces are enclosed and weather-tight, wet work in spaces is complete and dry, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.10 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire alarm equipment that fail(s) in materials or workmanship within specified warranty period.

1. Warranty Period: 1 year from date of Substantial Completion.

1.11 SERVICE AGREEMENT

A. Technical Support: Beginning with Substantial Completion, provide software support for 1 year.

B. Upgrade Service: Update software to latest version at Project completion. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system. Upgrade shall include new or revised licenses for use of software.

1. Provide 30 days' notice to Owner to allow scheduling and access to system and to allow Owner to upgrade computer equipment if necessary.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements.

1. Siemens, or other owner-approved equal.

2.02 CONTROL PANEL

A. The fire alarm control panel shall be microprocessor based using multiple microprocessors throughout the system providing rapid processing of smoke detector and other initiation device information to control system output functions.

B. There shall be a watchdog circuit, which shall verify the system processors and the software program. Problems with either the processors or the system program shall cause the panel to activate a trouble signal, and reset the panel.

C. The system modules shall communicate with an RS-485 network communications protocol. All module wiring shall be to terminal blocks.

D. The Cerberus® PRO Fire Safety FC and FV922 system shall be capable of the following configurations. Both configurations are permitted on the same network.

1. The system shall support up to 252 addressable devices, which may be divided in any ratio on one, two, three, or four separate, isolated Class B circuits.
2. The system shall support two loops of 252 addressable devices, each of which may be divided in any ratio on one, two, three, or four separate, isolated Class B circuits.

E. The Cerberus® PRO Fire Safety FC and FV924 system shall be capable of supporting the following configurations. Both configurations are permitted on the same network.

1. The system shall support up to 504 addressable devices, which includes a second SLC configuration and each may be divided in any ratio on one, two, three, or four separate, isolated Class B circuits.
2. The system shall support 504 addressable devices, each of which includes a second SLC configuration and each may be divided in any ratio on one, or two separate, isolated Class A circuits.

F. The system shall be capable of supporting unshielded wiring applications.

G. The system shall be compliant with the requirements of NFPA 720 as a Carbon Monoxide Detection Control Unit and shall meet the UL 2075 listing requirements. All inputs from CO sensors shall be indicated visually and audibly at the control panel. CO sensor inputs shall be distinct and descriptively annunciated from other signals.

H. System Components:

1. The System Periphery board shall be capable of 252 intelligent devices distributed between one, two, three, or four Class B SLC circuits. Any trouble on one circuit shall not affect the other circuit. This module controls the signaling from the initiation devices reporting alarms and troubles to the control panel. This module shall also provide the signaling to the field devices for controlling the output of specific initiation devices. The on-board microprocessor provides the periphery board with the ability to function even if the main microprocessor fails. LEDs on the board shall provide annunciation

for the following: Power, Gnd. Fault, Alarm, Trouble. This board is integral to the system. The board shall be model number FCI2016-U1.

2. The system periphery board shall be capable of supporting two system drivers of 252 intelligent devices distributed between one, two, three, or four Class B SLC circuits for each driver, for a total panel capacity of 504 addressable devices. Any trouble on one circuit shall not affect the other circuit. This module controls the signaling from the initiation devices reporting alarms and troubles to the control panel. This module shall also provide the signaling to the field devices for controlling the output of specific initiation devices. The on-board microprocessor provides the periphery board with the ability to function even if the main microprocessor fails. LEDs on the board shall provide annunciation for the following: Power, Gnd. Fault, Alarm, and Trouble. This board is integral to the system. The board shall be model number FCI2017-U1.
3. The voice-system card cage (Model VCA2002-A1) supports the mounting and field wiring for cards used on a Model FV922/FV924 FACP.
4. The voice system CPU card (Model VCC2001-A1) is a central-processing unit (CPU) card that controls and monitors all modules and functions for Cerberus® PRO Fire Safety intelligent voice-communication FACPs.
5. The In/Out Voice System Card (Model VCC2002-A1) is the Input/Output card for the Cerberus® PRO Fire Safety intelligent voice-communication system.
6. The Voice Amplifier (25/70V) Card, used in 'real time' emergency communication, the 50W amplifier card (Model VCI2001-U1), provides AC power between a Model FV922/FV924 panel and a site's speaker system. Up to four (4) Model VCI2001 amplifiers are supported in a 3-to-1 backup, or 1-to-1 backup schematic on a single Cerberus® PRO Fire Safety intelligent voice-communication system, configured as one (1), two (2) or three (3) main amplifiers, and one (1) or two (2) optional backup amplifiers.
7. The MoNET connection module is used for communication between a Model FCM20-series operating unit and a Voice CPU card (Model VCC2001-A1) in a given Cerberus® PRO Fire Safety intelligent voice communication panel. MoNET (Model FCA2031-A1) can additionally provide system integration between an operating unit and a Modular Ethernet Switch (Model FN2012-A1) in each Cerberus® PRO Fire Safety, non-voice FACP.
8. The Microphone Option Module (Model VTO2004-U3) is used to provide live, non-pre-recorded voice communication on a Cerberus® PRO Fire Safety intelligent voice communication panel. Model VTO2004-U3 can serve either as a main microphone installed in the main-system enclosure, or as a remote microphone in a remote enclosure. Up to two (2) Model VTO2004-U3 microphones are supported for each Model FV922/FV924 FACP.
9. The Switch Option Module (Model VTO2001-U3) is a series of front-end, illuminated and programmable pushbuttons primarily mounted in the middle

inner door of each Cerberus® PRO Fire Safety intelligent voice-communication FACP. Each Model VTO2001-U3 module has 24 group-switches, totaling 48 LEDs, and consists of up to 96 multi-color LED-status indicators. Each LED switch-group is assigned specific functionality during the configuration process. A pushbutton for each affected zone will illuminate to acknowledge the command has been received at the Voice System CPU Card, Model VCC2001-A1. Additionally, if no microphone is used, up to eight (8) Model VTO2001-U3 switch-option modules can be used in a given three-height-unit (3HU) enclosure (Model FHD2007-U3/R3).

10. As an option, the Model EBA2004-A1 Booster Amplifier is a main board that allows for expansion of speaker zones for additional power to a Cerberus® PRO Fire Safety intelligent voice communication system.
11. The Signal Line Circuits (SLC) shall be tested for opens, shorts and communications with all addressable devices installed before connection to the control panel. Systems without this capability shall have a test panel installed for initial testing to eliminate any possible damage, short term or long term, to the control panel. After initial testing, replace the test panel and proceed with complete testing.
12. The standard Operator Interface shall have the ability to view events, acknowledge, silence, and reset the system and any networked Cerberus® PRO Fire Safety control panels, when configured as a global PMI. The standard operator interface can acknowledge, silence, and reset all panels via Global PMI.
13. The LED Operator Interface shall have the ability to view events, acknowledge, silence, and reset the system and any networked Cerberus® PRO Fire Safety control panels, when configured as a global PMI. Additionally, the operator interface provides twelve multicolored configurable LEDs for annunciating system status.
14. The System Periphery Board shall contain 2 Class B NAC circuits rated at 3 amps each with power-limited outputs. The zones shall be isolated and independently supervised. There shall be at least 6 unique codes/signals for each circuit based on system logic. These signals shall be Temporal Code 3 (Evacuation), Steady, Temporal Code 4 (for CO alarms), March Time 120ppm, March Time 60ppm, and March Time 30ppm. The card shall have the following LEDs to provide troubleshooting and annunciation: Power, Gnd. Fault, Zone Activation or Trouble. This functionality shall be integral to the system. The card shall be model number FCI2016-U1/FCI2017-U1.
15. The control panel shall be equipped with four Form C relays for alarm, trouble, supervisory, and programmable output. The system shall provide the mounting of all system cards, field wiring, and panel inter-card wiring. All power-limited field wiring shall be separated from all non-power-limited internal wiring. The card shall be model number FCI2016-U1/FCI2017-U1.

I. System response time from alarm to output shall comply with UL requirements.

J. All system cards and modules shall have Flash memory for downloading the latest module firmware.

K. Passwords:

1. Technician Level Password -- There shall be an 8-character password that a user must enter into the control panel in order to perform such maintenance- and control-related functions at the panel as:
    a. Arming and disarming devices.
    b. Activating, deactivating or modifying detector ASD and sensitivity settings.
    c. Activating and deactivating the History Log function, and deleting obsolete entries.
    d. Changing the system time and date.
2. Maintenance Level Password -- There shall be an 8-character password that a user must enter into the control panel in order to access the panel's reporting functions and walktest functions.
3. Acknowledge Silenceable Reset Access -- There shall be a key required to open a locked cabinet that a system user must use in order to acknowledge events, turn silenceable audibles and visuals on and off, and perform panel resets.

L. Software Modifications: The system structure and software shall place no limit on the type or extent of software modifications on-site. Modification of software shall not require power-down of the system or loss of system fire protection while modifications are being made. Systems that require the use of external programmers or change of EPROMs are not acceptable.

M. Logic: The fire alarm system shall support generic functions that deal with binary states (True/False, high/low), and produce desired outputs from one or more binary inputs (for example, alarm outputs from detector or manual station inputs). AND, OR, NOT, and Delay Timer are examples of generic functions. Generic functions can be used as inputs to other functions. The system shall support 500 logic functions.

N. History: The system shall store 10,000 events in history. Trouble warnings will occur when the History buffer is full.

O. Reports:

1. The system shall have the ability to provide configuration, status, queue and history reports.
2. Configuration reports shall provide the following information:
    a. Custom Messages.
    b. Database Information.

c. Entity Type.
d. Zone usage.
e. Device Category.
f. Firmware revision.

3. Status reports shall provide the following information:
   a. Disarmed cards and devices.
   b. ASD settings.
   c. Sensitivity in %/foot.
   d. Alarm threshold in %/foot.
   e. Temperature in degrees F.
   f. Walktest.
4. Queue reports shall provide the following information:
   a. Alarm events with custom message and event time.
   b. Mass notification events with custom message and event time.
   c. Gas alarm events with custom message and event time.
   d. Supervisory events with custom message and event time.
   e. Trouble events with custom message and event time.
   f. Status events with custom message and event time.
   g. Information events.
5. History reports shall provide Address, History Type, Description, Time & Date, and Custom Message. The following event types shall be reported:
   a. Alarm events.
   b. Gas alarm events.
   c. Supervisory events.
   d. Status changes.
   e. Alarm verification.
   f. Output activation from logic.
   g. System reset.
   h. Event acknowledgements.
   i. Block acknowledgements.
   j. Audible silence system flag changes.
   k. Sensitivity changes.
   l. Arm/disarm commands.

m. Arm/disarm by logic.

n. Manual output overrides.

o. Output overrides by logic.

p. Time changes.

q. Menu logins.

r. ASD changes.

s. Walktest.

t. Device input to logic activations/deactivations.

P. Location and Power: The FACP shall be located in a dedicated, secured fire alarm room or closet adjacent to the main entrance or the security/nursing station. Primary power shall be furnished from the Essential Electrical System Life Safety Branch per NFPA 99 and NEC Articles 700 and 517, with a minimum 24-hour secondary standby battery capacity per NFPA 72, sized per Article 1.06.B of this Section.

2.03 POWER SUPPLY

A. The system Power Supply shall be a 170 Watt, 6.5-amp unit that provides 24VDC power for system operation. The power supply shall be filtered and regulated. The power supply provides power for all system operation, including signaling line circuits, notification appliance circuits, auxiliary power, battery charger, and all optional modules. The power supply shall be rated for 120/240VAC 50/60Hz. The module shall be model number FP2011-U1.

B. The system Power Supply FP2012-U1 shall be a 300 Watt, 11.5-amp unit that provides 24VDC power for system operation. The power supply provides power for all system operation, including signaling line circuits, notification appliance circuits, auxiliary power, battery charger, and all optional modules. The power supply shall be rated for 120/240VAC 50/60Hz. The module shall be model number FP2012-U1.

C. For applications requiring greater than 300W of power, the Model FP2013-U1 power supply can optionally power a Model FV922 or FV924 system. Model FP2013-U1 consists of two (2) power supply units and one (1) interconnection cable, in order to balance the power from Model FP2013-U1. Consequently, this power-supply configuration can provide up to 600W at 24VDC.

D. The battery charger shall be able to charge system batteries up to 100AH. Battery charging shall be microprocessor controlled and programmed to select battery sizes.

E. Transfer from AC to battery power shall be instantaneous when AC voltage drops to a point where it is not sufficient for normal operation.

2.04 SYSTEM ENCLOSURE

A. Provide the enclosure as specified. Provide the color to comply with local AHJ requirements.

B. Provide three-height-unit backbox as part of the Cerberus® PRO Fire Safety intelligent voice-communication system hardware for use with 3HU system enclosures. Specifically, each backbox is used to fasten with a 3HU outer door.

C. Provide black cabinet enclosure.

2.05 REMOTE ANNUNCIATOR

A. LED annunciator panel: Provide Siemens model FT2008 (16-zone), or FT2009 (32-zone) LED annunciator as indicated on the drawings. Each LED annunciator shall provide the LED indicators for each zone including alarm, supervisory, and trouble per zone. System status LEDs shall also be provided indicating Reset, Audibles On, Silenced, Acknowledge, Ground Fault, System Fault, and Power. Key-switch lock protected buttons shall provide system control for Reset, Silence/Un-silence, Acknowledge, and Lamp Test. Both versions of the LED annunciator shall be available with red and black housings.

B. Minimum Locations: Provide not less than two (2) remote LED annunciator panels per Article 2.05.A above: one located at the Disaster Control and Monitoring Operations Center (Level 9) and one located at the main security desk (Ground Level), consistent with the project's Basis of Design.

2.06 DIGITAL COMMUNICATOR

A. The Multi-Point Digital Alarm Communicator FCA2015-U1 shall be UL864 listed to provide point identification of alarm, supervisory, security and trouble events to a Central or Remote Receiving Station. The DACT shall support the following:

1. Ademco Contact ID or SIA protocol.
2. Ademco Contact ID selection shall provide the ability to transmit events for up to 999 individual zones.
3. SIA selection shall provide the ability to transmit events for up to 10,000 individual points.
4. Programming of accounts and phone numbers.
5. Cellular connectivity.
6. Line fault monitoring.
7. Automatic 24-hour test.
8. The DACT supports configurable alarm, alarm restoral, trouble, trouble restoral, supervisory, supervisory restoral, and reset events.
9. The DACT supports Ademco Contact ID alarm event codes for general alarm, smoke detector alarm, waterflow alarm, duct alarm, and manual alarm events.
10. Optionally, the DACT can be programmed to report events by event queue only.
11. In addition to the telephone line and cellular paths, the DACT shall support an IP (Internet Protocol) network communication pathway, so that the system

provides not less than two (2) independent primary and secondary communication paths to a UL-listed central station, monitored 24 hours a day, 7 days a week, per NFPA 72.

2.07 INTELLIGENT INITIATING DEVICES

A. General:

1. All initiation devices shall be insensitive to initiating loop polarity. Specifically, the devices shall be insensitive to plus/minus voltage connections. Except when built-in isolation with ISOtechnology™ is used, polarity sensitivity is required for the devices configured in isolation mode.

B. Smoke Detectors -- Advanced Addressable OOH-Series:

1. The detectors shall be guaranteed in writing not to false alarm when configured by the factory trained certified technician. The detectors must provide at least 19 different environmental algorithms that allow the detector to provide superior false alarm immunity without the need for additional alarm verification delays.
2. The detectors shall have a tri-color LED to streamline system maintenance/inspection by plainly indicating detector status as follows: green for normal operation, amber for maintenance required, red for alarm.
3. Detectors shall utilize state-of-the-art forward/backward light scattering technology, with improved detection for smoldering and flaming fire signatures. The detectors shall replace the need for ionization detectors due to improved response characteristics to flaming fires.
4. When required, the detectors shall incorporate an addressable Carbon Monoxide (CO) sensor. The CO sensor of the OOHC941 has a 10-year lifetime from the date of installation. The CO sensor shall be selectable as an input to the multi-criteria fire detector algorithm and as an independent life-safety CO gas detector (in compliance with NFPA 720).
5. Detectors shall provide pre-alarm signal at 0.2% obs/ft. and a full alarm at 1.0% obs/ft. to meet the performance requirements of NFPA 76, Fire Protection of Telecommunications Facilities, as a Very Early Warning Fire Detector (VEWFD).
6. The forward/backward light scattering technology shall provide improved immunity to spurious activation (deceptive phenomena). The detectors shall have a "No False Alarm Guarantee".
7. The detectors shall be RoHS-compliant: they shall meet standards for Reduction of Hazardous Substances (RoHS) by reduction in lead content and other restricted substances.
8. The multi-criteria detector with CO input shall be UL 2075 compliant as a gas and vapor detector.

9. The multi-criteria fire detectors shall be an intelligent digital photoelectric detector with a programmable heat detector. Detectors shall be listed for use as open area protective coverage, in-duct installation and sampling assembly installation and shall be insensitive to air velocity changes. The detectors' communications shall allow the detectors to provide alarm input to the system and alarm output from the system within four (4) seconds. So as to minimize the effort required by the installing and maintenance technician to appropriately configure the detector to ensure optimal system design, the detectors shall be programmable as application specific. Application settings shall be selected in software for a minimum of 19 environmental fire profiles unique to the devices' installed location.
10. The detectors shall be designed to eliminate the possibility of false indications caused by dust, moisture, RFI/EMI, chemical fumes and air movement while factoring in conditions of ambient temperature rise, obscuration rate changes and hot/cold smoke phenomenon into the alarm decision to give the earliest possible real alarm condition report.
11. The detectors shall be capable of being field programmed for simultaneous and/or independent functionality, depending on the application. For example, the detectors shall be capable of utilizing the optical, heat, and/or CO sensors together for enhanced fire detection (multi-criteria) and simultaneously provide independent outputs for CO gas life-safety, smoke, and heat detection. Any combination of the sensors is possible.
12. The detectors shall be UL listed for operation in a 95% relative humidity (RH) environment.
13. The detectors shall be designed to eliminate calibration errors associated with field cleaning of the chamber.
14. The detectors shall support the use of a relay, or LED remote indicator without requiring an additional software address. Low profile, white case shall not exceed 2.5 inches of extension below the finish ceiling.
15. The detectors shall support the use of an ambient temperature warning signal at the panel. This temperature shall be user-configurable for the set temperature of the warning and the event type generated by the warning. This event can be used to trigger system logic.
16. The multi-criteria detector with CO sensor shall support the use of an ambient Carbon Monoxide (CO) warning signal at the panel. This ambient CO level shall be user-configurable in parts per million (PPM) for the set threshold of the warning and event type generated by the warning. This event can be used to trigger system logic.
17. CO sensor shall have a 10-year lifetime.
18. For the detectors where required, there shall be available a locking kit and detector guard to prevent unauthorized detector removal.

19. UL Listed as "direct in-duct" mounting.
20. Detectors shall include optional built-in short circuit isolation, ISOtechnology.
21. Available models:
    a. OOH941. Multi-Criteria incorporating 2 Optical sensors and 2 Thermal sensors with an operating temperature range of 32°F to 120°F (0°C to 49°C). Nineteen selectable profiles. Polarity insensitive installation wiring. Three-color LED.
    b. OOHC941. Multi-Criteria incorporating 2 Optical sensors, 2 Thermal sensors, and Carbon Monoxide sensing technologies with an operating temperature range of 32°F to 120°F (0°C to 49°C). Twenty-five selectable profiles. Polarity insensitive installation wiring. Three-color LED. CO sensor may be programmed as part of the multi-criteria algorithm, or may be an independent CO detector.

C. Smoke Detectors -- Standard Addressable Detectors:

1. The smoke detectors must provide at least 3 environmental parameter sets to assist in device sensitivity configuration.
2. The detectors shall have a tri-color LED to streamline system maintenance/inspection by plainly indicating detector status as follows: green for normal operation, amber for maintenance required, red for alarm.
3. The detector shall be RoHS-compliant: it shall meet standards for Reduction of Hazardous Substances (RoHS) by reduction in lead content and other restricted substances.
4. The detectors shall be UL listed for operation in a 95% relative humidity (RH) environment.
5. The detectors shall be designed to eliminate calibration errors associated with field cleaning of the chamber.
6. The detectors shall support the use of a relay, or LED remote indicator without requiring an additional software address. Low profile, white case shall not exceed 2.5 inches of extension below the finish ceiling.
7. For the detectors where required, there shall be available a locking kit and detector guard to prevent unauthorized detector removal.
8. Detectors shall include optional built-in short circuit isolation, ISOtechnology.
9. Available models:
    a. OH921. Multi-Criteria incorporating 1 Optical sensor and 1 Thermal sensor with an operating temperature range of 32°F to 100°F (0°C to 38°C). Available in four parameter sets. Polarity insensitive installation wiring. Three-color LED.

b. OP921. Photoelectric smoke detector with an operating temperature range of 32°F to 120°F (0°C to 49°C). Available in three parameter sets. Polarity insensitive installation wiring. Three-color LED.

D. Heat Detectors -- Addressable:

1. Thermal Detectors shall be rated at 135°F (57°C) fixed temperature and 15°F (8.3°C) degrees per minute rate of rise. Detectors shall be constructed to compensate for the thermal lag inherent in conventional type detectors due to the thermal mass, and alarm at the set point of 135°F (57°C). The choice of alarm reporting as a fixed temperature detector or a combination of fixed and rate of rise shall be made in system software and be changeable at any time without the necessity of hardware replacement.
2. The detectors furnished shall have a listed spacing for coverage up to 2,500 square feet and shall be installed according to the requirements of NFPA 72 for open area coverage. The thermal detector shall be model number HI921.
3. Detectors shall include optional built-in short circuit isolation, ISOtechnology.
4. Model HI921 heat detector shall have the following temperature settings:
    a. Fixed temperature at 135°F (57°C), 145°F (63°C), 155°F (68°C), 165°F (74°C), 174°F (79°C).
    b. Rate of Rise at 15°F/min (8.3°C) at 135°F (57°C).
    c. Rate of Rise at 15°F/min (8.3°C) at 174°F (79°C).
    d. Low temperature warning at 40°F (4.4°C).

E. Duct Smoke Detectors -- Addressable:

1. For duct detector applications, the smoke detector shall be an intelligent digital photoelectric detector. Detectors shall be listed for use as open area protective coverage, in-duct installation and sampling assembly installation and shall be insensitive to air velocity changes.
2. The detector communications shall allow the detector to provide alarm input to the system and alarm output from the system within four (4) seconds. The detector shall be mounted in a duct detector housing listed for that purpose. The duct detector shall support the use of a remote test switch, relay or LED remote indicator. The duct detector shall be supplied with the appropriate sampling tubes to fit the installation.
3. Where duct detectors are exposed to the weather a weatherproof enclosure shall be available. A NEMA-3R and NEMA-4X option shall be available. The duct housing cover shall include a test port for functional testing of the detector without cover removal. The duct housing shall include a cover removal switch capable of indicating cover removal status to the fire alarm control panel.
4. The intelligent duct detector shall have a model number from the FDBZ-Series. Where required there shall be available a duct housing with an on-board relay.

Also, where required, there shall be a standalone housing available with its own power supply and test/reset switch that does not require connection to a fire alarm control panel. It shall be model FBZ492-PR.

5. Duct smoke detector housing shall allow use in duct systems with air velocity ranging from 100 to 4,000 ft/min (0.51 to 20 m/s), within temperature ranges of 32°F to 120°F (0°C to 49°C), and with relative humidity ranging from 0 to 95%.
6. Detectors shall include optional built-in short circuit isolation, ISOtechnology.
7. Duct Housings and Accessories:
    a. FDBZ492-Global Air Duct Housing for Conventional and Addressable Detectors.
    b. FDBZ492-HR Global Air Duct Housing for Addressable P2 Detectors with Relay Application.
    c. FDBZ492-R Global Air Duct Housing for Conventional Detectors with Relay Application.
    d. FDBZ492-RP Global Air Duct Housing for Conventional Detectors with Relay Application and Built-in Power Source.
    e. FDBZ-WP Weather-Proof housing to accommodate all versions of Global Air Duct Housings.
    f. FDBZ-RTL Remote Test Lamp for Conventional Detectors.
8. Duct smoke detectors shall be provided on all HVAC supply air ducts with a capacity of 2,000 CFM or greater, per NFPA 90A, per the project's Basis of Design. Exact quantities and locations shall be coordinated with the Mechanical Contractor and indicated on the drawings, per Article 1.05.Q above.

F. Detector Bases -- Addressable:

1. Detector bases shall be low profile twist lock type with screw clamp terminals and self-wiping contacts. Bases shall be installed on an industry standard, 4-inch square or octagonal electrical outlet box.
2. Multi-Criteria Fire Detector Model OOHC941 shall be listed as providing CO detection in duct application.
3. The model number for the standard base shall be DB-11 -- 6-inch version.
4. The model number for the standard base shall be DB-11E -- 4-inch version.

G. Manual Pull Stations -- Addressable:

1. Provide addressable manual stations where shown on the drawings, to be flush or surface mounted as required. Manual stations shall contain the intelligence for reporting address, identity, alarm and trouble to the fire alarm control panel. The manual station communications shall allow the station to provide alarm

input to the system and alarm output from the system within less than four (4) seconds.

2. The manual station shall be equipped with terminal strip and pressure style screw terminals for the connection of field wiring. Surface mounted stations where indicated on the drawings shall be mounted using a manufacturer's prescribed matching red enamel outlet box.
3. The double action pull station shall be model number XMS-D. It shall provide built-in isolation capability with ISOtechnology™. The operator display shall indicate which specific device has detected a wiring fault on the data communication line.
4. Where required, there shall also be available pull stations with break glass, capable of explosion proof installation, capable of weatherproof installation, reset key operation, and metal housings.
5. Pull stations shall include optional built-in short circuit isolation, ISOtechnology.

H. Addressable Interface Devices:

1. Addressable Interface Devices shall be provided to monitor inputs (contacts) and control outputs (relays) to and from the fire alarm system and associated devices. These interface devices shall be able to monitor single or dual contacts. An address will be provided for each contact. Where remote supervised relay is required the interface shall be equipped with a SPDT relay rated for 4 amps resistive and 3.5 amps inductive. The addressable interface modules shall be model FDCIO Series, XTRI Series, ILED-X Series, TSM-1X or HCP series.
2. Where needed, a Conventional Zone Module shall connect to the Signal Line Circuit, which will allow the use of conventional initiation devices. This module shall have the ability to support up to 15 conventional smoke detectors and an unlimited number of contact devices. The module shall be model HZM.
3. Model XTRI Series shall provide input and outputs as needed by specific model number. The device shall also provide built-in isolation capability with ISOtechnology™. The operator display shall indicate which specific device has detected a loop short on the data communication line.
4. Model FDCIO422 device shall provide built-in isolation capability with ISOtechnology™. The addressable input/output module shall be insensitive to polarity except when built-in isolation ISOtechnology™ is used, in which case polarity sensitivity is required for the devices configured in isolation mode. Additionally, the FDCIO422 shall have the capability for up to 4 separate inputs (Class B) or 2 separate Class A inputs and 4 separate outputs (Class B).

5. Model ILED-X addressable remote LED alarm indicators shall provide a visual notification for remote or concealed initiating devices. The device shall also provide built-in isolation capability with ISOtechnology™.
6. Model TSM-1X addressable remote test switch shall provide an addressable normally open (N.O.) momentary switch with a tricolor light-emitting diode (LED) indicator. The LED indicator shall provide visual notification of the status of the tested device. The device shall also provide built-in isolation capability with ISOtechnology™.
7. Model HCP addressable control point shall provide remote, independent control of a single device.
8. Monitoring applications include (but are not limited to):
    a. Water-flow switches.
    b. Tamper switches.
    c. PIV switches.
    d. Damper position -- all 3 states on one input.
    e. Conventional devices (e.g., smoke detectors, beam detectors, flame detectors, etc.).
    f. Duct detectors.
9. Control applications include (but are not limited to):
    a. Notification appliance circuits (NAC).
    b. Telephone zones.
    c. Speaker zones.
    d. Damper position.
    e. Solenoids for sprinklers.
10. Where applicable, all interface devices shall meet NFPA 72 Class X requirements for survivability.
11. Waterflow and tamper (PIV) switch monitoring points shall be coordinated with the automatic sprinkler (fire protection) system per NFPA 13, and integrated per NFPA 72, per Article 1.05.T above.

2.08 DEVICE PROGRAMMING UNIT

A. Device Programming Unit: The programming tool shall program the intelligent devices with addresses. The unit shall test the device to respond to its address. Dipswitches and rotary switches shall not be acceptable. The programmer shall be model DPU with carrying case.

2.09 CONVENTIONAL NOTIFICATION APPLIANCES (LED BASED)

A. ACEND Series SC-SP Speakers and SC-SS Speaker/Strobes:

1. The high fidelity speaker appliances shall be Siemens SC-SP Speaker and SC-SS Speaker/Strobes.
2. The speakers shall be UL Listed under UL 1480 for Fire Protective Service.
3. Speakers equipped with strobes shall be listed under UL 1971 for Emergency Devices for the Hearing-Impaired.
4. In addition, the speaker/strobes shall meet the requirements of FCC Part 15.
5. All speakers shall be designed for a field selectable input of either 25 or 70 VRMS, with selectable power taps from 1/8 watt to 2 watts.
6. All models shall have listed sound output of up to 87dB at 10ft (3.05m) and a listed frequency response of 300 to 8000Hz.
7. All inputs shall employ terminals that accept #12 to #18 AWG wire sizes.
8. The series SC-SS Speaker/Strobe appliances shall produce a flash rate of one (1) flash per second over the 16-33 VDC Special Application Voltage Range and shall incorporate a Light Emitting Diode (LED) as the light source for both wall and ceiling mount applications.
9. The LED strobe flash duration shall be 20ms.
10. Where Multi-Candela appliances are specified, the strobe intensity shall have field selectable settings at 15, 30, 75, 110, 135, and 185 candela for both wall and ceiling mount applications.
11. The selector switch for selecting the candela shall be tamper resistant.
12. Appliances with candela settings shall show the candela selection in a visible location at all times when installed.
13. The series SC-SP and SC-SS shall be designed for indoor surface or flush mounting.
14. Mounting options shall include standard 4-inch square, 2-1/8-inch deep backboxes.
15. The speaker and speaker/strobes shall incorporate a speaker mounting and included jumper for pre-test of wiring prior to installation of the appliance.
16. All notification appliances shall be backwards compatible with at least two generations of Siemens' legacy notification appliances.
17. The SC-SP and SC-SS models shall have a low profile.
18. The speaker shall be listed to the low frequency requirements of UL 464 (520Hz) to meet NFPA's 520Hz tone requirements for sleeping areas.

19. Synchronization is possible when using the Cerberus PRO® Compact panels including FC922, FC924, FV922, FV924, or PAD-3, PAD-4, or PAD-5 series power supply with built-in sync protocol.
20. The strobes shall not drift out of synchronization at any time during operation. If the sync protocol fails to operate, the strobe shall revert to a non-synchronized flash rate and still maintain (1) flash per second over its UL listed voltage range.
21. The appliance shall also be designed so that the audible signal may be silenced while maintaining strobe activation.
22. All appliances shall be able to utilize a locking screw that secures the appliance to the mounting plate and thus reduces risk of tampering.
23. The appliances shall be compatible with separately orderable and field installable Mass Notification Text Covers and Colored Lenses.

B. Notification appliances, including Strobes, Horns, Horn-Strobes, Speakers, Speaker-Strobes, Low Frequency Sounders, and Low-Frequency Sounder-Strobes shall be compatible with optional text covers/plates including:

1. ALERT.
2. AGENT.
3. BLANK (No Text).
4. House of Fire image (International symbol).
5. EMERGENCY.

C. Visual-Only Appliances: Where indicated on the drawings for Operating Rooms, Intensive Care Unit (ICU) rooms, and other clinically sensitive spaces where audible alarm signals may be clinically inappropriate, notification appliances shall be visual-only strobes (without an integral audible sounder or speaker), coordinated with the Owner, per Article 1.05.R above and the project's Basis of Design.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine areas and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Perform work in accordance with the requirements of NFPA 70, NFPA 72 and NECA 1-2006, Standard of Good Workmanship in Electrical Contracting.

B. Fasten equipment to structural members of building or metal supports attached to structure, or to concrete surfaces.

C. In the event that limited energy cable installation is allowed, all cable runs shall be run at right angles to building walls, supported from structure at intervals not exceeding 3ft (1m) and, where installed in environmental air plenums, be rated for such use and tied/supported by components listed for environmental air plenum installation.

D. Wiring Method: Install cables in raceways and cable trays except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Conceal raceway and cables except in unfinished spaces.

E. Wiring Method: Conceal conductors and cables in accessible ceilings, walls, and floors where possible.

F. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.

G. Provide primary power for each panel from the Essential Electrical System Life Safety Branch (per NFPA 99 and NEC Articles 700 and 517) as indicated on the Electrical Power Plans. Power shall be 120 VAC service, transformed through a two-winding, isolation type transformer and rectified to low voltage DC for operation of all circuits and devices.

H. Coordinate all fire/smoke damper actuation, air handling unit shutdown, and stair pressurization fan start points with the Mechanical Contractor and the Building Management System (BMS) integrator per NFPA 92; the fire alarm system shall serve as the control interface for these life-safety smoke control functions, with the BMS providing status monitoring only, per Article 1.05.S above.

3.03 BOXES, ENCLOSURES AND WIRING DEVICES

A. Boxes shall be installed plumb and firmly in position.

B. Extension rings with blank covers shall be installed on junction boxes where required.

C. Junction boxes served by concealed conduit shall be flush mounted.

D. Upon initial installation, all wiring outlets, junction, pull and outlet boxes shall have dust covers installed. Dust covers shall not be removed until wiring installation when permanent dust covers or devices are installed.

E. "Fire alarm system" decal or silk-screened label shall be applied to all junction box covers.

3.04 CONDUCTORS

A. Each conductor shall be identified as shown on the drawings at each termination with wire markers at terminal points. Attach permanent wire markers within 2in (50mm) of the wire termination. Marker legends shall be visible.

B. All wiring shall be supplied and installed in compliance with the requirements of the National Electric Code, NFPA 70, Article 760, and that of the manufacturer.

C. Wiring for strobe and audible circuits shall be a minimum 14 AWG; signal line circuits minimum 18 AWG twisted.

D. All splices shall be made using solder-less connectors. All connectors shall be installed in conformance with the manufacturer's recommendations.

E. Crimp-on type spade lugs shall be used for terminations of stranded conductors to binder screw or stud type terminals. Spade lugs shall have upset legs and insulation sleeves sized for the conductors.

F. The installation contractor shall submit for approval, prior to installation of wire, a proposed color code for system conductors to allow rapid identification of circuit types.

G. Wiring within sub panels shall be arranged and routed to allow accessibility to equipment for adjustment and maintenance.

3.05 DEVICES

A. Relays and other devices to be mounted in auxiliary panels are to be securely fastened to avoid false indications and failures due to shock or vibration.

B. Wiring within panels shall be arranged and routed to allow accessibility to equipment for adjustment and maintenance.

C. All devices and appliances shall be mounted to or in an approved electrical box.

3.06 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 16100, "Basic Electrical Materials and Methods."

B. Permanently label or mark each conductor at both ends with permanent alphanumeric wire markers.

C. A consistent color code for fire alarm system conductors shall be maintained throughout the installation.

3.07 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

B. Testing General:

1. All alarm initiating devices shall be observed and logged for correct zone and sensitivity. These devices and their bases shall be tagged with adhesive tags located in an area not visible when installed, showing the initials of the installing technician and date.
2. Wiring runs shall be tested for continuity, short circuits and grounds before the system is energized. Resistance, current and voltage readings shall be made as work progresses.
3. The acceptance inspector shall be notified before the start of the required tests. All items found at variance with the drawings or this specification during testing or inspection by the acceptance inspector shall be corrected.
4. Test reports shall be delivered to the acceptance inspector as completed.
5. All test equipment, instruments, tools and labor required to conduct the system tests shall be made available by the installing contractor. The following equipment shall be a minimum for conducting the tests:
    a. Ladders and scaffolds as required to access all installed equipment.
    b. Multi-meter for reading voltage, current and resistance.
    c. Two-way radios and flashlights.
    d. A manufacturer recommended device for measuring air flow through air duct smoke detector sampling assemblies.
    e. Decibel meter.
    f. In addition to the testing specified to be performed by the installing contractor, the installation shall be subject to test by the acceptance inspector.

3.08 ACCEPTANCE TESTING

A. A written acceptance test procedure (ATP) for testing the fire alarm system components and installation will be prepared by the engineer in accordance with NFPA 72 and this specification. The contractor shall be responsible for the performance of the ATP, demonstrating the function of the system and verifying the correct operation of all system components, circuits, and programming.

B. A program matrix shall be prepared by the installing contractor referencing each alarm input to every output function affected as a result of an alarm condition on that input.

C. The installing contractor, prior to the ATP, shall prepare a complete listing of all device labels for alphanumeric annunciator displays.

D. Loop Resistance Tests: Measure and record the resistance of each circuit with each pair of conductors in the circuit short-circuited at the farthest point from the circuit

origin. The tests shall be witnessed by the owner and test results recorded for use at the final acceptance test.

E. Preliminary Testing: Conduct preliminary tests to ensure that all devices and circuits are functioning properly. After preliminary testing is complete, provide a letter certifying that the installation is complete and fully operable. The letter shall state that each initiating and indicating device was tested in place and functioned properly. The letter shall also state that all panel functions were tested and operated properly. The Contractor and an authorized representative from each supplier of equipment shall be in attendance at the preliminary testing to make necessary adjustments.

F. Final Acceptance Test: Notify the owner in writing when the system is ready for final acceptance testing. Submit request for test at least 14 calendar days prior to the test date. A final acceptance test will not be scheduled until megger test results, the loop resistance test results, and the submittals required in Part 1 are provided to the owner. Test the system in accordance with the procedures outlined in NFPA 72.

1. Verify that the control unit is in the normal condition as detailed in the manufacturer's operating and maintenance manual.
2. Test each initiating and indicating device and circuit for proper operation and response. Disconnect the confirmation feature for smoke detectors during tests to minimize the amount of smoke or test gas needed to activate the detector.
3. Test the system for all specified functions in accordance with the contract drawings and specifications and the manufacturer's operating and maintenance manual.
4. Visually inspect all wiring.
5. Verify that all software control and data files have been entered or programmed into the FACP.
6. Verify that Shop Drawings reflecting as-built conditions are accurate.
7. Measure the current in circuits to assure that there is the calculated spare capacity for the circuits.
8. Measure voltage readings for circuits to assure that voltage drop is not excessive.
9. Measure the voltage drop at the most remote appliance on each notification appliance circuit.

G. The acceptance inspector shall use the system record drawings in combination with the documents specified in this specification during the testing procedure to verify operation as programmed. In conducting the ATP, the acceptance inspector shall request demonstration of any or all input and output functions. The items tested shall include but not be limited to the following:

1. System wiring shall be tested to demonstrate correct system response and correct subsequent system operation in the event of:
    a. Open, shorted and grounded signal line circuits.
    b. Open, shorted and grounded notification circuits.
    c. Primary power or battery disconnected.
2. System notification appliances shall be demonstrated as follows:
    a. All alarm notification appliances actuate as programmed.
    b. Audibility and visibility at required levels.
3. System indications shall be demonstrated as follows:
    a. Correct message display for each alarm input at the control display.
    b. Correct history logging for all system activity.
4. System off-site reporting functions shall be demonstrated as follows:
    a. Correct zone transmitted for each alarm input.
    b. Trouble signals received for disconnect.
5. Secondary power capabilities shall be demonstrated as follows:
    a. System primary power shall be disconnected for a period of time as specified herein. At the end of that period, an alarm condition shall be created and the system shall perform as specified for a period as specified.
    b. System primary power shall be restored for forty-eight hours and system-charging current shall be normal trickle charge for a fully charged battery bank.
    c. System battery voltages and charging currents shall be checked at the fire alarm control panel.

3.09 DOCUMENTATION

A. System documentation shall be furnished to the owner and shall include but not be limited to the following:
    1. System record drawings and wiring details including one set of reproducible drawings, and a CD-ROM with copies of the record drawings in DXF format for use in a CAD drafting program.
    2. System operation, installation and maintenance manuals.
    3. System matrix showing interaction of all input signals with output commands.
    4. Documentation of system voltage, current and resistance readings taken during the installation, testing and ATP phases of the system installation.

5. System program showing system functions, controls and labeling of equipment and devices.
6. All applicable NFPA 72 commissioning reports.
7. Copies of all test records and inspection reports, together with the annual inspection program schedule established for the system, shall be submitted to the Authority Having Jurisdiction (AHJ) and provided to the Owner, per NFPA 72 and the project's Basis of Design.

3.10 PROTECTION

A. Remove and replace devices and panel components that are wet, moisture damaged, or mold damaged.

3.11 DEMONSTRATION

A. Instructor: Include in the project the services of an instructor, who shall have received specific training from the manufacturer for the training of other persons regarding the inspection, testing and maintenance of the system provided. The instructor shall train the employees designated by the owner, in the care, adjustment, maintenance, and operation of the fire alarm system.

B. Training sessions shall cover all aspects of system performance, including system architecture, signaling line circuit configurations, sensor and other initiating device types, locations, and addresses, fire alarm control panel function key operation, and other functions as designated by the owner.

C. Required Instruction Time: Provide 16 hours of instruction after final acceptance of the system, which exceeds the project's minimum 8-hour-per-system Owner training requirement. The instruction shall be given during regular working hours on such dates and times as are selected by the owner. The instruction may be divided into two or more periods at the discretion of the owner. One training session shall be videotaped by the contractor. Videotapes shall be delivered to the owner.

D. Provide a typeset printed or typewritten instruction card mounted behind a Lexan plastic or glass cover in a stainless steel or aluminum frame. Install the frame in a conspicuous location observable from the FACP. The card shall show those steps to be taken by an operator when a signal is received as well as the functional operation of the system under all conditions: normal, alarm, supervisory and trouble. The instructions shall be approved by the owner.

E. Comprehensive system troubleshooting training shall be provided for a single individual designated by the owner. This session shall be separate and distinct from the above-described sessions.

F. All training sessions shall be conducted following final system certification and acceptance. Three additional training sessions shall be provided for all security personnel on all shifts six months after final system certification.

G. All training sessions shall be conducted by an authorized fire alarm system distributor representative, who has received specific training from the manufacturer for the training of other persons regarding the inspection, testing, and maintenance of the system provided.

END OF SECTION 16200

SECTION 16300 NURSE CALL SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: A complete, working, digital IP-based Nurse/Patient Communications Network furnished, installed, tested, and commissioned as a complete system, including all wiring and equipment, for all patient care areas of the Owner's facility (referenced herein as the OWNER), including but not limited to patient room stations, corridor dome lights, nursing station master (console) stations, staff duty stations, emergency/Code Blue stations, sub-stations, wireless bed interfaces, network controllers, and all associated software and licensing required for a fully operational system. Per the Bridging Document, the nurse call system is a complete system furnished and installed under the Design-Build Contractor's (D&B Contractor's) scope of work, distinct from the structured cabling/telecommunications systems, which are rough-in (pathways, conduit, cable tray, and room provisioning) only under Section 16742.

B. If an operational function is specified that requires hardware or software to complete that specific function, then that software or hardware is part of this Section. The cost of any omission of software or hardware necessary to complete all operational functions outlined in this Section shall be borne by the D&B Contractor providing this system.

C. Related Sections:

1. Section 16100 - Basic Electrical Materials and Methods
2. Section 16200 - Fire Alarm System (fire alarm auxiliary/supervised input to nurse call sub-stations; coordination of separate conduit and non-interference between systems; Disaster Control Center annunciation)
3. Section 16700 - Automatic Transfer Switches (Essential Electrical System Critical Branch source serving the nurse call system)
4. Section 16742 - Telephone and Data Raceway System (hospital LAN/VLAN uplink pathway, SIP telephony interface coordination; cabling and active network equipment outside this Section's D&B scope where furnished by the Owner's structured cabling contractor)

D. All Nurse Communications Network devices shall be ANSI/UL 1069 listed. This includes routers, hubs, switches, and room control devices. The nurse call network shall be a United States Food and Drug Administration (FDA) Registered Device and the system manufacturer shall be an FDA Registered Operator. Field wiring shall be CAT 5E or CAT 6 cable for station/data wiring, with control wiring for power distribution and very long runs, and an optional fiber backbone where distances exceed normal Ethernet limitations. All station equipment shall use plug-on

connectors, and all switches, routers, and controllers shall utilize standard RJ-45 modular connections. All remote devices utilizing standard structured cabling shall be capable of PoE (Power over Ethernet) or powered within the CAT 5E/CAT 6 cable jacket. Systems that require separate DC power to devices, remote power supplies, or heavy DC wiring to each individual room shall not be accepted. Wiring shall be capable of installation in conduit or cable trays where shown on the Drawings. Nurse Communications cabling may be run along with other low-voltage and data cables where permitted by code, but shall be separated from any high-voltage AC or DC wiring exceeding 90 volts or in violation of any national or Puerto Rico local electrical code.

E. The system shall be ANSI/UL 1069 listed as a Nurse Communications Network by UL LLC; systems listed by any other nationally recognized testing laboratory (NRTL) will not be accepted. The system shall be capable of interconnecting with the hospital's LAN using a minimal single Ethernet 100 Mbps (or optionally 1 Gb) connection to accomplish all information exchange, coordinated with Section 16742.

F. The OWNER will provide one VPN connection for the servicing contractor to diagnose maintenance issues and maintain the system offsite. Diagnostic software shall be web-based and permit e-mail notification of high-level alarms. All software applications shall be HIPAA (Health Insurance Portability and Accountability Act) compliant and shall allow for patient name aliases and alternative display methods.

G. The overall Nurse Communications Network shall utilize VoIP communications between the nurse consoles, wireless telephones, and controllers. Any nurse call console shall be able to answer any patient call placed in the network. The communication standard shall be SIP protocol when wireless telephones are integrated. The OWNER will not provide any analog ports to the nurse call network; the OWNER will supply or establish a telephony call network supporting the SIP protocol within the facility, coordinated with Section 16742. Systems requiring digital-to-analog converters will not be accepted.

H. Integration: Per the Bridging Document, the nurse call system shall integrate with the hospital telephone/paging system, shall have the capability to interface with the Building Management System (BMS) for alarm monitoring, and shall have the capability to interface with a Real-Time Location System (RTLS) if provided by the Owner.

I. The Network shall be designed and provided with capacity for future expansion to the remaining nursing units.

1.02 REFERENCES

ANSI/UL 1069, Standard for Safety for Hospital Signaling and Nurse Call Equipment (current edition); National Electrical Code (NEC/NFPA 70), including Article 517 (Health Care Facilities) applicable to wiring in patient care spaces; NFPA 99, Health Care Facilities Code, and NFPA 99 requirements for hospital occupancies; FGI Guidelines for Design and

Construction of Hospitals; Joint Commission requirements for nurse call systems; U.S. Department of Labor / OSHA; National Electrical Manufacturers Association (NEMA) installation standards. A fully digital, IP-based nurse call system shall be provided throughout all patient care areas per FGI Guidelines and NFPA 99 requirements for hospital occupancies, per Bridging Document Section 9.2.

1.03 QUALITY ASSURANCE

A. Installer shall be an Authorized Distributor for the product supplied; an Authorized Distributor letter from the manufacturer shall be provided upon request of the specifying authority.

B. Installer shall hold applicable Commonwealth of Puerto Rico or regional licenses; copies available upon request.

C. Installing technicians shall hold a certificate of successful completion of the manufacturer's installation/training school for the equipment proposed; letter from manufacturer stating technician qualifications available on request.

D. Installing technicians shall hold certificate(s) of completion of applicable network certifications (e.g., Cisco or Microsoft); copies available on request.

1.04 SYSTEM DESCRIPTION

A. System hardware shall consist of a nurse call network comprised of VoIP nurse consoles, nurse call network controllers, patient stations, power supplies with battery backup, dome lights, marquee controllers, annunciator panels, entertainment cords, call cords, pull-cord stations, emergency push-button (or pull-button) stations, wiring, and options such as bed side-rail interfaces, wireless bed interfaces, computer interfaces, and wireless/telephone network interfaces as shown on the Drawings. All equipment necessary to meet the intent of this Section, whether or not enumerated, shall be supplied and installed to provide a complete and operating nurse/patient communications network.

B. System hardware and firmware shall be the product of a single, reputable manufacturer with a proven history of product reliability and sole control over all source code. Manufacturer shall provide, free of charge, firmware/software upgrades for one year from installation for product feature enhancements, and a 5-year warranty on all manufactured hardware. System configuration programming changes shall not require exchange of parts and shall be executable remotely via VPN connection; suppliers whose equipment cannot support remote configuration/diagnostics via VPN, or requires part/chip exchange for configuration changes, are not acceptable.

C. All programming and firmware changes shall be accomplished on a working system without interruption to normal operation. All system switches and controllers holding firmware and system parameters shall have DUAL storage (A and B memory blocks) so the system remains fully functional on original firmware during updates,

switchable to new control software by a single system command, with automatic revert to previous firmware on update error or failure.

D. All wall-mounted stations shall be flush-mounted using snap-tight cover plates with slotted, adjustable sub-plates for squaring the vertical and horizontal fit; all screws shall be hidden.

E. All flush-mount station buttons shall use a bio-seal cover to facilitate use of disinfectant cleaners, consistent with infection-control requirements for patient care areas.

F. The entire network, including all sub-stations, shall be supervised. Station failure shall be reported to any designated console, PC, e-mail, or wireless device, with remote diagnostics to quickly locate the source of the problem.

G. Up to six (6) different staff levels may be defined within the nurse call network to facilitate workflow within and outside normal nurse call activity (e.g., environmental services, facilities, transportation, lab, pharmacy).

H. The nurse call network shall support a VLAN configuration to separate its activity from other hospital LAN traffic and shall be capable of spanning multiple subnets on the hospital's LAN, coordinated with Section 16742.

I. All specified equipment shall be manufactured using surface-mount technology (SMT), with manufacturing testing utilizing Automated Test Equipment (ATE). Manufacturer's testing procedures, including test equipment model numbers, serial numbers, and date of last calibration, shall be available upon request.

J. The nurse call network shall support a GUI interface on the hospital LAN providing an active call display board showing selectable data such as call type, call location, and patient name, plus historical call detail reports and exception reports, with content displayable in a selectable language (including Spanish, in recognition of the Puerto Rico project location).

K. The nurse call network shall support up to 255 call processes to facilitate workflow and call escalations to various staff levels and/or groups.

L. The nurse call network shall support any telephone device via the SIP open architectural interface.

M. The nurse call network shall support any data backup system.

N. The nurse call network shall provide data reporting capability for call response times, call types, exception reporting, and patient-level reporting data.

O. The nurse call network shall interface to an Admission, Discharge, Transfer (ADT) application using a standard HL7 interface to provide automatic updates of patient room/bed assignment.

1.05 SUBMITTALS

A. D&B Contractor shall submit six (6) complete submittal sets bound in a three-ring binder, continuous spiral binder, or plastic binding allowing the booklet to lie flat while open. Each booklet shall consist of:

1. Name of supplying contractor and project name.
2. Listing, in order, of component quantities, equipment manufacturer, model number, and description of each component supplied; if not the specified manufacturer's model, the specification paragraph corresponding to the equivalent specified model shall be listed alongside the submitted model number.
3. Support letter (dated within one year of submittal) from manufacturer stating the supplying contractor is an Authorized Distributor of the product being supplied.
4. Statement of 5-year warranty hardware from manufacturer, or vendor statement extending manufacturer's original warranty to 5 years.
5. Copy of installing technician(s) certificate of completion from the manufacturer's training school for the equipment proposed.
6. Contractor statement of how and when In-Service Training will be completed, including exact hours per system, procedures, training aids provided, and training conduct method.
7. Contractor statement of exactly how installed equipment and wiring will be tested, including manufacturer recommendations, prior to commissioning.
8. List of recommended spare parts to maintain all specified systems after the warranty period, with purchase price, turnaround cost, cost of an annual maintenance contract, and hourly labor rates (regular and emergency service), including any additional charges such as travel.
9. One catalog sheet per item of equipment listed above, in the same order, describing mechanical, electrical, and functional specifications, including a product photograph; clear photocopies of manufacturer's original catalog sheets are acceptable.
10. All inter-equipment wiring diagrams and drawings necessary to install the equipment, showing wiring types by wire gauge, conductor count, and manufacturer, updated prior to completion of work to reflect as-installed changes.

1.06 DEMONSTRATIONS

A. Demonstration equipment may be required to test functional operation of the Contractor's submitted equipment; Contractor shall be notified of demonstration dates and times. The OWNER and specifying authority shall have sole judgment as to whether a contractor/manufacturer meets or exceeds the specification.

B. All demonstrated equipment shall be of standard, current manufacture from a single manufacturer, meeting the same testing and conditions applicable to the manufactured equipment; custom or modified equipment shall not be demonstrated.

C. Where integrations are specified as part of this Project, those integrations shall be demonstrated fully functional (e.g., integration to a selected wireless vendor with voice capability and call display).

D. The OWNER and/or specifying authority may visit the manufacturer's facility to view functioning equipment or demonstrations and witness manufacturing/testing techniques.

1.07 SAMPLES

The OWNER/specifying authority reserves the right to request one each of terminal (station) equipment samples for the purpose of coordinating colors, aesthetics, and trim-plate sizing, supplied at no cost to the OWNER.

1.08 WARRANTY

A. The supplying contractor shall provide a system warranty including all necessary labor and equipment to maintain the system(s) in full operation for one year from the date of acceptance.

B. Manufacturer shall provide, free of charge, product firmware/software upgrades throughout the 1-year warranty period for product feature fixes.

C. The equipment (parts) warranty for all core system components, including control/switching equipment, power supplies, patient stations, sub-stations, and nurse consoles, shall extend to at least five (5) years. Warranty for ancillary devices such as pillow speakers and call cords shall extend to at least two (2) years.

D. After acceptance of the system(s), service shall be provided as follows:

1. Emergency Service: Provided 24 hours a day. When a total or catastrophic failure of equipment (e.g., a hub failure or nurse console failure) is reported to the contractor, a service person shall be on site within 2 hours of notification.

2. Routine Service: Provided within 4 business hours (9:00 a.m. to 5:00 p.m., Monday through Friday, excluding holidays) of notification. When a minor failure of equipment is reported (e.g., peripheral equipment such as control stations, entertainment speakers, corridor lights, pull-cord stations, normally affecting only one patient or patient room), a service person shall be on site within 24 hours of notification.

1.09 MAINTENANCE

A. Provide necessary spare parts, per Article 1.05.A.8 above, after commissioning of the system(s) and prior to final payment.

B. Provide tuition cost for one person designated by the OWNER to attend a service school held by the equipment manufacturer; transportation to the school shall be borne by the OWNER, with lodging, breakfast, and lunch borne by the manufacturer or supplying contractor.

C. The OWNER may elect to have the supplying contractor maintain the system(s) under a maintenance contract at the same service levels as the warranty period, with all labor and equipment costs covered; supplying contractor shall state exact billing amounts, billing periods, all associated costs, and any items excluded from the service/maintenance agreement. Firmware/software upgrades shall be available with a software maintenance agreement.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

Approved manufacturer is Rauland-Borg Corporation, or other Owner-approved equal.

2.02 NURSE CALL NETWORK WIRING

All Nurse Call Network wiring shall be CAT 5E or CAT 6 only. Plenum-rated wire shall be used in open areas; standard CAT 5E or CAT 6 within conduit. System shall be capable of injecting DC power into a CAT 5E or CAT 6 run, for additional rooms or long runs, via a separate DC cable pair to a remote location.

2.03 NURSE CALL CONTROLLER(S)

A. Furnish, as needed in each nursing unit, a nurse call network controller providing:

1. Communications between consoles and rooms, sub-stations, and pillow speakers within each station loop.
2. CAT 5E or CAT 6 wiring standard utilizing PoE between console and nurse call controllers, and local wiring to power room station equipment and dome lights.
3. Capacity for up to 92 corridor lights and/or bus devices operated with a single controller.

B. Controller shall be life-safety grade, requiring no regular rebooting for continued basic system functions, and capable of stand-alone operation should loss of network communication occur; personal computers may not be used for this purpose and shall only be permitted outside the UL-listed nurse call network on the customer-supported LAN.

C. Nurse call controller(s) shall connect to the hospital's LAN via Ethernet switches; nurse call servers connected to the hospital's LAN shall run specialized software for hospital data resources and telephone communications resources.

2.04 VOIP NURSE CONSOLES

A. Furnish, as shown on the Drawings, an ANSI/UL 1069-listed VoIP nurse console capable of:

1. Color display.
2. 12- or 24-hour time display and synchronization to the optional reporting server, including daylight saving time changes.
3. Display of up to 3 incoming calls, each with an individual elapsed timer, with the ability to scroll to see additional incoming calls.
4. Power-over-Ethernet connection to an ANSI/UL 1069-listed Ethernet controller; no local power supplies required.
5. Choice of hands-free communication through built-in speaker/microphone or private handset conversation.
6. Up to 32 user-configurable soft keys, with 4 buttons, 8 screens deep.
7. Optional tone/mute of calls in progress.
8. Ability to block all nurse call loudspeaker paging (password-protected) to facilitate a low-noise patient environment.
9. Ability to swing an individual room or group of rooms by touching one labeled touch point, from any console located anywhere on the network; GUI interface for authorized end users to modify wireless phone or console coverage.
10. Programmable to receive any call not answered by another console, or any call from a failed/unplugged console (call orphaning).
11. Built-in keypad for dialing.
12. Self-contained unit occupying not more than 88 square inches of desk space, desk- or wall-mountable.
13. Manual Staff Follow function forwarding call tones for a prescribed area to the room station speaker where staff are located, silenced by pressing the call button at that station and automatically restored on a new call.
14. Selectable display language, including Spanish, consistent with the Puerto Rico project location.

2.05 ANNUNCIATORS AND MARQUEES

A. Annunciator Panels:

1. Small self-contained units; each panel shall include 36 room indicator points, each with two LED indicators and space for point labeling.
2. LEDs shall provide visual annunciation of room status, including calls pending, service requirements pending, and staff presence; variable colors and flash rates shall differentiate annunciation types, with a minimum of six distinct tone types for different call types.

3. Up to eleven expanders may be added to a panel, each adding 36 additional room points.
4. Panel shall provide independent volume controls for day/night call-in tones and a mute button to temporarily suppress tones for pending calls.
5. Panel may be desk- or wall-mounted.
6. Panel shall employ a modular quick-disconnect connector permitting removal/replacement without removing system power.

B. Marquee Panels:

1. Remote annunciation of call-ins by alphanumeric display of room number, bed number, and call priority, with distinctive color options per priority.
2. Calls scroll in order of highest priority (or longest pending), with a configurable pause between scrolling calls.
3. Time-of-day display when the panel is idle.
4. Optional speaker for tone indication of call-ins.

2.06 PATIENT STATIONS

A. Provide single- or dual-patient stations as shown on the Drawings.

B. Patient station modules shall be capable of:

1. Muting entertainment audio when the intercom speaker is in use.
2. One DIN pillow speaker/call cord receptacle per bed.
3. Optional module for bed side-rail controls.
4. Lighting control interfacing directly to low-voltage controllers.
5. No dummy plugs required.
6. Cancel button cancelling any call on that station and any other station in the room programmed for universal room cancel.
7. Continuous supervision.
8. Hot-swap exchange of a station without removing system power or powering down the local controller.
9. Per-station-basis programming of each bed and entertainment/call cord receptacle to custom call priorities.
10. Custom printed text, colors, or logos on pushbuttons or faceplates.

2.07 STAFF STATION

Provide, as shown on the Drawings, a staff station providing two-way hands-free intercom to its assigned nurse console(s) via a call-in button, mounted in a standard single- or dual-gang electrical box.

2.08 DUTY STATION

Provide, as shown on the Drawings, a duty station providing remote annunciation of assigned patient stations and sub-stations via 5 LEDs and multiple call tones, mimicking corridor light activity for the assigned nursing area, plus two-way intercom to the assigned nurse console(s). Call tones at the duty station shall be identical to and synchronized with tones at the closest nurse console; the call-in tone shall be mutable without cancelling the call, with the next call-in un-muting the station (mute feature defeatable where required by local jurisdiction). The duty station shall be programmable for a day/night volume-change schedule to minimize patient noise. Unit shall mount in a standard single- or dual-gang electrical box.

2.09 SUB-STATIONS

A. Provide, as shown on the Drawings, sub-stations flush-mounted in a single-gang box. Sub-station cancel buttons shall follow the cancel policy defined in the system configuration; high-priority calls typically cancellable only by the initiating station, lower-priority calls cancellable by any associated station in the room.

B. Individual sub-stations shall include:

   1. Pull-cord station (non-audio), IP68 (IEC 60529) rated, with replaceable pull-cord and easily cleaned surface, configurable to be cancelable only within the room.

   2. Pull-cord station with built-in speaker module, providing all capabilities of the pull-cord station (except IP68 rating) plus patient communication, with a pushbutton for functions such as a "Return to Bed" call.

   3. Four-button workflow station with four backlit buttons, each configurable to any call priority or staff registration level.

   4. Code Call stations equipped with call button, reset button, and call-assurance LED, backlit for low-light identification, with digital clock/timer and count-up timer interface. Per Bridging Document Section 9.2, Code Blue/Code Call stations shall be provided in ORs, Trauma Stabilization, ICU, and patient rooms; activation of a code call shall activate audible annunciation throughout the applicable zone and shall report to the Disaster Control and Monitoring Center on Level 9, coordinated with Section 16200 (Fire Alarm System) and the Disaster Control Center communications equipment.

   5. Two-jack auxiliary alarm station allowing connection of external patient monitoring devices via two 1/4-inch jacks, for individual annunciation of patient

alarms to nurse call consoles and wireless devices; each jack programmable for one of 255 call processes, latching or non-latching.

6. Dry-contact closure input, where noted, from an external device to activate a call into the nurse communications network.
7. Output relay station, where noted, allowing up to 4 external devices per station to be controlled from the nurse call network.
8. Isolated, supervised input for a fire alarm or other auxiliary device, coordinated with Section 16200.
9. Tamper-resistant, high-security stations for behavioral health areas or locations subject to physical damage, with 11-gauge stainless steel faceplate and tamper-resistant button(s), speaker, and call-assurance light.

2.10 CORRIDOR LIGHTS AND DOMELESS CONTROLLERS

A. Provide, as shown on the Drawings, the proper type of corridor light or domeless controller. Corridor lights shall contain up to five sections, each lighted by a long-life, single-color LED, with a diffusion lens allowing 180-degree horizontal visibility of call lights. Corridor lights shall be capable of:

1. Multiple colors and programmable flash rates/patterns to indicate pending calls, service requirements, and staff registration.
2. Serving as the hub for all room wiring, with all field wire connections accomplished using modular connectors.
3. A heart-beat LED, visible to service personnel, indicating proper unit function.

B. Corridor light and domeless controller intelligence shall support up to 6 or 16 room devices respectively, allowing any room station to be associated with any other room in the system (e.g., associated call stations and cancelling options, door monitoring).

C. Staff registration shall be indicated by a custom color per staff level (e.g., green = nurse, amber = LPN, blue = doctor).

D. Domeless controllers shall have all functions of the corridor light, less LEDs.

E. In the unexpected event of communications loss with the nurse call controller, corridor lights and domeless controllers shall enter a local room failsafe mode showing all calls in the hallway via LED indicators.

2.11 PATIENT ENTERTAINMENT SPEAKERS/CALL CORDS

A. Patient Entertainment Speakers/Call Cords shall be provided as indicated on the Drawings, ANSI/UL 1069 and CE listed as an integral part of the core system listing (devices carrying only component listings are not acceptable).

1. Standard Call Cords: pendant type with a single easy-to-activate call button, DIN-style male plug, and sheet clip; cable minimum 9 ft (2.75 m).

2. Specialty Call Cords: provide one of each type for every ten beds - (a) Oxygen/Geriatric Pressure Ball Cord, pneumatically controlled switch for oxygen-enriched environments, 6 ft (1.8 m) cord, DIN male plug, sheet clip; (b) Geriatric Pressure Pad, 6 ft (1.8 m) cord, DIN male plug, sheet clip.
3. Patient Entertainment Speakers for patient call-in and entertainment system control/audio, with: raised, textured membrane control buttons (Nurse Call button Braille-embossed), Television/Radio controls (minimum TV On/Off, Channel Up/Down, Volume Up/Down) analog or digital as required by facility televisions, 10 ft (3 m) modular replaceable cord with sheet clip, liquid-resistant speaker, integral Call Assurance LED, and optional numeric keypad/controls for up to 2 external light control modules.

2.12 WIRELESS DEVICE INTERFACES

A. The Telephone Interface shall receive, via an Ethernet connection, VoIP connectivity using the standard SIP protocol, per the facility's actual telephony configuration:
   1. VoIP/SIP wireless phone system with an IP/SIP PBX: software module shall directly support an interface through the OWNER-provided Telephony/SIP Call Server communicating to the nurse call network; systems using only analog station/trunk ports to communicate with SIP wireless phones are not acceptable.
   2. VoIP/SIP wireless phone system with a non-SIP PBX: software module shall interface through the OWNER-provided Telephony/SIP Call Server; OWNER will also provide a Telephony/SIP Gateway; analog-only interfacing is not acceptable.
   3. Wireless phone system not SIP-compatible, with a VoIP/SIP PBX: supplying contractor shall provide middleware interfacing the non-SIP wireless phone display to the nurse call system; OWNER provides wireless phone system OAI and a Telephony/SIP Gateway.
   4. Wireless phone system not SIP-compatible, with a non-SIP PBX: supplying contractor shall provide middleware as above; OWNER provides wireless phone system OAI and a Telephony/SIP Gateway.

2.13 DATABASE MANAGEMENT

Provide standard ODBC-compliant databases, capable of backup using the facility's standard backup processes and disaster recovery methods, coordinated with the Disaster Control and Monitoring Center per Bridging Document Section 9.5.

2.14 SOFTWARE APPLICATION

A. The Software Application shall be provided with the system for nurse call activity display, recording, and reporting; patient management; user management; and configuration of the Software Application.

B. The Software Application shall be installed on an external server connected to the Nurse/Patient Communication System.

C. The Software Application shall support networked operation on the hospital LAN, allowing users with LAN access to generate reports from local workstations.

D. The Software Application shall provide selectable display language, including Spanish.

E. Activity Board Display: Provide an activity board display on up to (10) networked OWNER-provided PCs or smart TVs meeting the manufacturer's minimum specifications (touch screen or standard keyboard/mouse), displaying all active nurse calls and statuses, including staff registrations, with up to (11) optional configurable columns: location name, room name, bed number/name, call type, service, patient first/last name, patient sex, patient age, doctor name, and notes.

F. Reporting: The Reporting Module shall allow users (subject to username/password access control) to generate and print reports on system activity, including call priority, room number and patient information, call placed time, service reminder set, and staff registration, with reports including Detailed Call Data by Unit, Summary Call Data by Unit, Summary of Call Data by Room/Bed, Summary of Call Data by Patient, and an Exception Report for response times exceeding user-defined limits. The module shall support user-configured Template Reports and Recurring Reports (automatically executed and delivered via e-mail), configurable by report name, recipients, CC, frequency, day(s) sent, report selection, start date, end date/no end date.

G. Patient Management: The nurse call system shall provide connection to an ADT application via a standard HL7 interface, providing patient name, date of birth, sex, doctor, and room-bed assignment; manual edits shall not be permitted while the ADT interface is enabled. The Patient Management Module shall allow viewing of patient details (last/first name, middle initial, date of birth, sex, doctor, location, room-bed, notes) and, where the ADT interface is not enabled, allow authorized users to manually add and edit that same patient information.

H. Check-In Function: The nurse call system shall provide a method to configure a once-per-day event (alarm) requiring the press of a designated station button within a configurable time window to cancel the event, reporting and displaying all rooms where the button was not pressed within the window, usable for patient/resident check-in, medication reminders, or similar recurring events.

I. User Management: The User Management Module shall allow authorized users to view a complete list of system users (username, last/first name, middle initial, unit(s), last login, can-edit-patients flag, active flag) and to add and edit users, including username, name, password, user type, patient-edit rights, and unit access.

J. Activity Board Management: The Activity Board Management Module shall allow authorized users to view a complete list of activity boards and add up to (10) activity

boards, each configurable with the same display columns as the Activity Board Display (Article 2.14.E).

2.15 WIRELESS BED INTERFACE

A. Provide, one per bed, a Wireless Wall Unit providing:

1. A wireless (RF) link between the nurse call system and a Feature Bed, receiving any patient call or bed-exit call from the associated bed.
2. Plug-in connection to a standard 37-pin wall receptacle.
3. LINK LED and audible tone confirmation when successfully linked to the Bed Unit.
4. A "bed out" call placed in the system if the bed is moved out of range.
5. A Cancel button to silence tone notifications such as "Bed Out" or "Low Battery."
6. Power from the nurse call system or via an A/C adapter.

B. Provide, one per bed, a Wireless Bed Unit for use with the Wireless Wall Unit above, providing:

1. A wireless (RF) link between the nurse call system and a Feature Bed in conjunction with the Wireless Wall Unit.
2. Connection to a 37-pin socket receptacle on a Feature Bed (e.g., Hill-Rom or Stryker Feature Beds with side rails).
3. Low-Battery LED indicator and tone; unit powered by 3 AA batteries.

C. A LINK button on each unit shall provide LINK LED and audible tone confirmation of successful linking; an Unlink button shall allow de-association of the Wall and Bed unit for bed removal (placing a "Bed Out" call), with a LINK Reminder tone if an unlinked Bed Unit senses an unlinked Wall Unit after 2 minutes.

2.16 NETWORK CONCENTRATOR (OPTIONAL)

A. Provide a module capable of allowing the nurse call network to span multiple VLANs/subnets on the hospital's LAN.

B. This module shall allow nurse call network controllers on different VLANs/subnets to communicate with each other across the hospital's LAN.

C. The nurse call network shall support VLANs to separate its activity from other hospital LAN traffic, coordinated with Section 16742.

PART 3 - EXECUTION

3.01 SUPERVISION

A. Only factory-certified installers shall install, service, and maintain the specified network system.

B. The equipment manufacturer's engineer, or a designated agent, shall inspect the installation and operation of the network to confirm compliance with all standards listed in Article 1.02.

3.02 NEEDS ASSESSMENT

Contractor shall provide a Nurse Call Orientation meeting educating key clinical staff on the specific hardware (and integrations) purchased, including typical associated workflow processes, concluding with instruction on the process and data collection methods for subsequent one (1) hour Unit Break-out Meetings with key unit staff. Unit Break-out meetings shall include review of floor plan drawings, unit-specific details, coverage and priorities of calls, staffing patterns, and other details affecting training. In-service scheduling materials will be provided, and a staff member list, if needed, will be completed for inclusion in the software. Information gathered shall be provided to the Contractor to program the network software and for use in In-Service Training.

3.03 IN-SERVICE TRAINING

Contractor shall provide thorough training of all nursing staff assigned to nursing units receiving new networked nurse/patient communications equipment, developed for two audiences: floor nurses/staff (operational perspective) and unit secretaries or other staff whose responsibilities include answering patient calls and dispatching staff (dispatch perspective). A separate training room shall be set up for individualized training utilizing an in-service training unit, prior to cutover of the new system.

3.04 WIRING

A. Contractor shall terminate all wiring with manufacturer-approved connectors; use of wire nuts is prohibited.

B. All wiring shall be free from shorts and faults, UL listed, and installed per the National Electrical Code (NFPA 70), including Article 517 (Health Care Facilities) for wiring in patient care spaces.

C. Nurse/patient communications network wiring shall not be run in the same conduit with other systems (e.g., Class 1 AC power distribution, fire alarm, entertainment systems, lighting controls).

3.05 ELECTRICAL POWER CONNECTIONS

A. The D&B Contractor shall provide a dedicated 120/240 VAC, 60 Hz conduit feed into each nurse call equipment cabinet, with no other devices connected directly to it. A 20 A circuit breaker in the electrical sub-panel, labeled "NURSE CALL," shall control this circuit. Per Bridging Document Section 9.2, this electrical circuit shall be

connected to and powered from the Essential Electrical System Critical Branch (Section 16700, Automatic Transfer Switches) for automatic power transfer during loss of normal utility power, consistent with NFPA 99 requirements for hospital occupancies; a local UPS shall be provided as backup for the head-end controller.

1. Large portions of the facility may require multiple equipment cabinets separated between floors and buildings, consistent with the multi-level nursing unit layout of this Project.
2. Care shall be taken to connect power supply common-mode lines where DC current can flow.
3. Large separation between controllers and power supplies should be connected by fiber optic cable to reduce common-mode power supply issues.

B. Connect all network system power supplies and equipment cabinets to a common earth ground utilizing a 14 AWG or larger solid conductor, at minimum the same conductor size as the AC feed wires.

3.06 ENVIRONMENTAL PROTECTION

Ensure all network control equipment is accessible for service. Contractor shall notify the specifying authority if the designated equipment closet does not meet manufacturer's requirements for heat, radiation, or static electricity.

3.07 PROTECTION OF NETWORK DEVICES

Contractor shall protect network devices during unpacking and installation by wearing manufacturer-approved ESD wrist straps tied to chassis ground, meeting OSHA requirements for prevention of electrical shock in the event a technician contacts high voltage.

3.08 CLEANING AND PATCHING

A. Contractor shall keep the work area clear of debris and clean the area daily upon completion of work.

B. Contractor shall patch and paint any wall or surface disturbed by execution of this work.

3.09 DRAWINGS

Provide as-built drawings of all installed network components and associated wiring on the building plans. Final payment for this Section's work will not be authorized unless these drawings are supplied.

END OF SECTION 16300

SECTION 16440 DISCONNECT SWITCHES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Heavy-duty, enclosed, fusible and non-fusible safety switches, and individual equipment disconnecting means, for motors, motor-driven equipment, variable frequency drives (VFDs), and other utilization equipment throughout the Project, including the air handling units (AHUs), cooling tower fans, pumps, and fire pumps served from 480 V panelboards per the Bridging Document.

B. Related Sections:

1. Section 16100 - Basic Electrical Materials and Methods.
2. Section 16155 - Motor Power and Control Wiring (power and control wiring and connections to and beyond the disconnect switches specified in this Section).
3. Section 16470 - Panelboards (source panelboards feeding the branch circuits protected and disconnected by this Section's switches).

1.02 REFERENCES

NEC Article 404 (Switches); Article 430 (Motors, Motor Circuits, and Controllers); Article 440 (Air-Conditioning and Refrigerating Equipment); Article 695 (Fire Pumps); Section 110.25 (identification of disconnecting means, including padlocking provisions); UL 98 (Enclosed and Dead-Front Switches); NEMA KS 1 (Enclosed Switches); NFPA 20 (Stationary Pumps for Fire Protection); NFPA 70E (arc flash).

1.03 SUBMITTALS

A. Submit manufacturer's literature and technical data for each disconnect switch type and rating before starting work.

B. Submit an equipment schedule cross-referencing each disconnect switch to the motor, VFD, or other equipment served, its horsepower/ampere rating, and fuse size (where fusible), coordinated with the Mechanical Contractor's VFD submittals and with Section 16155.

1.04 QUALITY ASSURANCE

Materials shall bear Underwriters Laboratories (UL) labels. Disconnect switches shall be UL listed, horsepower and I2t rated for the load served, and lockable/padlockable in the OFF position per NEC 110.25.

1.05 DESIGN REQUIREMENTS

A. Provide each motor with an in-sight disconnecting means, or a disconnecting means capable of being individually locked in the open position, when required by NEC Article 430/440 and where shown on the Drawings.

B. Mechanical equipment disconnects: AHUs, cooling tower fans, pumps, and fire pumps served from 480 V panelboards shall each be provided with an individual disconnect means at the equipment per the Bridging Document. VFDs (chilled water pumps, condenser water pumps, cooling tower fans, AHU fans, DOAS units, booster pumps) are furnished by the Mechanical Contractor; this Section's Contractor shall furnish and install the disconnect switch ahead of each VFD, coordinated with Section 16155.

C. Fire Pump Disconnect: Where a disconnect means is required ahead of the fire pump controller by the controller's listing, provide it per NFPA 20 and NEC Article 695, coordinated with the fire protection (mechanical) Contractor and with the power wiring of Section 16155.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Disconnect Switches:

1. General Electric (GE).
2. Eaton.
3. Hubbell.
4. Schneider Electric.

2.02 EQUIPMENT

A. Disconnect switches shall comply with NEMA KS 1 for Type HD and shall be of heavy-duty type, enclosed, of quick-make, quick-break construction. Rating shall be as indicated on the Drawings. Switches shall be horsepower and I2t rated, UL labeled.

B. Disconnect Switch Enclosure:

1. NEMA 1 or NEMA 12, as shown on the Drawings, for indoor use.
2. NEMA 3R, of stainless steel or fiberglass construction, for outdoor, exterior, and coastal-exposed use, for corrosion resistance in Puerto Rico's coastal/marine environment, per Section 16100, Section 1.4.E.

C. Disconnect switch operating handle shall be of the insulated, box-mounted type, directly driving the switch mechanism, suitable for padlocking in the OFF position.

D. Defeatable, front-accessible, coin-proof interlocks shall be provided to prevent opening of the cover when the switch is in the ON position, and to prevent turning the

switch ON when the door is open. A securely fastened metallic nameplate shall include a highly visible ON-OFF indication.

E. Motor Disconnect Means: Provide each motor with an in-sight disconnect means, when required by NEC, and where shown on the Drawings.

F. Provide fuses for disconnect switches so indicated. Fuses shall be dual-element, time-delay type, as specified on the Drawings.

PART 3 - EXECUTION

3.01 EXAMINATION

Do not proceed with the work of this Section until conditions detrimental to the proper and timely completion of the work have been corrected in an acceptable manner.

3.02 INSTALLATION

A. Install disconnect switches vertically, with the top not more than 6 feet above the floor, and rigidly and securely attached to the building, anchored to resist seismic and wind loads per the Puerto Rico Building Code. Disconnect switches shall not depend upon conduit for support.

B. Optional Mounting:

1. Unistrut: Mount disconnect switches on Unistrut P-3000 mounting channels at top and bottom, secured similarly to the wall.

C. Label switch covers in 1-inch high stenciled letters showing the equipment served, per Section 16100, Section 2.6, including arc-flash incident energy labeling per NFPA 70E.

3.03 FIELD QUALITY CONTROL

Verify correct operation, fuse sizing (where fusible), and lockout/padlocking capability of each disconnect switch prior to Substantial Completion.

END OF SECTION 16440

SECTION 16470 PANELBOARDS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: 480Y/277 V distribution (main) panelboards and 208Y/120 V branch circuit panelboards, including the main distribution panelboards located in the Basement Main Electrical Room and the distribution and branch panelboards located in each floor electrical room throughout the facility; associated 480-120/208 V dry-type step-down transformers; surge protective devices (SPDs) at panelboard and transformer secondary locations; and the Operating Room Isolated Power Panels (IPPs) and Line Isolation Monitors (LIMs) serving the Trauma Operating Rooms. Panelboards are fed downstream of the four load-category Automatic Transfer Switches (Life Safety, Critical, Equipment System, and Optional Standby) and, for the Optional Standby (non-essential) and Critical Branch isolated power circuits, downstream of dedicated isolation transformers.

B. Related Sections:

1. Section 16100 - Basic Electrical Materials and Methods
2. Section 16120 - Wire and Cable
3. Section 16140 - Wiring Devices (isolated ground, hospital-grade, GFCI, and IPP receptacles fed from panelboards specified in this Section)
4. Section 16440 - Disconnect Switches
5. Section 16600 - Double-Ended Substation (upstream distribution source)
6. Section 16700 - Automatic Transfer Switches (normal/emergency source ahead of distribution panelboards)

1.02 REFERENCES

NEMA PB-1 (Panelboards); UL 67 (Panelboards); UL 489 (Molded Case Circuit Breakers); UL 1449 (Surge Protective Devices); NEC (NFPA 70), latest edition adopted in Puerto Rico, including Article 240 (Overcurrent Protection), Article 408 (Switchboards, Switchgear, and Panelboards), Article 250 (Grounding and Bonding), Article 517 (Health Care Facilities, including 517.16 Isolated Ground and 517.160 Isolated Power Systems), and Articles 700/701/702 (Emergency, Legally Required Standby, and Optional Standby Systems); NFPA 99 (Health Care Facilities Code), latest edition, Essential Electrical System and Category 1 patient care space requirements; NFPA 70E (arc flash); IEEE 1584 (arc flash incident energy calculations); Puerto Rico Building Code (PRBC), incorporating the 2018 IBC with Puerto Rico amendments, for seismic and wind-load anchorage of equipment.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Materials shall bear Underwriter Laboratories (UL) labels.

B. Panelboards used as service entrance equipment shall be UL labeled.

C. Panelboards shall be arranged so that each electrical room is provided with panelboards fed from each of the applicable load categories - Life Safety, Critical, Equipment System, and Optional Standby (Non-Essential) - as established by the Bridging Document; Essential and Optional (non-essential) panelboards shall be separate, physically and electrically, and shall not share a common bus, cabinet, or enclosure.

1.04 SUBMITTALS

A. Submit manufacturer's literature and technical data before starting work, including shop drawings for each panelboard showing bus rating, breaker schedule, AIC rating, and enclosure type.

B. Panelboard schedules coordinated with the building load calculation and the short-circuit and protective device coordination study; submit at Design Development phase, consistent with the fault current study required for the upstream double-ended substation (Section 16600).

C. Product data for isolation transformers, Line Isolation Monitors (LIMs), and surge protective devices (SPDs).

D. Arc flash hazard analysis and label content for all panelboards, coordinated with the facility-wide arc flash study.

1.05 QUALITY ASSURANCE

A. Panels tested and listed according to UL 67 and bearing an integrated short circuit rating shall be determined by the short circuit (fault current) study performed for the electrical system, with 10,000 A minimum AIC where no higher fault current governs.

B. Because the facility is served by a double-ended substation with two 3,750 kVA transformers and a 5,000 A copper switchgear bus rated for a high available short-circuit current, panelboards located electrically close to the substation and floor distribution boards are likely to require AIC ratings well above the 10,000 A minimum; each panelboard's AIC rating shall be verified against, and shall not be less than, the available fault current at its location as determined by the fault current study, not merely the 10,000 A default.

C. Panelboards shall be fully rated for the available fault current at each location; series-rated combinations are not permitted unless specifically reviewed and accepted in writing by the Owner and Engineer of Record.

D. Where new circuit breakers are specified to be installed within existing panelboards, they shall be compatible in terms of manufacturer, type, and AIC rating.

1.06 DESIGN REQUIREMENTS

A. Four Load Categories: Main distribution panelboards and floor distribution panelboards shall be fed from the Life Safety, Critical, Equipment System, and Optional Standby (Non-Essential) branches established by the automatic transfer switches (Section 16700); each electrical room shall include both an Essential power panelboard (or panelboards) and an Optional (non-essential) power panelboard, physically and electrically separated per NEC 700.10 and NFPA 99. The Life Safety Branch and the Critical Branch shall not be combined on a single panelboard or bus.

B. Minimum 10% spare capacity (spare breaker positions and bus/frame capacity) shall be provided in all panelboards, per the Bridging Document's general spare capacity requirement and Section 16100, Section 1.4.A.

C. Seismic and Environmental: Panelboards and their supports shall be anchored/braced for the project's seismic design category per the Puerto Rico Building Code. Panelboards exposed to the weather, or installed in exterior, damp, or coastal-exposed locations, shall have a NEMA 3R stainless steel raintight enclosure, or NEMA 4X in corrosive environments, suitable for Puerto Rico's coastal/tropical climate and 180 mph design wind speed where applicable, per Section 16100, Section 1.4.E.

D. Patient Care Grounding: Panelboards serving patient care areas shall include an equipment grounding bus and, where required by NEC 517.16 and the Bridging Document (nursing stations, imaging equipment, and other sensitive electronic equipment locations), an isolated ground bus, insulated from the enclosure, for isolated ground branch circuits specified in Section 16140.

E. Operating Room Isolated Power: Each of the five (5) Trauma Operating Rooms shall be served by two (2) dedicated Isolated Power Panels (IPPs) per NFPA 99 and NEC 517.160 - one fed from the Optional Standby (Non-Essential) branch and one fed from the Critical Branch - each with its own isolation transformer and Line Isolation Monitor (LIM), physically and electrically kept separate from each other and from all other Essential Electrical System wiring per NEC 700.10 and NFPA 99.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Panelboards:

1. General Electric.
2. Schneider.
3. Eaton.
4. Bender (Isolation Panelboards)

2.02 DISTRIBUTION PANELBOARDS

480Y/277 V main distribution panelboards, located in the Basement Main Electrical Room and floors electrical rooms, fed from the double-ended substation distribution breaker sections (Section 16600) through the applicable load-category automatic transfer switch (Section 16700). Copper bus; main circuit breaker, main lugs only, or sub-feed lugs as required; molded case circuit breakers, 400 amperes and over, tested and UL labeled per UL 489; bus and breaker AIC rated per Section 1.5 of this Section.

2.03 BRANCH CIRCUIT PANELBOARDS

208Y/120 V panelboards, fed from the associated 480-120/208 V dry-type step-down transformer, provided in Essential and Optional (non-essential) pairs in each electrical room per Section 1.6.A of this Section. Circuits serving patient care areas coordinated with the hospital-grade, isolated ground, GFCI, and tamper-resistant devices specified in Section 16140.

2.04 PANELBOARD INTERIORS

A. Interiors shall be factory assembled and designed to allow switching and protective devices to be replaced without disturbing adjacent units, without removing the main bus connectors, and allowing circuits to change without machining, drilling, or tapping.

B. Branch circuits shall be arranged using double row construction unless narrow column panels are indicated. A nameplate shall be provided listing panel type and ratings. Circuit breakers shall be bolt-on type.

C. Unless otherwise noted, full size insulated neutral bars shall be included. Bus bar taps for panels with single pole branches shall be arranged for sequence phasing of the branch circuit devices. Neutral bussing shall have a suitable lug for each outgoing feeder requiring a neutral connection. A ground bus shall be provided in all panels, and an isolated ground bus shall be provided where required by Section 1.6.D of this Section.

2.05 BOXES AND TRIM

A. Boxes shall be at least 20 inches wide made from code gage galvanized sheet steel.

    a. Provide minimum gutter space according to NEC.

    b. Where feeder cables supplying the mains of a panel are carried through its box to supply other electrical equipment, the box shall be sized to include the additional required wiring space.

    c. At least 4 interior mounting studs with adjustable nuts shall be provided.

B. Switching device handles shall be accessible.

    a. Doors and panelboard trims shall not uncover any live parts.

b. Doors shall have flush chrome plated handle with cylinder lock and catch, except doors over 48 inches in height shall have auxiliary fasteners top and bottom of door in addition to the flush type cylinder lock and catch.

c. Panelboard switching devices with individual dead front doors shall be acceptable instead of standard door in trim design.

d. Panelboard trim clamps shall be of the indicating type.

C. Door hinges shall be concealed. Locks shall be keyed alike. Furnish directory frame and card having a transparent cover with each door.

D. Exterior and interior steel surfaces of the trim shall be properly cleaned, primed with rust inhibiting phosphatic coating, and finished with manufacturer's standard gray paint.

a. Trims for flush panels shall overlap the box for at least 3/4" all around.

b. Surface trims shall have the same width and height as the box.

c. Trims shall be mountable by a screwdriver without the need for special tools.

d. After installation, trim clamps shall not be accessible when the panel door is closed and locked.

E. Panelboards exposed to the weather shall have NEMA type 3R raintight enclosure or NEMA 4X in corrosive environments, per Section 1.6.C of this Section.

2.06 ELECTRICAL COMPONENTS

A. Main bus bars shall be copper sized according to UL standards to limit the temperature rise on any current carrying part to a maximum of 50 degrees C above an ambient of 40 degrees C maximum. Provide main circuit breakers, main lugs, or sub-feed lugs as required.

B. Each panelboard shall incorporate breakers with an AIC rating equal to or higher, at the application voltage, than the available fault current at its location along the electrical distribution system, as established by the fault current study required by Section 1.5 of this Section.

C. Panels tested and listed according to UL 67 and bearing an integrated short circuit rating shall be determined by the short circuit study on the electrical system, with 10,000 A minimum AIC, except that panelboards located where the fault current study indicates a higher available fault current shall be rated no lower than that calculated value.

D. Any 2 single pole circuit breakers shall be replaceable by 1 two-pole circuit breaker and any 3 single-pole breakers shall be replaceable by 1 three-pole circuit breaker.

E. Where new circuit breakers are specified to be installed within existing panelboards, they shall be compatible in terms of manufacturer, type, and AIC.

F. Distribution panelboards, 400 amperes and over, shall be provided with molded case circuit breakers tested and UL labeled according to UL 489.

G. Breakers 100 ampere through 400 ampere frame sizes shall be thermal-magnetic trip with inverse time current characteristics, unless otherwise noted, except that electronic trip units shall be provided where required for zone-selective interlocking or ground fault protection coordination.

H. Provide ground fault circuit interrupter circuit breakers where indicated.

I. Ground Fault Protection: Feeder circuit breakers serving patient care areas shall include ground fault protection per NEC 517.17, coordinated in a selective, time-graded scheme with the upstream main breaker ground fault protection specified in Section 16600, to prevent loss of an entire bus on a downstream ground fault.

2.07 DRY-TYPE STEP-DOWN TRANSFORMERS

480-120/208 V, dry-type, copper-wound, K-rated step-down transformers, sized for the connected 120/208 V panelboard load plus the minimum 10% spare capacity required by Section 1.6.B of this Section, serving each 208Y/120 V branch circuit panelboard throughout the facility.

2.08 SURGE PROTECTIVE DEVICES (SPDS)

UL 1449 listed Type 2 surge protective devices shall be provided at each distribution panelboard and at each dry-type step-down transformer secondary serving sensitive electronic and medical equipment, coordinated with the Type 1 SPDs at the main service entrance incoming terminals of the double-ended substation secondary switchgear (Section 16600) and the SPDs at each ATS downstream bus (Section 16700), forming a coordinated cascaded surge protection scheme.

2.09 OPERATING ROOM ISOLATED POWER PANELS (IPPS) AND LINE ISOLATION MONITORS

A. Each of the five (5) Trauma Operating Rooms shall be served by two (2) dedicated Isolated Power Panels (IPPs) per NFPA 99 and NEC 517.160 - one fed from the Optional Standby (Non-Essential) branch and one fed from the Critical Branch - providing an ungrounded power supply for patient care equipment within the OR.

B. Each IPP shall include its own isolation transformer, 120/208 V with an ungrounded secondary and copper windings, sized for the connected OR equipment and receptacle load.

C. Each IPP shall include its own Line Isolation Monitor (LIM) providing continuous ground fault/hazard current monitoring, with a remote hazard current indicator and audible/visual alarm mounted at the OR entrance.

D. The branch circuit panelboard fed from each IPP's isolation transformer shall serve the OR receptacles and equipment assigned to that branch, coordinated with the isolated power system receptacles specified in Section 16140.

E. The Optional Standby IPP and Critical Branch IPP in each OR shall be physically and electrically separated from each other and from all other panelboards, per NEC 700.10 and NFPA 99, and clearly labeled by source branch.

2.10 IDENTIFICATION

Panelboards labeled per Section 16100 identification requirements, including arc-flash incident energy, flash protection boundary, and required PPE labeling per NFPA 70E/IEEE 1584, and "OPTIONAL STANDBY - NON-ESSENTIAL" labeling on all Optional Standby panelboards, feeders, and disconnects per NEC 700.10 and NFPA 99.

PART 3 - EXECUTION

3.01 EXAMINATION

Do not proceed with the work of this section until conditions detrimental to the proper and timely completion of the work have been corrected in an acceptable manner. Verify electrical room space, clearances, and housekeeping pads are complete, and that upstream feeders from the double-ended substation and automatic transfer switches (Sections 16600 and 16700) are terminated and coordinated, before setting panelboards.

3.02 INSTALLATION

A. Install according to manufacturer's recommendations and applicable codes and regulations.

B. Panelboards shall be installed where indicated and with top of cabinet 6'-6" above floor, and shall be rigidly and securely attached to building construction and shall not depend upon conduit for support. Allow at least 1/2" air space behind wall mounted panelboards.

C. Install panelboards according to manufacturer's recommended data. Maintain clearances required by the National Electrical Code, with particular attention to working space around panelboards. Maintain clear space above panelboards, coordinate with other trades to avoid placement of panelboards below piping, ductwork, or other foreign appurtenances. Relocate panels at no additional cost should such interferences occur.

D. Supply panelboards with phenolic nameplate 1 inch x 3 inch on exterior of panels and engraved with panel designation and voltage rating. Lighting and power panelboards shall be provided with a clear plastic enclosed typewritten directory inside. Circuit identification shall include load type (lighting, receptacles, etc.) and rooms served.

E. Where flush type panelboards are indicated, provide one 3/4" empty conduit terminated in accessible ceiling above for each 3 spare circuit breakers provided in the panelboard.

F. Install circuit breakers in existing panelboards according to manufacturer's recommendation. Verify tightness of connections including mains. Identify new circuits on the panel directory. If none exists, provide one.

G. Maintain physical and electrical separation between Essential (Life Safety, Critical, Equipment System) and Optional (non-essential) panelboards, feeders, and branch circuits per NEC 700.10 and NFPA 99, including separate raceways and clear labeling.

3.03 FIELD QUALITY CONTROL

A. Torque all bus and breaker connections per manufacturer's specifications; verify tightness of all connections including mains.

B. Perform insulation resistance testing on all panelboards prior to energization.

C. Confirm each panelboard's installed AIC rating meets or exceeds the available fault current at its location as determined by the fault current study; verify and record final circuit directories at each panelboard.

D. Verify arc flash hazard labels are installed on all panelboards prior to energization per NFPA 70E.

E. Functionally test each Operating Room IPP and LIM for correct hazard current alarm operation prior to Substantial Completion.

3.04 CLEANING

Clean and touch up panelboards as required at completion of the project.

END OF SECTION 16470

SECTION 16511 LIGHTING FIXTURES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Interior lighting fixtures (luminaires), emergency and exit lighting units, exterior and site lighting fixtures, and heliport lighting fixtures throughout the Project.

B. Related Sections:

1. Section 16100 - Basic Electrical Materials and Methods.
2. Section 16112 - Raceways and Conduits.
3. Section 16120 - Wire and Cable.
4. Section 16140 - Wiring Devices.

1.02 REFERENCES

Underwriters Laboratories (UL) and ETL listings; IES Lighting Handbook and IES RP-29-20 (Lighting for Hospitals and Healthcare Facilities); FGI Guidelines for Design and Construction of Hospitals; ASHRAE 90.1 (lighting power density and automatic shutoff controls); NFPA 101 (Life Safety Code) and NEC Article 700 (emergency systems); NFPA 99 and NEC Article 517 (health care facilities essential electrical system); UL 924 (emergency lighting and power equipment); FAA Advisory Circular AC 150/5390-2 (Heliport Design); ASCE 7 and the Puerto Rico Building Code (PRBC) for wind load design.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Materials shall bear Underwriters Laboratories (UL) or ETL labels.

B. The interior lighting system shall be designed to meet the illuminance levels, color rendering, and controllability requirements of the IES Handbook, IES RP-29-20, and the FGI Guidelines, while complying with the lighting power density (LPD) limits of ASHRAE 90.1.

1.04 SUBMITTALS

A. Submit manufacturer's literature and technical data before starting work.

B. Furnish certified photometric data for each fixture type in the lighting fixture schedule.

C. Upon request, a sample of each fixture proposed for use and specified unit shall be submitted to the Owner's engineer for review.

D. Provide lighting calculations demonstrating compliance with IES minimum footcandle levels when required by the Owner's engineer.

E. Point-by-point photometric calculations for the Trauma Operating Rooms, ICU rooms, Trauma Stabilization cubicles, the ambulance entrance, and the heliport, demonstrating compliance with Article 1.6, Table 1.

F. FAA-compliance documentation for all heliport lighting fixtures.

1.05 QUALITY ASSURANCE

All luminaires shall be UL or ETL listed for the intended location (damp, wet, or hazardous, as applicable). Emergency lighting units and exit signs shall be listed per UL 924. Heliport lighting fixtures shall be FAA-compliant per AC 150/5390-2.

1.06 DESIGN REQUIREMENTS

A. Illuminance Criteria: Interior spaces shall be illuminated to at least the target illuminance levels in Table 1, consistent with IES RP-29-20 and the FGI Guidelines referenced in the Bridging Document, Section 8.1. The minimum 1 fc means-of-egress level and the 30 fc ambulance entrance level are explicit Bridging Document requirements (Sections 8.2 and 8.3, respectively); the remaining space-type values reflect the IES RP-29-20 / FGI criteria that the Bridging Document directs the design to satisfy and shall be verified against final point-by-point calculations.

Space Type	Target Illuminance	Notes
Trauma OR - General (at floor)	200fc (2,000 lux)	Dimmable; separate surgical field lighting furnished by Owner as medical equipment
Trauma OR - Surgical Field		Owner-furnished surgical lights; power and supports by D&B Contractor
Trauma ICU - Patient Area	30 fc (300 lux)	Dimmable; night mode ≤ 1 fc
Trauma Stabilization Cubicle	50 fc (500 lux)	Task lighting; dimmable
Imaging - CT / X-Ray Room	30-50 fc	Dimming required during imaging procedures
Patient Room - General	20 fc (200 lux)	Dimmable; exam mode ≥ 50 fc; night mode ≤ 1 fc
Nursing Station	50 fc (500 lux)	At counter height; supplemental task lighting
Administrative / Offices	35-50 fc (350-500 lux)	Per ASHRAE 90.1 zone control
Corridors - Clinical	10-30 fc	Minimum 10 fc maintained; night mode available
Mechanical / Electrical Rooms	30 fc (300 lux)	Industrial/utility luminaires
Stairways	10 fc (100 lux)	Essential branch; emergency backup
Cafeteria / Lobby	30-50 fc (300-500 lux)	Decorative/architectural lighting by D&B

Means of Egress (corridors, stairs, exterior exits)	1 fc minimum	Per Bridging Document Section 8.2; NFPA 101 / NEC Article 700
Ambulance Entrance / Trauma Bay / ED Entrance	≥ 30 fc	Per Bridging Document Section 8.3; Essential Electrical System powered

Table 1 - Interior Illuminance Criteria

B. Lighting power density (LPD) for all interior spaces shall comply with ASHRAE 90.1 Table 9.6.1 (Space-by-Space Method); automatic shutoff controls shall comply with ASHRAE 90.1 Section 9.4.1.

C. All exterior luminaires shall be IP65 rated, with hurricane-rated mounting per ASCE 7/PRBC (180 mph design wind speed), and corrosion-resistant (marine-grade aluminum or stainless steel) housings, per Section 16100.

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. Lighting Fixtures:

1. Provide LED luminaires. Fixtures shall be fabricated from heavy-gauge steel, aluminum, or stainless steel as specified, with antimicrobial powder coat finish where applicable. Provide LED modules with a minimum efficacy of 120 lm/W, 0-10V dimming drivers, universal 120/277V input, and a minimum L70 life of 50,000 hours.
2. The schedule and details of lighting fixtures appearing on the drawings indicate the type, construction, appearance, quality, and performance of the fixtures required.
    a. Manufacturers: New Star Lighting, Current Lighting, or other Owner-approved equal. An alternate manufacturer may be submitted provided the submittal is accompanied by complete technical documentation demonstrating compliance with all specification requirements.
    b. Proposed substitute lighting fixtures will be judged on overall quality of construction.
    c. Provide a 120V working sample of proposed substitution with cord, plug, and lamp.
3. Materials used in the manufacture of fixtures shall be new and the best of their respective kind, and shall be formed and assembled in a neat, accurate, and professional manner.
    a. Sheet metal shall be of sufficient thickness, or shall be ribbed, flanged, or otherwise reinforced, so that lighting fixtures and their component parts will withstand the stresses of normal handling, installation, and service without undue distortion of shape.

b. Plastering or other installation procedures shall not be relied on to reinforce lighting fixtures or their component parts.

c. Fixture bases shall be metal and fastened to the mounting location with metal components.

4. Fixtures shall be complete with canopies, suspensions of proper lengths, hickeys, casing, sockets, holders, reflectors, hardware, and shall be completely wired and assembled. Each troffer shall have a minimum of 2 earthquake clips, positive enclosed spring-loaded catches, and safety hinges.
5. Exposed fixture housings or frames shall have a continuous, smooth surface with no visible seams and a neat, finished appearance. Hinges and fastening devices shall be fully concealed except with special permission of the Owner's engineer.
6. Where fixture type is not indicated on drawings, the fixture type used in similar locations shall be provided, as accepted by the Owner's engineer.
7. Components of the same type, size, rating, and functional characteristics, and of the same make, of similar interior lighting fixtures shall be interchangeable.
8. Fixture stems shall be furnished by the manufacturer of the fixture specified or as shown on the drawings.
9. Fixtures for use outdoors or in wet areas shall be suitably gasketed to prevent access of moisture or insects into the fixture or diffuser.
10. Metal parts of fixtures for use in damp locations, specified as requiring painting, shall be painted with suitable weather- and moisture-resistant paints exhibiting moisture-resisting qualities equal to epoxy-based coatings.
11. Aluminum parts of fixtures for use in damp locations specified as requiring an unpainted finish shall be anodized.
12. Warranty: 5 years.

2.02 LIGHT SOURCE AND COLOR QUALITY

LED light sources shall be used throughout the facility. High Color Rendering Index (CRI ≥ 90) is required in all patient care areas; a minimum CRI of 80 is acceptable in non-patient-care support spaces. Tunable white LED (correlated color temperature adjustable from 2,700 K to 6,500 K) shall be provided in the Trauma Operating Rooms, ICU rooms, and Trauma Stabilization areas for clinical task accuracy.

2.03 LUMINAIRE TYPES BY APPLICATION

A. Administrative and support spaces: recessed lay-in luminaires.

B. Corridors: recessed luminaires.

C. Patient rooms and patient care areas: sealed luminaires with a flat, wipe-down surface for infection control and ease of cleaning.

D. Public spaces: recessed or surface-mounted decorative/architectural luminaires as coordinated with the architectural design intent.

E. Mechanical and electrical rooms: vapor-tight luminaires. Where fan rooms are used as an air plenum, provide suitably gasketed vapor-tight lighting fixtures.

F. Surgical suites and trauma rooms: IP65-rated sealed luminaires suitable for washdown and infection-control cleaning protocols.

2.04 EMERGENCY AND EXIT LIGHTING

A. Exit Signs: LED combination illuminated exit signs with a 90-minute minimum battery backup per UL 924, illuminated from the Life Safety Branch or an integral battery per NEC Article 700.

B. Battery Unit Equipment: Emergency lighting units with integral sealed batteries (90-minute rating), UL 924 listed, may supplement Life Safety Branch circuits in areas where circuit routing is impractical.

C. Patient Care Area Emergency Task Lighting: Emergency task lighting in the Trauma Operating Rooms, ICU, and Trauma Stabilization areas shall be powered from the Essential Electrical System Critical Branch - not from battery units - to ensure continuous, full-illuminance task lighting during extended outages, per NFPA 99 / NEC Article 517.

D. Egress Lighting: Minimum 1 fc maintained on all means-of-egress paths (exit stairways, corridors, lobbies, and exterior exits) per NFPA 101 and NEC Article 700.

2.05 EXTERIOR AND SITE LIGHTING

A. Site and service parking area lighting: LED pole-mounted area lights on photocell-plus-time-clock control.

B. Building façade / architectural lighting: coordinated with the architectural design intent.

C. Ambulance Entrance: High-illuminance area lighting (≥ 30 fc) at the ambulance drop-off, trauma bay entrance, and emergency department entrance; powered from the Essential Electrical System.

D. All exterior luminaires shall be IP65 rated, hurricane-rated per ASCE 7/PRBC (180 mph design wind speed), and constructed of corrosion-resistant marine-grade aluminum or stainless steel for Puerto Rico's coastal/marine climate, per Article 1.6.C.

2.06 HELIPORT LIGHTING FIXTURES

A. Perimeter Lights: FAA-compliant flush-mounted or low-profile omnidirectional white/yellow lights at the perimeter of the Final Approach and Takeoff (FATO) area; spacing and photometric output per AC 150/5390-2.

B. Touchdown/Liftoff (TLOF) Area Lights: FAA-compliant TLOF edge or in-pavement lights, white/green, around the landing pad.

C. Windsock / Wind Indicator: Lighted windsock on an FAA-approved support structure at the heliport level, illuminated at night from the Essential Electrical System.

D. Obstacle/Obstruction Lighting: FAA-required red obstruction lights on any rooftop mechanical equipment, structures, or antenna masts penetrating the FAA-defined heliport obstacle clearance surface.

E. Flood Lighting: Supplemental flood/area lighting of the heliport pad and access path for night operations.

All heliport lighting shall be powered from the Essential Electrical System Critical Branch, as power continuity is required for night-time and instrument flight rule (IFR) medevac operations.

PART 3 - EXECUTION

3.01 INSPECTION

A. Do not proceed with the work of this Section until conditions detrimental to the proper and timely completion of the work have been corrected in an acceptable manner.

B. Verify ceiling type, mounting substrate, and reflected ceiling plan coordination before installing luminaires.

3.02 INSTALLATION

A. Install fixtures according to manufacturer's recommendations and the reflected ceiling plan; support independently of the ceiling grid where required by seismic criteria.

B. Install "lay-in" type fixtures with 6-foot lengths of flexible conduit to enable fixture relocation with minimum inconvenience. Fixture shall be securely fastened to ceiling frame members by mechanical means as per the NEC.

C. Exit lights:

1. Install wall- or ceiling-mounted as shown on drawings.
2. Provide directional arrows required to show correct path to exit.
3. Install exit lights at a location and height to assure a clear line of sight from the egress passageway.
4. Relocate exit lights that are not readily visible at no additional cost to the Owner.
5. Internally illuminated exit signs shall have an LED light source.

D. Fixture Supports:

1. Support each fixture securely.
2. Each recessed LED troffer shall be lay-in supported by the ceiling suspension system. Provide at least 2 earthquake clips.
3. Where pendant fixtures are mounted in continuous rows, the number of hangers shall equal the number of 4-foot lengths, plus 1.
4. Do not support fixtures from plaster or gypsum board ceilings.
5. Furnish and install steel members and supports to fasten and suspend fixtures.

E. Install lighting fixtures on ceilings or walls of mechanical and electrical equipment rooms after piping, ductwork, and equipment are installed therein.

1. Exact location and switching for such fixtures will be determined at the job site during the work.
2. Fixtures shall be located to give maximum illumination to items of equipment requiring servicing and moving machinery.
3. Any lighting fixtures blocked, inaccessible, or improperly located shall be relocated at no extra cost.
4. Where fan rooms are used as an air plenum, provide suitable gasketed vapor-tight lighting fixtures.

F. Heliport Lighting Controls: Heliport lighting shall be controlled from the Disaster Control Center (Level 9) and from a local control panel at the heliport level; pilot-activated lighting (PAL) radio control may be considered.

3.03 FIELD QUALITY CONTROL

A. Perform point-by-point illuminance verification in the Trauma Operating Rooms, ICU rooms, Trauma Stabilization cubicles, the ambulance entrance, and the heliport, confirming compliance with Table 1 and FAA requirements.

B. Verify 90-minute battery operation of all exit signs and battery emergency lighting units per UL 924 testing requirements.

END OF SECTION 16511

SECTION 16550 38 KV POWER TRANSFORMERS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section specifies the furnishing, delivery, installation, testing, and commissioning of two (2) less-flammable liquid-filled, outdoor power distribution transformers rated 38 kV primary / 13.2 kV secondary, 3,750 kVA each, for the outdoor yard-type substation serving the Puerto Rico Trauma Hospital at Centro Médico, San Juan, Puerto Rico.

B. Each transformer shall be a self-contained, outdoor-rated unit capable of independent operation and shall provide full N+1 redundancy: either transformer alone shall be capable of carrying the complete facility electrical load.

C. Related Sections:

1. Section 16100 - Basic Electrical Materials and Methods
2. Section 16112 - Raceways and Conduits (underground duct banks and manholes for the 13.2 kV feeders from this substation yard to the Building Basement double-ended substation)
3. Section 16600 - Double-Ended Substation (downstream indoor building substation receiving the 13.2 kV feeders originating at this yard-type substation)

1.02 APPLICABLE CODES AND STANDARDS

All transformers and associated equipment shall be designed, manufactured, and tested in accordance with the latest editions of the following codes and standards. Where conflicts exist, the most stringent requirement shall govern.

A. IEEE/ANSI Standards:

1. IEEE C57.12.00 - IEEE Standard for Liquid-Immersed Distribution, Power, and Regulating Transformers - General Requirements
2. IEEE C57.12.10 - IEEE Standard Requirements for Liquid-Immersed Power Transformers
3. IEEE C57.12.34 - IEEE Standard Requirements for Pad-Mounted, Compartmental-Type, Self-Cooled, Three-Phase Distribution Transformers
4. IEEE C57.12.90 - IEEE Standard Test Code for Liquid-Immersed Distribution, Power, and Regulating Transformers
5. IEEE C57.91 - IEEE Guide for Loading Mineral-Oil-Immersed Transformers (applied herein to less-flammable liquid-immersed units)

6. IEEE C57.110 - IEEE Recommended Practice for Establishing Transformer Capability When Supplying Nonsinusoidal Load Currents
7. IEEE 1246 - IEEE Guide for Temporary Protective Grounding Systems Used in Substations
8. IEEE 80 - IEEE Guide for Safety in AC Substation Grounding

B. NEMA/UL Standards:

1. NEMA TR 1 - Transformers, Regulators, and Reactors
2. UL Listed or tested equivalent certification for less-flammable liquid-type transformers
3. UL 2107 - Standard for Less-Flammable Liquids for Use in Electrical Apparatus

C. Federal, Local, and Utility Standards:

1. NFPA 70 - National Electrical Code (NEC), latest edition adopted in Puerto Rico; Articles 230, 240, 250, 450
2. NEC Article 450.23 - Less-Flammable Liquid-Insulated Transformers (outdoor installation)
3. NFPA 99 - Health Care Facilities Code - Essential Electrical System requirements
4. NFPA 70E - Electrical Safety in the Workplace
5. U.S. Department of Energy (DOE) - Energy Efficiency Standards for Distribution Transformers (10 CFR Part 431)
6. Puerto Rico Building Code (PRBC) - incorporating the 2018 International Building Code (IBC) with Puerto Rico amendments
7. PREPA/LUMA Energy - Reglamento Complementario al Código Eléctrico Nacional; Standards TM-13-2 and TM-13-3
8. NESC (National Electrical Safety Code) - minimum safety clearances
9. PREPA Comunicado 0-2-06 - substation safety clearance requirements

1.03 SUBMITTALS

A. Shop Drawings and Product Data:

1. Complete transformer nameplate schedule confirming all rated characteristics, BIL levels, cooling mode ratings, and efficiency data
2. Dimensioned outline drawing and installation footprint, including lifting provisions, weights (shipping, installed, fluid only), tank dimensions, and clearance requirements

3. Schematic and connection diagram, including winding configuration, tap changer positions, and accessory wiring diagram
4. Bushing arrangement drawing, confirming HV top-entry and LV bottom-entry cabinet configuration
5. Spill containment basin sizing calculation confirming 110% of insulating liquid volume
6. Seismic and wind anchorage calculations for the specified design loads (Category 5 hurricane, 180 mph; Puerto Rico Building Code seismic)
7. Insulating liquid safety data sheet (SDS), flash point certification, and UL listing documentation confirming classification as less-flammable liquid per NEC 450.23 and UL 2107
8. Cooling fan control wiring diagram and automatic KNAN/KNAF switching logic
9. Accessory list confirming all specified accessories (Article 2.8, Items A through J)
10. LUMA-endorsed drawings for the utility interconnection (aerial point of connection, pole risers, underground feeder, GOAB switch, and substation), obtained prior to commencing site work, per Section 16100, Section 1.5.B.2.

B. Test Reports - Factory and Field:

1. Factory certified test reports per IEEE C57.12.90, including: ratio, polarity, phase relation; no-load losses and excitation current; load losses and impedance voltage; dielectric withstand (applied voltage, induced voltage, BIL impulse); sound level; insulating liquid dielectric strength
2. DOE efficiency certification
3. Field acceptance test report (see Part 3)

C. Operation and Maintenance (O&M) Manuals - submit prior to energization:

1. Complete transformer O&M manual including energization procedures, maintenance schedules, and troubleshooting guide
2. Insulating liquid testing procedures and test frequency schedule
3. Parts list with recommended spare parts

1.04 QUALITY ASSURANCE

A. Manufacturer's Experience: Transformer manufacturer shall have a minimum of ten (10) consecutive years of experience manufacturing liquid-filled power transformers in the specified voltage and kVA class.

B. Factory Testing: All transformers shall undergo and pass the complete routine test program per IEEE C57.12.90 prior to shipment. Test reports shall be provided before delivery is accepted.

C. DOE Efficiency: Each transformer shall comply with the U.S. Department of Energy energy efficiency standards (10 CFR Part 431) applicable to the transformer's rated voltage and kVA.

D. Source Limitations: The transformers specified herein - both units - shall be furnished by the same manufacturer to ensure interchangeability of parts, accessories, and spare components.

E. LUMA Coordination: The D&B Contractor shall meet with LUMA at project start to confirm the aerial point of connection, pole riser locations, GOAB switch location and rating, metering requirements, and the interconnection agreement. LUMA approval of the 38 kV service connection and substation design is required before construction and prior to energization. The D&B Contractor shall initiate the LUMA interconnection process immediately upon contract award and shall not allow LUMA approval to become the critical path.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Factory Shipping: Transformers shall be shipped filled with insulating liquid unless the manufacturer's standard practice requires otherwise, in which case the transformer shall be shipped dry under positive pressure of dry nitrogen and the insulating liquid shall be shipped separately in sealed containers.

B. Inspection Upon Delivery: The Contractor shall inspect each transformer immediately upon receipt and report any damage to the transformer and to the shipping carrier within 24 hours. Do not energize a transformer that has sustained physical damage without written authorization from the manufacturer.

C. Storage: Store transformers indoors or under cover, protected from weather, moisture, and construction debris. Maintain nitrogen pressure on units shipped dry. Store insulating liquid in sealed, clean containers per manufacturer's recommendations.

D. Handling: Lift transformers only using lifting eyes or lugs provided by the manufacturer. Do not lift by tank accessories, fittings, or bushings. Comply with manufacturer's handling and tilt limitations.

E. Service Access: The substation yard layout shall provide a service road or paved access for delivery and future replacement of either transformer without disturbing the other transformer or the 15 kV primary switchgear. Coordinate with the Structural Engineer of Record for equipment pad and access road design.

1.06 WARRANTY

A. Provide manufacturer's standard warranty against defects in materials and workmanship for a minimum of five (5) years from the date of energization or six (6) years from the date of shipment, whichever occurs first.

B. The warranty shall include repair or replacement of failed components, including insulating liquid if loss results from a warranty-covered defect.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, provide transformers from one of the following manufacturers. No substitutions without prior written Owner approval:

1. ABB (Hitachi Energy) - PowerTransformer or Distribution Transformer product line
2. Eaton Corporation - Copper Power / Cooper Transformer product line
3. General Electric (GE Industrial Solutions) - Power Transformer line

B. Approved Equal: An alternate manufacturer may be submitted for Owner and Engineer review, provided the submittal is accompanied by complete technical documentation demonstrating compliance with all specification requirements.

2.02 TRANSFORMER RATINGS

A. Provide two (2) power distribution transformers, identical and interchangeable, with the following minimum ratings:

1. Rated kVA: 3,750 kVA per unit (7,500 kVA total N+1 firm capacity)
2. Phases/Frequency: Three-phase (3Ø), 60 Hz
3. Primary Voltage (HV): 38 kV, Delta connection
4. Secondary Voltage (LV): 13.2 kV, three-phase, grounded wye (13,200Y/7,620 V)
5. Voltage Ratio: 38,000Δ / 13,200Y V
6. BIL - Primary (HV): 250 kV (per ANSI/IEEE C57.12.00 for the 38 kV class)
7. BIL - Secondary (LV): Per IEEE C57.12.00 for the 15 kV voltage class
8. Temperature Rise (Winding): 55°C / 65°C dual-rated
9. Insulation Class: 65°C insulation system
10. Cooling Mode: KNAN (self-cooled) / KNAF (fan-cooled)
11. Rated Impedance: 5.75% nominal at base kVA (confirm with manufacturer for fault coordination)
12. Winding Material: Copper (both HV and LV windings)
13. Insulating Medium: Less-flammable liquid per NEC 450.23 and UL 2107
14. Sound Level: Maximum 68 dB(A) at rated load, fans off (self-cooled mode); per NEMA TR 1 and IEEE C57.12.90

15. Service Environment: Outdoor, tropical coastal - Puerto Rico (San Juan); NEMA 3R, stainless steel enclosure
16. Seismic Design: Puerto Rico Building Code - seismic design per site-specific requirements
17. Design Wind Speed: Category 5 hurricane - 180 mph design wind speed

B. The D&B Contractor shall confirm, via complete facility load calculation, that 3,750 kVA per unit is adequate for all facility loads plus a minimum 10% spare capacity for future growth, including all future surge capacity loads. If the load calculation demonstrates that a larger transformer is required, the larger unit shall be provided without additional cost to the Owner.

2.03 ELECTRICAL CHARACTERISTICS

A. Winding Configuration:

1. Primary (HV) winding: Delta (Δ) - 38 kV class; ungrounded delta connection
2. Secondary (LV) winding: Grounded wye (Y) - 13.2 kV; solidly grounded neutral; neutral terminal brought out for connection to the system ground grid
3. Vector group: Standard Dyn (Delta primary / Wye secondary with neutral)
4. Winding conductors: Copper for all windings; no aluminum windings

B. Impedance:

1. Nominal impedance: 5.75% at rated frequency and rated kVA
2. Impedance shall be confirmed by the manufacturer with certified test report; impedance shall not exceed 6.50% without Owner's Engineer approval
3. Impedance tolerance: ±7.5% of nameplate impedance per IEEE C57.12.00
4. The D&B Contractor shall perform a complete fault current study at the 13.2 kV primary bus and 480 V secondary bus to verify that the transformer impedance and fault contribution are within the interrupting ratings of downstream protective devices

C. Efficiency:

1. Each transformer shall comply with DOE minimum energy efficiency standards (10 CFR Part 431) for liquid-filled distribution transformers
2. Submit certified efficiency test data per IEEE C57.12.90

2.04 TAP CHANGER

A. De-Energized Tap Changer (DETC):

1. Type: De-energized tap changer (DETC) - manual operation with transformer de-energized and isolated
2. Location: Primary (HV) winding - 38 kV side

3. Range: Four (4) tap positions at 2½% steps, providing +5%, +2½%, Nominal, -2½%, -5% of rated primary voltage
4. Operation: External handle or bolted position selector; position indicator clearly visible from ground level
5. Purpose: Voltage adjustment to compensate for LUMA delivery voltage variation at the 38 kV service point; coordinate tap settings with LUMA's voltage regulation at the point of connection

NOTE: DETC operation requires the transformer to be fully de-energized and isolated per NEC 450.26 and NFPA 70E safe work practices before changing tap position. Provide locking provisions and a warning label on the DETC mechanism.

2.05 BUSHING ARRANGEMENT

A. High-Voltage (HV) Bushings - Primary, 38 kV:
   1. Configuration: Top-entry (top-mounted) bushings on tank cover - three (3) single-phase HV bushings
   2. Voltage class: 38 kV (46 kV-class bushings per ANSI standard)
   3. BIL: 250 kV minimum
   4. Material: Oil-impregnated paper condenser or porcelain - suitable for tropical coastal environment; corrosion-resistant hardware
   5. Connection: Suitable for connection to the 46 kV-class primary fuse assembly on the 38 kV aluminum structure (Article 2.12); terminals sized for the primary cable/conductor as determined by the D&B Contractor's fault current study

B. Low-Voltage (LV) Bushings - Secondary, 13.2 kV:
   1. Configuration: Bottom-entry from an integral LV terminal cabinet; three (3) phase bushings plus neutral bushing
   2. Terminal cabinet: Integral padlockable LV terminal cabinet on the transformer tank for bottom-entry cable connection to the 15 kV primary switchgear (Article 2.13)
   3. Voltage class: 15 kV-class bushings (25 kV BIL minimum)
   4. Neutral terminal: Neutral bushing brought to exterior of tank for system ground connection
   5. Connection: Suitable for 15 kV-class shielded power cable connections from primary switchgear incoming feeders

2.06 COOLING SYSTEM

A. Cooling Mode Ratings (KNAN/KNAF):
   1. KNAN (natural convection - self-cooled): Transformer shall achieve rated 3,750 kVA at 55°C temperature rise with no forced cooling (all fans off)

2. KNAF (forced air - fan-cooled): Transformer shall achieve rated 3,750 kVA at 65°C temperature rise with forced air cooling fans operating

NOTE: KNAN/KNAF cooling designations apply to less-flammable (non-mineral-oil) liquid-filled units. The equivalent for mineral-oil units would be ONAN/ONAF. Verify the manufacturer's cooling mode designation conforms to IEC 60076-2 / IEEE C57.12.00 as applicable.

B. Forced Air Cooling Fans:

1. Forced air fans and complete factory-installed fan control package shall be provided (Article 2.8, Item G)
2. Fans shall activate automatically based on oil temperature and/or load current, per manufacturer's standard control logic; manual override controls shall also be provided
3. Fan motors and controls: Suitable for the outdoor tropical environment; thermally protected fan motors; NEMA 3R stainless steel enclosures
4. Control power: 120 V AC, single-phase, 60 Hz, derived from the 15 kV primary switchgear control power PT/panelboard (Article 2.13); an automatic transfer switch provided at the substation auxiliary panelboard ensures continuous control power availability

2.07 TANK AND ENCLOSURE

A. Tank Construction:

1. Material: Stainless steel tank construction required; heavy-gauge steel with corrosion-resistant coating is not acceptable for this tropical coastal environment
2. All exposed hardware, bolts, fasteners, and fittings: Stainless steel or equivalent corrosion-resistant material
3. Corrosion protection: Full corrosion-resistant treatment and coating system suitable for the Puerto Rico coastal/tropical environment; minimum paint system per IEEE C57.12.00
4. Tank design: Sealed, corrugated, or smooth-wall tank with thermally compensating provision; tank shall be leak-tested at factory
5. Lifting provisions: Four (4) lifting eyes integral to tank cover, rated for full transformer lifting weight
6. Tiedown/anchoring provisions: Tank base with anchoring holes or pads for seismic and hurricane anchorage to the concrete equipment pad

B. Insulating Liquid:

1. Type: Less-flammable liquid insulated - fire point greater than 300°C per ASTM D92 (or as classified per NEC 450.23); acceptable products include MIDEL

7131, BIOTEMP, Envirotemp FR3, or approved equal that qualifies as less-flammable per NEC 450.23 and is listed per UL 2107

2. The insulating liquid shall be compatible with all internal transformer materials (windings, insulation, gaskets)
3. The insulating liquid shall be provided factory-filled at rated level; no on-site filling of liquid required
4. SDS and certification of flash point/fire point shall be submitted with shop drawings

C. Outdoor Enclosure Rating:

1. Enclosure rating: NEMA 3R, stainless steel construction for all external accessories, junction boxes, and terminal compartments
2. Transformer shall be designed and rated for continuous outdoor operation in a tropical coastal environment (high humidity, salt air, ambient temperature range 20°C to 45°C)
3. No supplementary weather protection structure is required; transformer shall be fully self-protected for the specified outdoor environment

2.08 ACCESSORIES AND INSTRUMENTATION

A. Each transformer shall be furnished complete with all of the following accessories, factory-installed and wired:

1. Item A - De-Energized Tap Changer (DETC): HV primary tap adjustment; four (4) 2½% taps above and below nominal 38 kV; external operator; position indicator
2. Item B - Liquid Level Gauge: Indicates insulating liquid level in tank; dial or column gauge mounted on tank wall; with auxiliary contact (Item J)
3. Item C - Dial-Type Thermometer: Indicates top-oil temperature; dial gauge with red maximum-temperature indicator pointer; graduated in °C; range suitable for operating and alarm temperatures
4. Item D - Pressure/Vacuum Gauge: Indicates gas space pressure/vacuum above insulating liquid; dial type; compound gauge reading both positive pressure and vacuum; with auxiliary contact (Item H)
5. Item E - Pressure Relief Device: Spring-loaded pressure relief valve (PRV) with integral discharge deflector directed away from personnel areas; activates at manufacturer's rated relief pressure to protect tank from rupture; with auxiliary contact (Item I)
6. Item F - Rapid Pressure Rise Relay (RPRR): Sudden/rapid pressure rise relay for internal fault detection; differential pressure sensing; trips transformer primary protection fuse or provides signal to trip/alarm; wired to substation protection/alarm panel

7. Item G - Forced Air Fans and Control Package: Factory-installed cooling fans with automatic temperature/load-based control; manual override; suitable for outdoor tropical environment; 120 V AC control power
8. Item H - Auxiliary Contact, Pressure/Vacuum Gauge: Normally open (NO) contact on the pressure/vacuum gauge (Item D) for remote alarm; wired to substation alarm panel
9. Item I - Auxiliary Contact, Pressure Relief Device: Normally open (NO) contact on the pressure relief device (Item E) for remote alarm on PRV operation; wired to substation alarm panel
10. Item J - Auxiliary Contact, Liquid Level Gauge: Normally open (NO) contact on the liquid level gauge (Item B) for remote alarm on low liquid level; wired to substation alarm panel

B. Additional Required Accessories:

1. Thermometer well: Provision for insertion of calibrated thermometer or RTD for testing and commissioning; located on tank cover or side wall
2. Drain valve with sampler: Minimum 1-inch drain valve with sampling point at base of tank for insulating liquid sampling and complete drainage; valved and plugged
3. Filter/fill valve: Provision for vacuum filling, filtering, and oil reclamation at future maintenance intervals
4. Ground pads: Minimum two (2) ground pads per transformer (one per side) for system and tank grounding connections; stainless steel or tin-plated copper
5. Nameplate: Stainless steel or anodized aluminum nameplate (Article 2.11)

2.09 SPILL CONTAINMENT

A. A reinforced concrete spill containment curb and basin shall be provided for each transformer in accordance with NEC 450.23. Design requirements:

1. Volume: Basin volume shall accommodate a minimum of 110% of the total insulating liquid volume of the transformer (largest single-unit quantity)
2. Construction: Reinforced concrete, waterproofed and liquid-tight; designed for the transformer's weight plus the contained liquid weight; coordinated with structural/civil engineer
3. Curb height: Minimum height determined by basin volume calculation; coordinate with equipment pad elevation
4. Aggregate fill: Transformer pads within the containment basin may be filled with clean crushed stone aggregate to reduce net liquid containment volume and to suppress fire in the event of liquid release; coordinate with basin sizing
5. Discharge: Basin shall drain to an oil/water separator; no insulating liquid shall reach storm drains or soil

2.10 EQUIPMENT PADS AND SEISMIC ANCHORAGE

A. Reinforced concrete equipment pads shall be provided for each transformer:

1. Pad design: Reinforced concrete pad designed by the Structural Engineer of Record (EOR) for the transformer's operating weight, shipping weight, seismic loads (Puerto Rico Building Code, site-specific seismic design), and hurricane wind loads (Category 5, 180 mph design wind speed)
2. Anchor bolts: Anchor bolt pattern per transformer manufacturer's requirements; hot-dip galvanized or stainless steel anchor bolts; transformer base anchored to pad to resist the design seismic and wind loads; calculations to be submitted with shop drawings
3. Working clearance: Pads sized to accommodate transformer footprint plus adequate working clearance on all sides per NFPA 70E and NEC 110.26
4. Housekeeping pad elevation: Pads elevated above substation yard grade to prevent water intrusion into transformer base and LV terminal cabinet

B. Hurricane and Seismic Design:

1. All transformer anchorage, the 38 kV aluminum structure, the 15 kV switchgear structure, and all other free-standing substation equipment shall be designed for the project design wind speed (180 mph, ASCE 7) and the site seismic design values
2. Transformer tank and all mounted accessories shall remain intact and liquid-tight under the design wind and seismic loads
3. Submit anchorage calculations for Owner/Engineer review at Design Development phase

2.11 NAMEPLATE

A. Provide a permanent, corrosion-resistant nameplate (stainless steel or anodized aluminum) securely attached to the transformer tank on the control/access side. Nameplate shall include, at minimum:

1. Manufacturer's name and serial number
2. Year of manufacture
3. kVA rating (KNAN/KNAF ratings)
4. Primary and secondary voltages and connections
5. Impedance at rated kVA and temperature
6. Temperature rise (55°C / 65°C)
7. BIL - primary and secondary
8. Insulating liquid type and total liquid volume (gallons/liters)
9. Winding material (Copper)

10. Cooling mode (KNAN/KNAF)
11. Weight: total (operating), core and coil assembly, tank, liquid
12. Frequency (60 Hz) and number of phases (3)
13. DOE efficiency data

2.12 38 KV ALUMINUM STRUCTURE AND PRIMARY PROTECTION

The following upstream structure and protection equipment, located within the same fenced substation yard, is furnished as part of this Section per the Bridging Document's integrated yard-type substation scope (Bridging Document Section 4.2.2) and is the connection point for the transformer HV bushings specified in Article 2.5.A.

A. Aluminum Structure: An outdoor aluminum primary support structure conforming to PREPA Standard TM-13-2 and TM-13-3 (modified for a two-transformer configuration), supporting the incoming 38 kV conductors (downstream of the GOAB switch), the lightning arresters, the incoming fuse set, metering PTs/CTs, and the 46 kV fuse assembly serving each of the two transformers. Each transformer is protected by a dedicated set of 46 kV-class fuses; the single pole-mounted GOAB switch and the 38 kV structure entrance fuse set together serve as the upstream switching and protection point for the substation.

B. Lightning Arresters: One (1) set of 36 kV-class station-type lightning arresters at the incoming 38 kV structure entrance, installed downstream of the GOAB switch and upstream of the incoming fuse set, the metering PTs/CTs, and the transformer primary fuses.

C. Incoming Fuse Set and Metering: One (1) set of 46 kV-class high-voltage power fuses at the 38 kV structure entrance, downstream of the GOAB switch and lightning arresters, and upstream of the metering PTs and CTs; this incoming fuse set is independent of the dedicated 46 kV fuse assembly serving each transformer. Metering PTs and CTs shall be located downstream of this incoming fuse set, ahead of the branch to each transformer's 46 kV fuse assembly.

D. Primary Overcurrent Protection: 46 kV-class fuses on each transformer primary (one dedicated set per transformer), sized for transformer inrush and full-load protection per LUMA requirements and the system fault current study, with protective relay coordination with LUMA's upstream protective devices.

2.13 15 KV PRIMARY SWITCHGEAR

An outdoor 15 kV-class metal-enclosed primary switchgear lineup shall be provided within the fenced substation yard to receive each transformer's 13.2 kV secondary and distribute power toward the building substation (Section 16600), per the Bridging Document (Section 4.2.3).

A. Transformer Incoming Switches: Two (2) load-break switches, one per transformer, connecting each transformer's 13.2 kV secondary (Article 2.5.B) to its respective switchgear bus section.

B. Tie Switch: One (1) normally open tie load-break switch connecting the two bus sections, allowing either transformer to serve the full substation load if the other transformer or its incoming switch is out of service, matching the N+1 philosophy of the double-ended substation (Section 16600).

C. Outgoing Feeders: Two (2) load-break switches with current-limiting fuses, one per bus section, feeding the two 13.2 kV underground feeders to the building substation (Section 16600, routed per Section 16112).

D. Control Power: Potential transformers (PTs) shall derive a 120 V control/auxiliary power supply for the transformer cooling fans and substation lighting, distributed via an automatic transfer switch and a dedicated panelboard.

E. Rating: 15 kV class, metal-enclosed, load-break switches rated for the available fault current at the 13.2 kV bus; all switches lockable/padlockable in all positions; outdoor rated with a NEMA 3R stainless steel enclosure.

2.14 SUBSTATION YARD LAYOUT AND PHYSICAL REQUIREMENTS

A. Fenced Yard: Fully enclosed with security fencing providing restricted access and a lockable gate, meeting minimum safety clearances per NESC, NEC, NFPA 70E, IEEE 1247, and PREPA Comunicado 0-2-06 from transformer enclosures, the 38 kV aluminum structure, the 15 kV primary switchgear, live parts, and fence to any accessible area.

B. All Substation Equipment Pads: Reinforced concrete equipment pads, designed to support the imposed equipment, seismic, and wind loads, shall be provided for all floor-mounted equipment - transformer pads (Article 2.10), aluminum structure foundations, 15 kV switchgear bases, protection and metering panel bases, and any other free-standing equipment within the substation yard.

C. Service Access: Service road or paved access for transformer delivery and future maintenance/replacement, positioned to allow removal of one transformer unit without disturbing the other transformer or the 15 kV primary switchgear.

D. Yard Lighting: Security and maintenance lighting powered from the 15 kV switchgear panelboard (Article 2.13.D), on automatic photocell control with manual override.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install transformers in accordance with manufacturer's instructions, this specification, NEC Articles 450 and 230, and NFPA 70E safe work practices for high-voltage equipment.

B. Energization of the transformers shall not occur until written authorization is received from the Owner's Engineer following successful completion of all factory and field tests and approval of all required submittals.

C. Personnel performing installation and initial energization shall be qualified electrical workers in accordance with NFPA 70E, with documented high-voltage (above 1,000 V) experience.

D. Equipment Pads:

1. Concrete equipment pads shall be complete, cured to full design strength, and anchor bolts installed before transformer delivery to site
2. Verify pad elevations, anchor bolt locations, and levelness before setting transformers
3. Set transformers with all four base mounting points in full contact with the pad; shim as required; torque anchor bolts to manufacturer's specification

E. Spill Containment Basin:

1. Spill containment basin, curb, and oil/water separator shall be complete before transformer installation
2. Verify basin drain is functional and oil/water separator is operational before energizing transformers

F. Primary and Secondary Connections:

1. Primary (HV) connections - 38 kV: Connect top-entry HV bushings to the 46 kV primary fuse assembly on the 38 kV aluminum structure (Article 2.12) per the approved construction drawings; all work on the 38 kV side shall be performed only after the GOAB switch is confirmed open and locked out
2. Secondary (LV) connections - 13.2 kV: Connect LV terminal cabinet bottom-entry cable to the 13.2 kV incoming load-break switch in the 15 kV primary switchgear (Article 2.13); use 15 kV-class shielded cable with properly installed and tested terminations per IEEE 48 and cable manufacturer's requirements
3. Neutral connection: Connect the transformer LV neutral bushing to the substation grounding grid

G. Control and Alarm Wiring:

1. Wire transformer cooling fan control power from the substation auxiliary panelboard; verify automatic cooling control operates correctly before energizing
2. All field-installed control wiring shall be in metallic conduit or liquid-tight conduit; minimum #14 AWG stranded copper conductors; labeled at both ends per the approved drawings

3.02 GROUNDING AND BONDING

A. Ground the transformer tank and LV neutral to the outdoor substation grounding grid in accordance with IEEE 80, IEEE 142, and NEC Article 250:

1. Transformer tank: Bond tank ground pads (minimum 2 pads per transformer) to the substation grounding grid; minimum 4/0 AWG copper bare grounding conductor
2. LV neutral: Ground the transformer secondary neutral (13.2 kV wye neutral) solidly to the substation grounding grid; conductor size per fault current study; the neutral conductor shall be run separately from the tank grounding conductor
3. LV terminal cabinet: Bond LV terminal cabinet to tank ground
4. Substation grounding grid: The outdoor substation grounding grid shall be designed per IEEE 80 for step potential and touch potential safety limits; the grid shall extend under and around the transformer pads, the 38 kV aluminum structure, and the 15 kV switchgear; the grid design shall be coordinated with LUMA requirements

REQUIRED: The substation ground grid design shall be submitted for Owner/Engineer review at Design Development phase. Ground grid resistance shall be measured at completion and submitted with the field test report.

3.03 FIELD ACCEPTANCE TESTING

A. All field acceptance tests shall be performed in accordance with PREPA Letter dated May 28, 2003, which establishes the required testing protocol for transformer installations on the Puerto Rico electric system. A copy of the PREPA Letter shall be included in the project closeout documentation.

B. Before energizing, conduct the following acceptance tests in the presence of the Owner's Representative and submit a certified test report:

C. Visual and Mechanical Inspection:

1. Verify nameplate data against specification and approved shop drawings
2. Inspect tank, bushings, accessories, and connections for shipping damage
3. Verify all accessories installed and functional: gauges readable, PRV operable, fans rotate freely, auxiliary contacts wired and operable
4. Verify tap changer position per voltage study recommendations; document position on test report
5. Verify insulating liquid level at correct mark
6. Verify anchor bolts torqued per specification
7. Verify spill containment basin and oil/water separator are functional
8. Verify all safety signs, labels, and hazard markings installed

D. Insulating Liquid Testing:

1. Sample and test insulating liquid per IEEE C57.106 (mineral oil) or appropriate ASTM standard for less-flammable liquid: dielectric breakdown voltage (minimum 30 kV per ASTM D877 or manufacturer's minimum), moisture content (PPM), acidity - confirm liquid is suitable for energization
2. Liquid test report to be submitted before energization authorization is granted

E. Insulation Resistance (IR) Testing:

1. Measure winding-to-winding and winding-to-ground insulation resistance using a 5,000 V DC megohmmeter
2. Measure polarization index (PI) - ratio of 10-minute to 1-minute IR reading; minimum PI of 2.0 for new transformers
3. Record ambient temperature and correct readings to 20°C

F. Turns Ratio Testing:

1. Verify voltage ratio at each tap position using an automated transformer turns ratio (TTR) tester
2. Acceptable deviation: ±0.5% of nameplate ratio at the selected tap position

G. Auxiliary Contact and Alarm Verification: Verify continuity and correct operation of all auxiliary contacts (Items H, I, J) and the rapid pressure rise relay (Item F) by simulation/injection at the alarm panel; confirm annunciation at local alarm panel.

H. Cooling Fan Test: Energize cooling fans from control power panelboard; verify all fans start and run correctly; verify automatic control scheme activates and deactivates fans per control logic.

I. Substation Ground Grid Test: Perform a substation ground grid resistance test per IEEE 80 and LUMA requirements prior to energization.

3.04 TRAINING

A. Provide a minimum of four (4) hours of on-site operations and maintenance training for Owner's facility engineering staff following transformer commissioning. Training shall include:

1. Normal operating parameters and what constitutes an alarm condition
2. How to safely check liquid level, temperature, and pressure gauges
3. What to do if an alarm activates (rapid pressure rise relay, PRV operation, low liquid level)
4. Tap changer operation procedure (de-energize, lock out, change tap, re-energize)
5. Routine maintenance schedule and liquid sampling procedure
6. When to call for manufacturer service

3.05 CLOSEOUT SUBMITTALS

A. Submit the following prior to Substantial Completion:

1. Certified field acceptance test report (all tests in Article 3.3, signed by qualified testing engineer)
2. As-built drawings reflecting final installed configuration, final tap position, and any field changes
3. O&M manuals (see Article 1.3.C)
4. Training completion record with attendees and topics covered
5. Insulating liquid test reports (factory and field samples)
6. Anchor bolt torque records

END OF SECTION 16550

SECTION 16600 DOUBLE-ENDED SUBSTATION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: This Section specifies the design, manufacture, factory testing, delivery, installation, field testing, and commissioning of the newly manufactured Double-Ended Substation (indoor, secondary unit substation type) for the Puerto Rico Trauma Hospital, Basement Main Electrical Room, comprising: two (2) 13.2 kV duplex load-break switch and fuse assemblies; two (2) indoor dry-type substation transformers; and the seven-section 480Y/277 V double-ended secondary switchgear lineup consisting of two (2) electrically-operated main circuit breakers, one (1) electrically-operated tie breaker, and four (4) distribution breaker sections, complete with the automatic/manual tie breaker transfer scheme, protective relaying, metering, instrumentation, and control wiring described herein. The Switchgear Manufacturer shall furnish all equipment with a practical layout consistent with good engineering practice and with provision for future expansion, and shall be responsible for factory testing and comprehensive system start-up and site testing.

B. Related Sections:

1. Section 16100 - Basic Electrical Materials and Methods
2. Section 16112 - Raceways and Conduits (13.2 kV feeder duct banks and manholes between the outdoor yard substation and this Section's duplex switches)
3. Section 16120 - Wire and Cable (13.2 kV feeder cable terminating at the duplex load-break switches)
4. Section 16550 - 38 kV Power Transformers (upstream outdoor yard-type substation and 15 kV primary switchgear feeding this Section's duplex primary switches via the two independent 13.2 kV feeders of Bridging Document Section 4.3)
5. Section 16700 - Automatic Transfer Switches (downstream of this Section's four distribution breaker sections; each of the four building load categories - Life Safety, Critical, Equipment System, and Optional Standby - is fed from its dedicated distribution breaker section)
6. Section 16800 - Paralleling Switchgear (separate but interconnected emergency generator paralleling assembly; coordinate SCADA/PLC data exchange and normal/emergency source sequencing with the Automatic Transfer Switches of Section 16700)

1.02 APPLICABLE CODES AND STANDARDS - MEDIUM VOLTAGE SECTIONS

A. The design, equipment, installation, and testing of the medium-voltage (13.2 kV) sections of this Double-Ended Substation shall be in strict accordance with the applicable requirements of ANSI, UL, IEEE, and NEMA, latest editions adopted in Puerto Rico, except where a specific edition or standard number is cited below, in which case the cited standard number governs.

B. Due to the critical nature of this facility and to provide maximum reliability and single-point responsibility, the entire Double-Ended Substation system, including all controls, breakers, bus work, and components, shall be completely manufactured and assembled by a single manufacturer. The switchgear and controls shall be UL listed and labeled under the manufacturer's name at the time of bid opening.

C. All equipment and material supplied shall comply with the latest edition and amendments of the following standards, codes, and regulations:

1. ANSI/IEEE C12 - Code for Electric Metering
2. ANSI C37.04 - Standard Rating Structure for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis
3. ANSI C37.06 - Preferred Ratings and Related Required Capabilities for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis
4. ANSI C37.11 - Requirements for Electrical Control for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis or a Total Current Basis
5. ANSI C37.12 - Guide to Specifications for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis or a Total Current Basis
6. ANSI C37.20 - Standard for Switchgear Assemblies Including Metal-Enclosed Bus
7. ANSI/IEEE C39.1 - Requirements for Electrical Analog Indicating Instruments
8. ANSI C57.13 - Requirements for Instrument Transformers
9. ANSI Z55.1 - Gray Finishes for Industrial Apparatus and Equipment
10. ANSI/IEEE 48 - Test Procedures and Requirements for High-Voltage AC Cable Terminations
11. NFPA 70 - National Electrical Code (NEC), latest edition adopted in Puerto Rico
12. NFPA 110 - Emergency and Standby Power Systems, latest edition adopted in Puerto Rico
13. Underwriters Laboratories, Inc. (UL)
14. National Electrical Manufacturers Association (NEMA)
15. Federal, Commonwealth of Puerto Rico, and local codes

1.03 APPLICABLE CODES AND STANDARDS - LOW VOLTAGE SECTIONS

A. The design, equipment, installation, and testing of the low-voltage (480 V) secondary switchgear sections of this Double-Ended Substation shall likewise be in strict accordance with the applicable requirements of ANSI, UL, IEEE, and NEMA.

B. The low-voltage switchgear construction, including all internal components mounted therein, shall be listed and labeled under UL Standard 1558 with a bus withstand rating of 100,000 amperes symmetrical for four (4) cycles minimum, at the time of bid opening. Manufacturers submitting air power breaker cubicles without UL 1558 listing and labeling with this withstand rating prior to bid opening shall not be accepted.

C. Due to the critical nature of this facility and to provide maximum reliability and single-point responsibility, the entire low-voltage switchgear system, including all controls, breakers, bus work, and components, shall be completely manufactured and assembled by a single manufacturer and shall be UL listed and labeled under the manufacturer's name at the time of bid opening. Manufacturers not listed and labeled by UL under "Circuit Breakers and Metal-Enclosed Switchgear under 600 Volts" at the time of bid opening shall not be acceptable.

D. All equipment and material supplied shall comply with the latest edition and amendments of the following standards, codes, and regulations:

1. ANSI/IEEE C12 - Code for Electric Metering
2. ANSI C37.20.1 - Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
3. ANSI/IEEE C39.1 - Requirements for Electrical Analog Indicating Instruments
4. ANSI C57.13 - Requirements for Instrument Transformers
5. Federal Specification W-C-375 - Circuit Breakers, Molded Case, Branch Circuit and Service
6. Federal Specification W-F-370 - Fuseholders (For Plug and Enclosed Cartridge Fuses)
7. NEMA AB 1 - Molded Case Circuit Breakers
8. NEMA KS 1 - Enclosed Switches
9. NEMA ICS 1 - General Standards for Industrial Control and Systems
10. NEMA PB 2.1 - Instructions for Safe Handling, Installation, Operation, and Maintenance of Dead-Front Distribution Switchboards Rated 600 Volts or Less
11. NFPA 70 - National Electrical Code (NEC), latest edition adopted in Puerto Rico, including Article 230 (Services), Article 240 (Overcurrent Protection), Article 450 (Transformers), and Article 517 (Health Care Facilities)
12. NFPA 110 - Emergency and Standby Power Systems, latest edition adopted in Puerto Rico

13. Underwriters Laboratories, Inc. (UL 1558, UL 1561)
14. Federal, Commonwealth of Puerto Rico, and local codes

1.04 SWITCHGEAR MANUFACTURER QUALIFICATIONS

A. It is the intent of the Owner to receive bids only from manufacturers adequately qualified to provide a highly reliable, fully integrated, state-of-the-art Double-Ended Substation switchgear system that can be successfully supported by the manufacturer over the lifetime of the system. Qualified bidders shall meet the following requirements and provide the necessary supporting documentation; failure to provide this documentation shall be considered a non-responsive bid and shall result in bid disqualification.

B. The manufacturer shall be a well-established company regularly engaged in the application, engineering, manufacturing, integration, and testing of critical electrical power control switchgear systems, and shall have a minimum of ten (10) years of experience in the design and manufacture of power control switchgear systems, automatic transfer switches, and related tie breaker/bus transfer schemes.

C. The manufacturer shall have adequate factory-employed field service personnel on staff for installation support, start-up, and life-of-system field support. Factory field service shall be available twenty-four (24) hours a day, 365 days a year; the manufacturer may not subcontract field service personnel. A 24-hour, toll-free hotline with a guaranteed call-back response within one (1) hour from a qualified factory technician shall be in place at the time of bid offering, with a proven history of response. Any manufacturer wishing to limit itself to a maximum number and type of field service visits for equipment start-up shall state so in its bid, together with published field service rates (including overtime and holiday rates) for additional visits.

D. The approved manufacturer is Russelectric or other Owner-approved equal.

1.05 SUBMITTALS

A. The Switchgear Manufacturer shall furnish a submittal with information adequate to fully define the system offered, including at minimum:

1. A single-line diagram clearly indicating the functional relationship between all equipment, from the 13.2 kV duplex switches through the transformers to the double-ended secondary switchgear and the Automatic Transfer Switches of Section 16700
2. Outline drawings showing plan and elevation views of each piece of equipment, including size, weight, dimensions and weight of shipping splits, and typical conduit entry areas
3. Detailed cubicle front-view drawings and equipment door-detail drawings showing all meter, annunciator, and control device locations, with nameplate legends and all required nameplate information

4. Base plans showing equipment floor channels, anchor bolt locations, and conduit entrance spaces
5. Catalog data sheets for all circuit breakers, load-break switches, fuses, and protective devices
6. Short-circuit rating of all bus, and interrupting and withstand ratings of all breakers and switches
7. Detailed bill of material identifying long-lead items for early release
8. System delivery schedule
9. Proposed sequence of operation for the entire system, including the automatic/manual tie breaker transfer logic
10. A statement listing all deviations and/or exceptions to this Specification

B. Two copies of the reviewed submittal, approved and stamped by the consulting engineer, will be returned to the Switchgear Manufacturer for production release.

1.06 OPERATING AND MAINTENANCE MANUALS

A. The Switchgear Manufacturer shall submit a complete hard copy and two electronic copies of the O&M manuals within two weeks after conclusion of equipment start-up and final acceptance. These manuals shall include, but not be limited to:

1. Detailed operating and maintenance instructions
2. All approved "As-Built" shop drawing information updated to "As-Installed," including all field modifications
3. Assembly splice-plate details for interconnection of shipping sections
4. Wiring diagrams for each breaker, switch, and other device, with all terminal markings and connections to other circuits
5. Internal connection diagrams of relays, instruments, and control switches
6. A complete parts list with all principal parts identified by manufacturer, type, and model number
7. A recommended spare parts list, with pricing, for one year of operation
8. A hard copy of the equipment PLC/control program, bound separately
9. Complete system interconnect diagrams

C. The manufacturer shall provide an optional, comprehensive preventive maintenance program.

D. A complete set of O&M manuals shall be delivered to the Owner prior to training of Owner personnel.

E. O&M manuals shall contain 100% accurate As-Installed drawings, interconnect diagrams, schematic diagrams, wiring diagrams, individual subsystem component manuals, operating procedures, a system description with theory of operation, maintenance schedules and procedures, original programmed settings and parameters (including all breaker trip unit and ABT/tie breaker settings), and all other information necessary for the Owner to maintain, operate, test, and troubleshoot the system.

F. O&M manuals shall not rely solely on sub-component manuals; a thorough consolidation of operation and maintenance information shall be provided in a system overview guide covering all major components - breakers, tie breaker controls, PLC/OIP interface, protective relays, meters, and the Master Control/annunciator cubicle.

1.07 WARRANTY

A. The Manufacturer shall provide a complete minimum two (2) year warranty from the date of shipment. Any failure to comply with the Contract Documents, or any defect appearing within the warranty period, shall be corrected at no cost to the Owner.

1.08 QUALITY ASSURANCE

A. Single Source Responsibility: All components of the Double-Ended Substation - the 13.2 kV duplex load-break switch and fuse assemblies, the indoor dry-type transformers, and the 480 V double-ended secondary switchgear (main breakers, tie breaker, and distribution breaker sections) - shall be supplied by a single manufacturer to ensure full system compatibility, coordinated ratings, and unified warranty responsibility, per Section 1.2.B and Section 1.3.C above.

B. Protective Device Coordination: The D&B Contractor's licensed Electrical Engineer shall prepare and submit the full protective device coordination study, arc flash hazard analysis, and fault current study at the 13.2 kV building substation primary and at the 480 V switchgear bus (with both transformers contributing) at the Design Development (DD) phase, per Bridging Document Section 4.3. All breaker trip unit settings shall be programmed, verified, and documented before energization.

C. NEC 517.17 Compliance (Two-Level Ground Fault Protection): The ground fault protection (GFP) scheme provided on each main circuit breaker (Section 2.4) and on each feeder breaker serving patient care areas in the distribution breaker sections (Section 2.7) shall be fully selective and time-coordinated as required by NEC 230.95 and NEC 517.17, and shall be verified by the protective device coordination study. Main breaker and tie breaker trip units shall include Zone Selective Interlocking (ZSI) capability to achieve high-speed selective coordination with the downstream feeder breakers without sacrificing clearing time.

D. Factory Testing: All major equipment shall undergo the routine and production factory testing specified in Part 3, Section 3.2 of this Section, with test reports

submitted to the Owner's Engineer before delivery acceptance. Field energization shall not proceed without written Engineer approval.

E. Spare Capacity: The minimum 10% spare capacity required by Section 16100, Section 1.4.A shall be maintained in the secondary switchgear bus ratings and in the future breaker spaces provisioned in the distribution breaker sections.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with the requirements specified herein, the approved manufacturer for the complete, single-source Double-Ended Substation system (duplex switches, transformers, and secondary switchgear) is Russelectric or other Owner-approved equal.

2.02 SYSTEM OVERVIEW

A. Furnish the Double-Ended Substation (DES) as shown on the Drawings, with automatic or manual tie breaker operation at the discretion of operating personnel. The incoming 13.2 kV section shall be three-phase, three-wire, and the 480 V distribution section shall be three-phase, four-wire. Individual cubicles of the Double-Ended Substation switchgear shall be UL listed and labeled as applicable under UL 1561 (transformer cubicles) and UL 1558 (low-voltage switchgear cubicles). Manufacturers not listed and labeled by UL at the time of bid opening shall not be acceptable.

B. The switchgear shall be arranged for fully automatic or manual operation at the discretion of the operator. In the automatic mode, the tie breaker transfer function shall be supervised by the facility's programmable logic controller (PLC) and operator interface panel (OIP) system described in Section 2.7 below, coordinated with the generator paralleling switchgear of Section 16800. The system shall also be designed to provide safe manual operation completely independent of the automatic PLC/OIP system, using hard-wired interlocks, instruments, and control switches as specified herein. Each switchgear section shall be complete with the necessary AC instrumentation, relaying, pilot lights, selector switches, and accessories specified in this Section.

C. Control power for the PLC, relaying, and control circuitry described in this Section shall be derived from a reliable, code-compliant DC control power source (station battery/charger system) coordinated with the facility's emergency power control systems; AC control power shall be derived from the potential transformers and control power transformers specified herein.

D. All system operation and control functions shall be coordinated and integrated such that during automatic and/or manual operation, no unsafe condition and no

malfunction of intended operation shall occur, and the highest possible reliability of operation shall be maintained.

E. Coordinate and integrate the functions and circuitry of all selector switches to ensure that the available settings do not cause a malfunction of the intended system operation.

2.03 SEQUENCE OF OPERATION - DOUBLE-ENDED SUBSTATION

A. The switchgear shall operate as directed by a two-position Auto-Manual Tie Breaker Selector Switch, located in the Tie Breaker Cubicle, to select Automatic or Manual tie breaker operation.

B. The normal positions of the switchgear breakers shall be:

1. Main Breaker 1 (MB-1, fed from Transformer 1 / 13.2 kV Duplex Switch 1) - Normally Closed
2. Main Breaker 2 (MB-2, fed from Transformer 2 / 13.2 kV Duplex Switch 2) - Normally Closed
3. Tie Breaker (TB) - Normally Open

C. Automatic Mode: When the Auto-Manual Tie Breaker Selector Switch is in the AUTO position and a power failure occurs on one of the two incoming sources (loss of the associated transformer or main breaker) while the second source remains available, the switchgear shall wait through an adjustable 0-300 second time delay for restoration of the failed source, with voltage supervision on both bus sections to confirm a genuine dead-bus condition before any transfer. If, at expiration of the time delay, the failed source has not been restored, the associated main breaker shall open and the tie breaker shall close (within 4 cycles / 67 milliseconds of the transfer command being issued) to feed both bus sections from the surviving main breaker/transformer. When the failed source returns, after an adjustable time delay, the switchgear shall open the tie breaker and close the main breaker that was open, retransferring the loads in an open-transition sequence so that each main breaker again feeds its own bus section. The open-transition retransfer time shall be adjustable from the OIP. An anti-paralleling interlock shall prohibit the tie breaker from closing while both main breakers are simultaneously closed.

D. If both incoming sources fail simultaneously while in AUTO mode, all switchgear breakers shall remain in their existing position.

E. Manual Mode: When the Auto-Manual Selector Switch is in the MANUAL position, the switchgear can be operated only manually, and all manual operations shall be of the open-transition type. The switchgear shall be designed with the following interlocks to prevent operator error:

1. A main breaker shall not be able to close if the tie breaker and the other main breaker are both closed; either the tie breaker or the opposite main breaker must first be opened before the main breaker is allowed to close

2. The tie breaker shall not be able to close unless one of the two main breakers is open; if both main breakers are closed, one must be opened before the tie breaker is allowed to close

F. The switchgear shall transmit breaker status, power monitoring data, alarms, events, and a one-line diagram display to the SCADA/BMS system; control and settings shall be accessible from the SCADA desktop and the Paralleling Switchgear OIP.

2.04 CIRCUIT BREAKERS - MAIN AND TIE CIRCUIT BREAKERS

A. General: All breakers of the switchgear (MB-1, MB-2, and the Tie Breaker) shall be three-pole, draw-out type, provided with self-aligning line-side and load-side disconnecting devices. The main and tie circuit breakers shall be electrically operated, interchangeable with each other, minimum 5,000 A frame, 100% continuous-duty rated, and equipped with stored-energy operating mechanisms.

B. Rating: Breakers shall be rated nominal 480 VAC, three-phase, 60 Hz, with a minimum interrupting rating of 100 kAIC (preliminary; subject to confirmation by the final fault current study). Continuous current rating shall be as indicated on the Contract Drawings, and in no case less than the 5,000 A minimum bus continuous rating specified in Section 2.8 below; breaker trip rating shall be sized to match the transformer full-load current at 480 V (3,750 kVA at 480 V equals approximately 4,510 A full load), confirmed by the D&B Contractor's load calculation. Rated dielectric strength shall be per ANSI C37.04 and C37.06 for this nominal voltage class.

C. Trip Unit: Each breaker's trip unit shall be fully electronic, microprocessor-based, with independently adjustable Long-Time (LT), Short-Time (ST), Instantaneous (INST), and Ground Fault (GF) overcurrent protection, individual dials and adjustable rating plugs for trip settings, and internal sensors to power the trip unit. Ground fault protection shall be provided per NEC 230.95 and NEC 517.17 on each main breaker, and the trip unit shall include Zone Selective Interlocking (ZSI) capability so that the main breaker and tie breaker GFP and short-time functions are time-coordinated with the downstream distribution feeder breakers (Section 2.7) for fully selective, two-level ground fault protection as required by NEC 517.17 in this health care facility, minimizing nuisance tripping of the entire bus on a downstream fault.

D. Metering: Each breaker trip unit shall be supplied with 1.5% accuracy digital ammeter (power) metering with LCD display and a Modbus communication module to transmit current/power information to remote systems, including the operator interface panel (OIP) of the Paralleling Switchgear; an operator shall be able to view metered information at the OIP by selecting the breaker on the single-line screen.

E. Standards: Voltages, currents, interrupting ratings, operating times, and duty cycle shall be in accordance with ANSI C37.04 and C37.06.

F. Operating Mechanism: Stored-energy type, maximum closing time 5 cycles; control voltage 24 VDC trip, 120 VAC close and charge.

G. Auxiliary Contacts: Provide auxiliary contacts, interlocks, and relays as required for control, alarm, and interlocking functions, plus a minimum of four (4) spare auxiliary contacts (two "a" and two "b") on each breaker.

H. Interchangeability: Per ANSI C37.20.

I. Operation: Breaker controls shall function in both the OPERATE and TEST positions of the breaker.

J. Control Wiring: Breaker control wiring shall be per ANSI C37.11, with separate fusing of close and trip circuits.

K. Manual Operation: Provide means for integral manual tripping and closing of each breaker.

L. Interlocks: Provide a mechanical interlock preventing removal or insertion of a breaker while in the closed position, and an interlock that automatically discharges the closing springs upon removal from, or insertion into, the compartment. In addition to these individual-breaker interlocks, provide the mechanical and electrical key interlocking described in Section 2.3 above between MB-1, MB-2, and the Tie Breaker to enforce the double-ended closed-bus/open-tie operating modes.

2.05 INCOMING 13.2 KV DUPLEX LOAD-BREAK SWITCHES

A. Provide two (2) UL-listed 13.2 kV, 600 A duplex-configuration load-break switches, one per transformer. Each duplex switch shall provide two (2) incoming positions, each connected to one of the two separate, independent 13.2 kV feeders, with a common load-side bus feeding the associated transformer through a set of fuses. This duplex arrangement allows either of the two incoming 13.2 kV feeders to be manually selected to serve either transformer, providing full two-source feeder redundancy at the 13.2 kV level - loss of one 13.2 kV feeder does not interrupt service to either transformer, because each duplex switch can be manually switched to the surviving feeder.

B. Provide key interlocks on each duplex assembly to permit only one of the two incoming switch positions to be closed at any one time.

NOTE: The duplex switch arrangement is a two-source, manual-transfer medium-voltage switching scheme; it does not provide automatic feeder transfer at 13.2 kV. Any feeder switching at 13.2 kV requires de-energizing the affected position and complying with NFPA 70E electrical safe work practices for medium-voltage equipment.

2.06 TRANSFORMERS

A. Provide two (2) indoor, dry-type substation transformers, each rated 3,750 kVA. Primary: 13.2 kV delta, three-phase, three-wire; Secondary: 480Y/277 V wye, three-phase, four-wire, 60 Hz, with two 2-1/2% full-capacity taps above normal and two 2-1/2% full-capacity taps below normal on the primary winding. All transformers shall

have an average winding temperature rise of 80 degrees C above a 40 degree C maximum, 30 degree C average ambient.

B. Impedance: The transformer impedance shall not be lower than 6.00% at rated kVA and frequency, and shall be increased above this standard minimum value, as necessary and confirmed with the manufacturer, to limit the available fault current at the 480 V switchgear bus due to the proximity of downstream distribution equipment and the resulting high available short-circuit currents at this bus, per Bridging Document Section 4.3.

C. DOE Compliance: The transformers shall comply with 10 CFR Part 431 as registered on the U.S. Department of Energy's Compliance Certification Database per 10 CFR Part 429.

D. Cooling: Fan cooling equipment shall include a three-phase electronic winding temperature monitor, controlled automatically by Type K thermocouples placed in the low-voltage air duct. The temperature monitor shall contain yellow and red indicating lights - yellow indicating fan power, red signaling that alarm and trip contacts have been activated - and shall provide an adjustable analog milliampere output for remote indication. Alarm contacts shall be provided for fan status, high-temperature alarm, and trip functions, and an audible alarm shall sound when the highest phase temperature exceeds a preset point. Fans shall be capable of manual or automatic operation; a minimum of six (6) fans shall be provided. The forced-air cooling system shall include fans, control wiring, a controller with test switch, current-limiting fusing in the controller's power supply, indicating lights, an alarm-silencing relay, an auto/manual switch, and all necessary accessories.

E. BIL: The basic impulse level (BIL) shall be a minimum of 95 kV.

F. Windings: Coils shall be wound with copper conductors (both primary and secondary).

G. Insulation System: All insulating materials shall be in accordance with IEEE C57.12.01, 220 degree C UL insulation system (Class H).

H. Core: Cores shall be constructed of high-grade, grain-oriented, non-aging silicon steel with high magnetic permeability and low hysteresis and eddy current losses; magnetic flux densities shall be kept well below saturation. Core laminations shall be step-lap, miter-cut at the corners to reduce hot spots, core loss, excitation current, and sound level. The core shall be visibly grounded to the ground bus or ground pad by a flexible grounding conductor.

I. VPI/VPE Process: The coils and clamping structure shall be assembled on the core and dried at atmospheric pressure in a hot-air circulating oven. The totally assembled core-and-coil assembly shall be vacuum-pressure impregnated (VPI) in polyester varnish, applying a one-cycle polyester protective shield of varnish, cured on an established temperature-versus-time baking cycle, effectively impregnating the entire assembly to render it virtually impermeable to moisture, dust, salt air, and

other industrial contaminants. In addition, the vacuum-pressure-encapsulated (VPE) process shall apply multiple coats of silicone varnish to provide a still higher degree of protection from moisture, consistent with the coastal/tropical service environment of this project.

J. Enclosure: Transformer enclosures shall be fabricated of heavy-gauge sheet steel, ventilated, indoor type as required by the Drawings, with lifting provisions on the base structure and jacking pads flush with the enclosure. The base shall be constructed of steel members permitting skidding or rolling in any direction. Rubber vibration-isolation pads shall be installed by the manufacturer between the core-and-coil assembly and the enclosure.

K. Sound Level: Transformer sound levels shall be warranted by the manufacturer not to exceed the values specified in IEEE C57.12.01.

2.07 CONTROL AND SAFETY DEVICES

A. Annunciator Panel: A back-lit LED annunciation panel shall be provided with individual 1.575 in. x 1.575 in. square translucent windows and black-engraved 3/8 in. lettering indicating the nature of each alarm, failure, or status condition. LED indicators shall be plug-in type with a dual-circuit design incorporating four redundant strings of LEDs, such that a failed LED string does not render the lamp inoperative. A push-to-test button shall be furnished on each annunciated section.

B. Current Transformers: 0-5 ampere output, wound type, molded construction, single secondary winding, primary/secondary ratio as required, burden and accuracy consistent with the connected metering and relay devices; rated 50-400 Hz, 600 V at 10 kV BIL full wave; built to ANSI/IEEE C57.13 and UL in accordance with IEC 44-1.

C. Manual-Auto Control Switch: A two-position selector switch labeled "Manual-Auto" shall be provided on the Tie Breaker Cubicle door, per Section 2.3.A above. Whenever this switch is placed in the MANUAL position, the system shall annunciate this condition.

D. Meters: Multi-function power meters capable of reading all electrical power measurements, with digital communications capability, shall be provided at each main breaker, tie breaker, and distribution feeder cubicle.

E. Potential Transformers: Rollout potential transformers, open-delta primary to open-delta secondary, 120 V single secondary, primary fusing and secondary circuit breaker protection, primary/secondary ratio as required, burden and accuracy consistent with the connected metering and relay devices, 60 Hz.

F. Protective Relaying: All protective relaying shall be separate from, and independent of, the PLC control system.

G. Programmable Controllers: The automatic tie breaker transfer function shall be controlled by two redundant, hot-standby programmable automation controllers (PLCs), located in the Paralleling Switchgear of Section 16800, with dual redundant

reflective memory modules in each to provide high-speed, redundant fiber communications synchronizing the scans between the two PLCs. Each PLC shall have a separate power supply and chassis with distributed input/output cards on a ring communications topology, backed up by non-volatile flash memory. If both PLCs become inoperable, the switchgear system shall default to full manual control with all required hard-wired interlocks in place, and shall provide audible and visual alarms to alert personnel so corrective action can be taken.

H. Over/Under Voltage and Frequency Relay: An overvoltage (100-125%), undervoltage (75-100%), overfrequency, and underfrequency relay shall be supplied to monitor the incoming voltage on each bus section and provide alarms and initiate automatic transfer sequences as required for abnormal conditions; each setpoint shall have an independent, adjustable time delay (1 to 30 seconds).

I. Automatic Tie Breaker Control: The automatic tie breaker function shall be controlled by the hot-standby, dual-redundant PLC system described above, utilizing distributed I/O residing in the Tie Breaker Cubicle with its own power supply, chassis, and input/output cards. In the event of a failure of both PLCs or an I/O module, the system shall be arranged so that an operator can manually operate the switchgear. A fail-to-close or fail-to-open time-delayed alarm function shall sound a warning horn in the event the Tie Breaker or either Main Breaker fails to operate as commanded; after such a failure to operate automatically, the operator may, at his discretion, operate the system manually by turning the Tie Breaker Auto-Manual Switch to the MANUAL position.

2.08 MAIN BUS SECTIONS - RATINGS AND INSTRUMENT/CONTROL WIRING

A. Bus Ratings: Copper bus bars, silver-plated at all joints and connections; minimum 5,000 A continuous rating per bus section (Bus 1 and Bus 2), confirmed by the D&B Contractor's load calculation; bus rated for 100% continuous duty and fully braced for the available fault current at the 480 V bus with both transformers contributing, per the fault current study of Section 1.5.A.11 above.

B. Instrument and Control Wiring: Instrument and control wiring within the switchgear sections shall be flame-retardant, type SIS, extra-flexible, tinned copper, rated 600 V and approved for switchgear use.

C. Control wiring shall be protected by individual circuit breakers with trip indication, monitored by the system PLC and alarmed on the OIP.

D. All wire terminations at meters, relays, and similar devices shall use ring-tongue or locking-spade crimp lugs, or as required by the device termination point.

E. All terminations shall be clearly identified by heat-embossed vinyl sleeve markers at each end; labeling tape or paper wire markers are not acceptable. Wire numbers shall match the manufacturer's interconnection, schematic, and wiring drawings.

F. Terminal blocks shall utilize cage-clamp technology, supplied and clearly marked for wiring to be installed or reconnected by the Contractor. All connections between

shipping sections shall utilize plug connections to reduce installation time; cage-clamp terminal blocks providing high clamping force, maintenance-free terminations shall be provided for all secondary wire terminations.

G. All current transformers shall be connected to shorting-type mechanical lever-arm switches with test points; current transformer secondary wiring shall be #12 AWG.

H. Control wiring shall be labeled at each terminal point with designations keyed to the wiring diagrams.

2.09 SWITCHGEAR CONSTRUCTION

A. Framework:

1. Freestanding, floor-mounted, indoor type, NEMA 1
2. Dead front, dead rear
3. Fabricated on a die-formed steel base or base assembly, welded or bolted together to rigidly support the entire shipping unit for moving on rollers and floor mounting
4. Die-pierced holes for connecting adjacent sections to assure alignment and facilitate future additions
5. Bolts, nuts, and Belleville spring washers shall be zinc-plated
6. Designed to withstand the mechanical stresses of rough handling during shipment, in addition to the electrical and mechanical stresses occurring during operation
7. Framework formed of code-gauge steel (12 gauge minimum), suitable for anchorage to the floor
8. Rugged steel assemblies with bracing, reinforcing gussets, and jig-welding to assure rectangular rigidity; sections shall be completely metal-enclosed
9. Each section shall have an open bottom as required for ready installation and termination of conduits; top and bottom conduit/bus duct areas shall be clearly shown and dimensioned on the shop drawings
10. All side, top, front, and back panels shall be removable, bolt-attached, and sized for easy handling by one person
11. Front and rear doors, hinge-mounted with lock-type operating handles, on all cubicles for easy access
12. Individual front doors shall be supplied for each power circuit breaker compartment; layout to be reviewed with the shop drawing submittal
13. Suitable provisions near the top and bottom of the switchboard to ensure adequate ventilation for all equipment within the assembly

B. Dimensions:

1. Conform to the arrangements and details shown on the Drawings and to the space designated for installation
2. Constructed so the highest operating handle does not exceed 6 ft-6 in. above the switchgear sill
3. Adequate gutter space on all sides of the switchboard sections; clearance to permit good accessibility of feeder conductors and bus ducts

C. Painting: All steel parts shall be prepared for painting by a five-step cleaning, phosphatizing, and sealing process, then painted ANSI 61 gray using electrostatically applied polyester powder coating cured in a baking oven, suitable for outdoor as well as indoor applications, with corrosion resistance per ASTM B117 for 1,000 hours minimum.

D. Bus Bars and Interconnections:

1. All buses and stub connections shall be silver-plated copper, plated after bending and machining; 480 V, three-phase, four-wire, 60 Hz unless otherwise specified. Bus size shall limit current density to not more than the current-carrying capacity of the rectangular copper bars, per UL and NEMA standards; heat-rise tests per UL 1558
2. Buses and stub connections shall limit temperature rise to 30 degrees C at load current capacity, 40 degrees C ambient
3. Bus bar and interconnection joints shall be silver-plated, constant-high-pressure type, with Grade 5 steel, zinc-plated bolts, nuts, and Belleville spring washers
4. Bus bracing capacity shall be equal to or greater than the frame rating of the main breakers served
5. A ground bus with not less than 25% of the current-carrying capacity of the switchgear main bus shall extend the entire width of the switchboard assembly
6. Bus phase designations front to back, top to bottom, left to right shall be A, B, C respectively, viewed from the front
7. Main horizontal bus bars between sections shall be located to permit maximum conduit and wiring area
8. The continuous ampere rating of the main power bus shall be as shown on the Contract Drawings and not less than the 5,000 A minimum of Section 2.8.A above; bus connections to the power circuit breakers shall match the breaker frame size to which they are connected

E. The switchgear shall consist of metal-enclosed cubicles and auxiliary compartments, characterized by the following:

1. Power circuit breakers installed in individual front compartments with separate doors

2. Buses installed in rear compartments, with inter-cubicle and/or rear cable compartment isolation barriers
3. All compartments completely enclosed within grounded metal barriers, isolating secondary control devices and their wiring from all 480 V primary devices
4. Interlocks provided for proper sequencing and safe operation
5. Where a rear compartment houses any control components, grounded metal personnel-protection barriers shall isolate the bus compartments
6. The medium-voltage (13.2 kV duplex switch) sections of the switchgear shall conform to Section 2.5 above

F. Nameplates: Externally visible, permanent nameplates shall identify each instrument, instrument switch, meter, protective relay, control switch, indicating light, and circuit breaker compartment, with relays designated as to use and connected phase; nameplates shall be laminated plastic, bolt-attached, white-engraved characters on a black background. Equipment (relays, timers, PLC equipment, etc.) and terminal blocks within compartments shall be identified by thermally embossed labeling tape.

G. Miscellaneous: System controls shall utilize heavy-duty, industrial-grade controls and relays; all synchronizing and failure-circuit relays shall embody the fail-safe principle of dual contacts in parallel. The switchgear manufacturer shall be responsible for coordinating wiring diagrams showing the electrical connections between this Section's equipment and related systems (Section 16700, Section 16800), for use by the Electrical Contractor during installation and checkout.

2.10 EQUIPMENT DESCRIPTION

The switchgear cubicles shall be UL 1558 listed and labeled. Manufacturers not listed and labeled by UL at the time of bid opening shall not be acceptable.

A. Switchgear Bus Arrangement - Seven-Section Lineup: The complete secondary switchgear lineup shall consist of seven (7) sections arranged left-to-right in the following order, per Bridging Document Section 5.1.1: Main Breaker Section 1 (MB-1) - Distribution Section 1 - Distribution Section 2 - Tie Breaker Section (TB) - Distribution Section 3 - Distribution Section 4 - Main Breaker Section 2 (MB-2). The four (4) Distribution Feeder Breaker Cubicles referenced in Item F below correspond to Distribution Sections 1 through 4 of this arrangement - two sections adjacent to, and served from, Bus 1/MB-1/Transformer 1, and two sections adjacent to, and served from, Bus 2/MB-2/Transformer 2 - and shall each feed one of the four building load categories (Life Safety, Critical, Equipment System, and Optional Standby) via its corresponding Automatic Transfer Switch specified in Section 16700.

B. Incoming Load Break Fused Disconnect Switch Cubicles: Furnish two (2) UL-listed metal-clad cubicles, each with a 15 kV-class incoming duplex load-break switch with one common load bus with fuses, per Section 2.5 above. Each cubicle shall have:

1. One 600 A, 15 kV, gang-operated load-break switch section
2. One 600 A, 15 kV, gang-operated load-break switch and a set of fuses in the common load bus section

C. Transformer Cubicles: Furnish two (2) transformer cubicles, UL listed and labeled substation type per UL 1561. Transformers shall comply with 10 CFR 431 as registered on the U.S. Department of Energy's Compliance Certification Database per 10 CFR 429, and with:

1. High-voltage terminations designed for close coupling to the load-break switch section, as shown on the Drawings; low-voltage terminations designed for close coupling to the Main Breaker cubicles, as shown on the Drawings
2. Transformer(s) rated and constructed as specified in Section 2.6 above
3. A set of three-phase, 5,000 A insulated copper bus and ground bus, as required for main bus and breaker connections
4. Control wiring, DC circuit breakers, fuses, fuse blocks, cage-clamp terminals, nameplates, etc., as required; all wiring labeled at both ends with tubular sleeve, permanent wire markers

D. Main Breaker Cubicles (MB-1, MB-2): The metal-clad Main Breaker cubicles, including all internal components, shall be listed and labeled under UL 1558 with a bus withstand rating of 100,000 amperes symmetrical for four (4) cycles minimum, and shall be furnished with:

1. One 5,000 A frame, electrically operated, draw-out power circuit breaker with adjustable overcurrent and short-circuit trips, rated 100 kAIC at 480 VAC, per Section 2.4 above
2. One circuit breaker control switch, with a separate back-lit LED annunciator for breaker status (open, closed, drawn out)
3. One multi-function power meter with digital communications
4. Lamp test switch
5. 125 VDC to 24 VDC converter
6. One multi-function utility/transformer-interconnection protection relay (ANSI device numbers 81 O/U, 50/51, 51G, 47, and 27/59)
7. One set of current transformers, ratio as required
8. One set of potential transformers, ratio as required
9. One set of three-phase, 5,000 A main bus, fully rated neutral bus, and separate ground bus, all silver-plated copper

10. A set of control wiring, DC circuit breakers, fuses, fuse blocks, terminals, and nameplates, all wiring labeled at both ends

E. Tie Breaker Cubicle: The metal-clad Tie Breaker cubicle, including all internal components, shall be listed and labeled under UL 1558 with a bus withstand rating of 100,000 amperes symmetrical for four (4) cycles minimum, and shall be furnished with:

1. One 5,000 A frame, electrically operated, draw-out power circuit breaker with adjustable overcurrent and short-circuit trips, rated 100 kAIC at 480 VAC, matching the main breakers per Section 2.4 above
2. One circuit breaker control switch, with a separate back-lit LED annunciator for breaker status (open, closed, drawn out)
3. One PLC distributed I/O module, complete with input/output modules, communication modules, and power supplies, for remote SCADA control and monitoring, per Section 2.7.I above
4. One multi-function power meter with digital communications
5. One two-position Tie Breaker Mode Selector Switch, with a "Tie Breaker Auto - Tie Breaker Manual" nameplate, operating as described in Section 2.3 above
6. A back-lit annunciation panel with the following indications:
    a. Tie Breaker in Auto Mode - Status - Green
    b. Tie Breaker in Manual Mode - Status - Amber (Flashing)
    c. Tie Breaker Failure to Close - Alarm - Red
    d. Tie Breaker Failure to Open - Alarm - Red
    e. Main Breaker 1 (MB-1) Failure to Close - Alarm - Red
    f. Main Breaker 1 (MB-1) Failure to Open - Alarm - Red
    g. Main Breaker 2 (MB-2) Failure to Close - Alarm - Red
    h. Main Breaker 2 (MB-2) Failure to Open - Alarm - Red
    i. Control Voltage Failure - Alarm - Red
    j. PLC I/O Drop Failure - Alarm - Red
7. Lamp test switch
8. 125 VDC to 24 VDC converter
9. One multi-function protection relay (ANSI device numbers 50/51, 51G)
10. One set of current transformers, ratio as required
11. One set of three-phase, 5,000 A main bus, fully rated neutral bus, and separate ground bus, all silver-plated copper
12. A set of control wiring, DC circuit breakers, fuses, fuse blocks, terminals, and nameplates, all wiring labeled at both ends

F. Distribution Feeder Breaker Cubicles: Furnish four (4) distribution feeder breaker cubicles (Distribution Sections 1 through 4 of Item A above), listed and labeled under UL 1558, one dedicated to each of the four building load categories (Life Safety, Critical, Equipment System, and Optional Standby), each feeding its corresponding Automatic Transfer Switch specified in Section 16700. Each cubicle shall have:

1. The quantity and frame/trip size of air power circuit breakers shown on the Drawings, draw-out type, manually operated, rated 100 kAIC at 480 VAC, with terminal lugs for each feeder as shown; ground fault protection per NEC 517.17 on all feeder breakers serving patient care areas, time-graded and selective with the main breaker GFP per Section 2.4.C above
2. One set of three-phase, 5,000 A main bus, fully rated neutral bus, and separate ground bus, all silver-plated copper
3. A set of control wiring, DC circuit breakers, fuses, fuse blocks, cage-clamp terminals, and nameplates, as required; all wiring labeled at both ends
4. Minimum one (1) future breaker space per distribution section, fully provisioned with bus stubs and draw-out rails, per Section 1.8.E above

G. Circuit Breaker Lifting Device: Provide an overhead circuit breaker hoist system to traverse the length of the power switchgear via a front-and-rear rail system. The overhead lift device shall be manually operated via hand crank, with a minimum rated capacity of 1,200 lbs.

PART 3 - EXECUTION

3.01 COORDINATION

A. The Switchgear Manufacturer shall be responsible for providing coordinating interconnect diagrams showing the electrical connections between all related equipment specified in this Section, for use by the Electrical Contractor and switchgear service personnel during installation and checkout.

B. The Switchgear Manufacturer shall verify completion of all start-up commissioning and site testing of the Double-Ended Substation switchgear system.

C. The Electrical Contractor shall be responsible for obtaining and providing the short-circuit, protective device coordination, and arc flash study specified in Section 1.5.A.11 above, and shall furnish a copy of the approved study to the Owner, the consulting engineer, and the switchgear manufacturer's start-up field engineer prior to commencement of switchgear start-up procedures.

3.02 FACTORY TESTING

A. At the factory, the Switchgear Manufacturer shall perform tests on the switchgear as required to verify proper operation of each component and demonstrate full compliance with this Specification. Factory test reports shall be available upon

request and, per Section 1.8.D above, shall be submitted to the Owner's Engineer before delivery is accepted.

B. The equipment shall be completely assembled, wired, adjusted, and tested at the factory. Rigid inspections before and after assembly shall assure correctness of design and workmanship. After assembly, each switchgear assembly shall be tested for operation under simulated conditions.

C. After a visual inspection, the following operational tests shall be performed:

1. Operate all circuit breakers in the connected and test positions; check the operation of all interlocks by attempting to close breakers into interlocked configurations
2. Check racking mechanisms by removing and reinstalling each circuit breaker
3. Check the stored-energy mechanism of each breaker by tripping, closing, and tripping the breaker after removal of control power
4. Perform dielectric (hi-pot) tests
5. Test all protective relay devices by simulation testing

3.03 PACKING AND SHIPPING

A. The Switchgear Manufacturer shall prepare all equipment covered by this Specification to protect it against damage in transit.

B. The Switchgear Manufacturer shall perform the following steps to prepare the equipment for shipping and final assembly at the site:

1. All equipment shall be adequately packed to prevent damage from handling, weather, shock, vibration, and corrosion during shipment by common carrier
2. All metering and equipment shall be protected to ensure cleanliness during shipment, storage, and erection
3. Each item of equipment shall be clearly marked; all boxes, crates, and shipments shall be numbered and identified with the following:
    a. Owner's purchase order number
    b. Owner's name and delivery location
    c. Manufacturer's name and address
    d. Contents
4. All equipment shall have provisions for lifting and skidding, with all lifting points clearly marked
5. Each shipping unit shall be braced adequately and rigidly, both internally and externally, to prevent damage during transit or erection
6. Assemblies requiring disassembly for installation, or shipped disassembled, shall have each affected piece uniquely identified as to its assembly position;

all loose peripheral equipment shall be boxed, crated, or otherwise completely enclosed and protected during storage, handling, and shipment

C. All equipment and material shall be shipped to the job site unless otherwise instructed.

D. All equipment shall be adequately protected, braced, and secured to prevent physical and environmental damage during transit and handling. All material not mounted or installed on the major equipment during shipping shall be properly crated and shipped with the associated equipment.

E. Draw-out circuit breakers shall be crated and shipped separately if recommended by the breaker vendor; otherwise, breakers shall be shipped within the system.

F. The Switchgear Manufacturer shall coordinate shipping of all equipment and material with the D&B Contractor.

G. Shipping sections shall be arranged to permit transport through limited-access routes as required.

H. The equipment shall be equipped for handling by crane, pallet jack, and rollers.

3.04 INSTALLATION

A. The Electrical Contractor shall provide labor for installation of the Double-Ended Substation switchgear system, plus all associated external power and control wiring. All rigging required for unloading and installation shall be the responsibility of the Electrical Contractor.

B. The switchgear shall be installed following the procedures set forth by the Switchgear Manufacturer. The Switchgear Manufacturer shall assist the Electrical Contractor as required in interpreting the installation instructions. The Electrical Contractor shall certify to the Switchgear Manufacturer and Owner that installation has been performed per the latest documents and instructions.

C. Following installation, the Switchgear Manufacturer shall inspect and verify the correct installation of the switchgear, including all individual components.

D. The D&B Contractor shall be responsible for the installation and connection of all interconnections of control and communication wiring between the equipment supplied for the facility, including:

1. Paralleling Switchgear (Section 16800)
2. Emergency generators and auxiliary equipment - day tanks, battery chargers, remote annunciators, etc. (Section 16900)
3. Double-Ended Substation (this Section)
4. SCADA computer/Building Management System
5. Automatic Transfer Switches (Section 16700)

3.05 FIELD SERVICE, START-UP, AND TRAINING REQUIREMENTS

A. The Switchgear Manufacturer shall provide a field service engineer for a pre-installation coordination meeting with the Electrical Contractor to coordinate installation and interconnection of the Double-Ended Substation switchgear system with the generators and paralleling switchgear.

B. The Switchgear Manufacturer shall provide a field engineer for an initial visit to check out the switchgear installation and permit energization of the main breakers, if required.

C. The Switchgear Manufacturer shall provide a field engineer for post-installation start-up and testing assistance prior to system turnover, including initial instruction and training for the facility's operating personnel. This visit shall include all service required to check out the complete switchgear system and demonstrate its full operation for final acceptance by the Owner.

D. At the time of system start-up, the Switchgear Manufacturer shall furnish two (2) preliminary sets of installation, operating, and maintenance manuals. At conclusion of site testing, the field engineer shall leave one (1) manual at the site, including all changes made during start-up; this amended manual shall serve as a reference until the final O&M manual sets, per Section 1.6 above, are supplied.

E. Instructions shall include recommended field test procedures per the applicable Standards, with a schedule of the frequency prescribed for performing field tests.

F. Approximately six (6) months after complete system turnover, the Switchgear Manufacturer shall make a follow-up visit to provide additional instruction to operating personnel on the complete operation and maintenance program for the Double-Ended Substation switchgear system.

END OF SECTION 16600

SECTION 16700 AUTOMATIC TRANSFER SWITCHES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Automatic Transfer Switches (ATS), with number of poles, amperage, and voltage as shown on Drawings, serving the four load categories of the facility's emergency and standby power system - Life Safety Branch, Critical Branch, Equipment System, and Optional Standby (Non-Essential) System - located in the Basement Main Electrical Room adjacent to the double-ended substation. Withstand and close-on ratings listed in this Section are minimum requirements; transfer switches furnished without UL-tested and labeled 3-cycle and 30-cycle ratings as detailed in Part 2 will not be reviewed or approved.

B. Related Sections:

1. Section 16100 - Basic Electrical Materials and Methods
2. Section 16600 - Double-Ended Substation (normal source to each ATS)
3. Section 16800 - Paralleling Switchgear (emergency/generator source to each ATS)

1.02 REFERENCES

The Automatic Transfer Switches and associated controls shall conform to the requirements of the following codes and standards. Where conflicts exist among referenced codes and standards, the most stringent requirement shall govern.

A. Puerto Rico Building Code (PRBC), incorporating by reference the 2018 International Building Code (IBC) with Puerto Rico amendments, or the latest edition adopted in Puerto Rico at the time of permit application - governs seismic design and wind load (Category 5 hurricane, 180 mph design wind speed per ASCE 7/PRBC) anchorage requirements for the ATS enclosure and any associated housekeeping pad or wall/floor mounting.

B. NFPA 70 - National Electrical Code (NEC), latest edition adopted in Puerto Rico.

C. NFPA 99 - Health Care Facilities Code, latest edition - Essential Electrical System (EES) requirements for Category 1 facilities.

D. NFPA 110 - Standard for Emergency and Standby Power Systems.

E. NEC Article 517 (Health Care Facilities) and NEC Articles 700, 701, and 702 (Emergency Systems, Legally Required Standby Systems, and Optional Standby Systems, respectively).

F. UL 1008 - Underwriters Laboratories Standard for Transfer Switch Equipment.

G. UL 508 - Standard for Industrial Control Equipment.

H. ANSI/IEEE 446 - Recommended Practice for Emergency and Standby Power Systems for Commercial Applications.

I. NEMA ICS 10 P1 - Industrial Control and Systems, Part 1: Electromechanical AC Transfer Switch Equipment.

J. Electrical design documents and shop drawing submittals shall be prepared, reviewed, or endorsed under the responsible charge of a Professional Engineer licensed in the Commonwealth of Puerto Rico and in good standing with the Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR), consistent with the project Bridging Document.

1.03 SUBMITTALS

A. Shop drawings for review, including as a minimum:

1. Descriptive literature.
2. Plan, elevation, side, and front view arrangement drawings, including overall dimensions, weights, and clearances, as well as mounting or anchoring requirements (including seismic anchorage per PRBC) and conduit entrance locations.
3. Schematic diagrams.
4. Wiring diagrams.
5. Accessory list.

B. Load calculation identifying the assignment of loads to each of the four load categories (Life Safety, Critical, Equipment System, Optional Standby) and any further subdivision within a category (e.g., a dedicated ATS per elevator or other major piece of equipment), per Bridging Document Section 6.2.

C. Factory test reports documenting UL 1008 3-cycle and 30-cycle close and withstand rating tests and post-endurance temperature rise tests; available upon request.

1.04 QUALITY ASSURANCE

A. ATS units shall be UL 1008 listed for the 3-cycle and 30-cycle close and withstand ratings specified in Part 2. Transfer switches furnished without UL 3-cycle and 30-cycle testing and labeling as detailed in this Section will not be reviewed or approved.

B. Manufacturer Qualifications: The transfer switch manufacturer shall employ a nationwide, factory-direct field service organization available on a 24-hour-a-day, 365-day-a-year call basis, with an 800-telephone number for field service contact affixed to the outside of each enclosure. The manufacturer shall maintain service records for each transfer switch, by serial number, for a minimum of 20 years.

C. Same-Manufacturer Coordination: Because the hospital's power system is monitored and controlled by a SCADA system, the transfer switch manufacturer shall

be the same manufacturer supplying the SCADA software, the diesel engine-driven generators (Section 16900), and the paralleling switchgear (Section 16800), to ensure proper functionality, coordination, and service.

D. Life Safety Branch and Critical Branch ATS units shall transfer to generator power within 10 seconds of loss of normal power, per NEC Article 700 and NFPA 99, respectively. This 10-second system-level transfer requirement is distinct from - and governs in addition to - the individual switch's minimum mechanical transfer speed specified in Part 2.

1.05 DESIGN REQUIREMENTS

A. A minimum of one ATS shall be provided for each of the four load categories: Life Safety Branch, Critical Branch, Equipment System, and Optional Standby (Non-Essential) System. Any category may be further subdivided into multiple ATS units serving individual loads or load groupings (e.g., a dedicated ATS per elevator or other major piece of equipment) as determined by the D&B Contractor's load calculation and equipment layout.

B. Separate ATS units shall be provided for the Life Safety Branch and the Critical Branch per NFPA 99 / NEC Article 517 - these two branches shall not be combined on a single ATS.

C. Number and Location: All ATS units, including any additional units serving a given load category, shall be located in the Basement Main Electrical Room adjacent to the double-ended substation. Downstream subdistribution from each ATS shall extend to floor electrical rooms as required to minimize feeder lengths and maintain branch separation per NFPA 99.

D. Equipment System and Optional Standby Subdivision: Large motor and large equipment loads may each be served by their own dedicated, individually sized ATS rather than a single shared ATS - large HVAC equipment such as chillers within the Optional Standby System, and elevators within the Equipment System category - allowing independent time-delayed starting/sequencing per piece of equipment and simplifying future load additions. Regardless of subdivision, time-delay contactors and sequencing controls shall be provided to prevent generator overload.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Automatic Transfer Switches shall be Russelectric, type RTSATA or RTSATB as indicated on Drawings, or other Owner-approved equal.

2.02 CONSTRUCTION - GENERAL

A. Transfer switches shall be electrically operated and mechanically held, with double throw construction.

1. On 3-phase, 4-wire systems utilizing ground fault protection, a true 4-pole switch shall be supplied with all four poles mounted on a common shaft. The continuous current rating and the closing and withstand rating of the fourth pole shall be identical to the rating of the main poles.
2. The transfer switch shall be mounted in a NEMA 1 enclosure, unless otherwise indicated, fabricated from 12-gauge steel, sized to exceed the minimum wire bending space required by UL 1008.
3. The transfer switch shall be equipped with an internal welded steel pocket housing an operations and maintenance manual.
4. The transfer switch shall be top and bottom accessible.
5. The main contacts shall be capable of being replaced without removing the main power cables, and shall be visible for inspection without major disassembly of the transfer switch.
6. All bolted bus connections shall have Belleville compression-type washers.
7. When a solid neutral is required, a fully rated bus bar with required AL/CU neutral lugs shall be provided.
8. Control components and wiring shall be front accessible. All control wires shall be multiconductor 18-gauge, 600-volt SIS switchboard-type point-to-point harness, with all control wire terminations identified by tubular sleeve-type markers.
9. The switch shall be equipped with 90 degree C rated copper/aluminum solderless mechanical-type lugs.
10. The complete transfer switch assembly shall be factory tested to ensure proper operation and compliance with the specification requirements. A copy of the factory test report shall be available upon request.
11. The ATS enclosure and mounting/anchoring provisions shall be designed and certified for the project's seismic and wind loads per the Puerto Rico Building Code (PRBC), including anchorage to the housekeeping pad or wall/floor mounting structure.

2.03 AUTOMATIC TRANSFER SWITCH MECHANISM

A. The transfer switch shall be double throw, actuated by one or two electric operators as indicated on Drawings, momentarily energized, and connected to the transfer mechanism by a simple over-center type linkage. Minimum transfer time (mechanical contact-to-contact transfer speed) shall be 400 milliseconds.

B. The normal and emergency contacts shall be positively interlocked mechanically and electrically to prevent simultaneous closing. Main contacts shall be mechanically locked in both the normal and emergency positions without the use of hooks, latches, magnets, or springs, and shall be silver-tungsten alloy. Separate

arcing contacts with magnetic blowouts shall be provided on all transfer switches. Interlocked, molded case circuit breakers or contactors are not acceptable.

C. The transfer switch shall be equipped with a safe external manual operator, designed to prevent injury to operating personnel, providing the same contact-to-contact transfer speed as the electrical operator to prevent a flashover from switching the main contacts slowly. The external manual operator shall be safely operated from outside the transfer switch enclosure while the enclosure door is closed.

2.04 TRANSFER SWITCH CONTROLLER

A. The transfer switch shall be equipped with a microprocessor controller with a power supply module, CPU, and I/O modules for all voltage and ampere ratings. The controller shall be capable of both serial and Ethernet communications.

B. The controller shall contain voltage sensing modules capable of direct single-phase or three-phase sensing of each source from 120 VAC to 600 VAC. The power supply module shall accept a 24 VDC external power source, allowing controller communications in the event of a power outage.

C. Voltage sensing shall be true RMS type, accurate to +/- 1% of nominal voltage. Frequency sensing shall be accurate to +/- 0.05 Hz. Operating temperature range shall be -20 to +50 degrees C, and storage range -40 to +90 degrees C.

D. The controller shall connect to the transfer switch through an interconnecting wiring harness. Interfacing relays shall be provided to isolate the controller from abnormal voltages applied to any and all customer input and output wiring terminals.

E. All customer interface connections shall be wired to a common DIN rail cage clamp terminal block, with sufficient space to allow for future modifications and upgrades.

F. The controller shall meet or exceed the following requirements for electromagnetic compatibility:

1. EN55022 (CISPR11) - Conducted and Radiated Emissions, Class B.
2. EN61000-4-2 (Level 4) ESD immunity test; ENG6100-4-3 (ENV50140) Radiated RF; EN61000-4-4 Electrical fast transient/burst immunity test; EN61000-4-5 IEEE C62.41 Surge immunity test; EN61000-4-6 (ENV50141) Conducted immunity test; EN61000-4-11 Voltage dips and interruption immunity.
3. IEEE 472 (ANSI C37.90A) Ring wave immunity.

2.05 CONTROLLER DISPLAY AND KEYPAD

A. A color, 1/4 VGA minimum, graphical display shall be provided for viewing data and setting operational parameters. Parameters shall also be available for viewing remotely and limited control through a front-accessible USB communications port.

B. The controller shall provide high-intensity LEDs for the following:

1. Source Availability - indicates the source voltage and frequency are within preset parameters.
2. Source Connected - indicates the source main contacts are closed and the load is being served from that source.
3. XFER Inhibit - indicates the ATS is being inhibited from automatic operation to the unconnected source.
4. Alarm - indicates an alarm condition is active.
5. TD Active - indicates that a transfer switch time delay is actively timing.

C. For ease of navigation, the display shall include: soft keys that change function based on user location in the menu structure; dedicated navigational keys (Home, Scroll Up, End, Escape, Enter); and dedicated pushbuttons for Alarm Reset, Test, Control, and Information.

2.06 VOLTAGE, FREQUENCY, AND PHASE ROTATION SENSING

A. Programmable voltage and frequency sensing of both sources, capable of detecting single- or three-phase losses, with adjustable pickup and dropout settings for each source. Minimum set point adjustment ranges shall be as follows: undervoltage dropout/trip 72 to 100% and pickup/reset 70 to 98% (N+E, 3-phase); overvoltage dropout/trip 100 to 108% and pickup/reset 102 to 110% (N+E, 3-phase); underfrequency dropout/trip 45.1 to 60.0 Hz and pickup/reset 45.0 to 59.9 Hz (N+E, 3-phase); overfrequency dropout/trip 50.0 to 69.7 Hz and pickup/reset 50.1 to 69.8 Hz (N+E, 3-phase).

B. The controller shall monitor phase rotation of both sources and inhibit transfer if both sources are not the same phase rotation (ABC or CBA).

C. Settings shall be adjustable in 1% increments via the keypad, USB port, or remotely via communications.

D. A single source status screen shall be provided to allow viewing of the status of both sources, including three-phase voltage, power, and frequency.

2.07 TIME DELAYS

A. An adjustable time delay of 0 to 10 seconds to momentarily override normal source power outages and to delay engine starting; expandable up to 60 minutes if an external 24 VDC power supply is provided for ATS control.

B. An adjustable 0 to 60 minute time delay on transfer to emergency, factory set at 3 seconds.

C. A time delay on retransfer to the preferred source, adjustable 0 to 259 minutes, factory set at 5 minutes.

D. A time delay on engine cool-down, adjustable 0 to 60 minutes, factory set at 5 minutes.

E. A timer to control the transition time from neutral to the non-preferred source, adjustable 0 to 10 minutes, factory set at 3 seconds.

F. As applicable, a timer to control the transition time from neutral to the preferred source, adjustable 0 to 10 minutes, factory set at 3 seconds.

G. All time delays shall be adjustable in 1-second increments, via the graphical display, the front USB port, or configuration software using the USB, serial, or Ethernet communications port.

2.08 ADDITIONAL CONTROLLER FEATURES

A. Test Switch: A two-position, password-protected test switch to simulate a normal source failure, configurable for Test Without Load or Test With Load functionality, activated via pushbutton on the display or remotely via dry contact, voltage signal, or network signal.

B. Engine Start Signal: An SPDT contact, rated 10 amps at 30 VDC, to start the engine generator upon normal source outage.

C. Source-connected contacts rated 10 amps at 120 VAC to signal when the ATS is connected to each source.

D. Source Connected LEDs indicating when the ATS is connected to each source.

E. Source Availability LEDs indicating the availability of each source.

F. Commit/No-Commit Transfer Selector: a programmable selector to configure whether the controller commits to transferring the load to emergency if the normal source returns before the generator is ready to accept load.

G. Inhibit Transfer Signals: capability to accept transfer control inputs that inhibit transfer of the ATS to either source.

H. Auto/Manual Selector: a programmable function to select either Automatic or Manual operation.

I. ATS/Engine Exerciser: a user-configurable exerciser, configurable for daily, 7-day, 14-day, or 28-day exercise periods each with up to 7 programmable events, or as a full 365-day exerciser with up to 24 independent exercise events. Each event shall be configurable for Test with Load and Test Without Load, with adjustable start time, date, and test duration, stored in non-volatile EEPROM memory, with full programmability for daylight savings time.

J. Diagnostics: self and system diagnostic screens for detecting and troubleshooting abnormal system events.

K. Communications Interface: serial/RS485 or optional Ethernet TCP/IP communications ports integral to the controller; all communications parameters (baud rate, parity, IP address, etc.) accessible and programmable via the front keypad. Both serial and Ethernet communications shall be Modbus open protocol.

L. Event Logger: capability to log data and maintain the last 256 events, even during a power failure, with time and date stamping accurate to 1 ms. The controller shall be capable of synchronizing its date/time setting with a main PC via Network Time Protocol over an Ethernet TCP/IP network connection. The following events shall be time and date stamped:

1. Last primary source failure.
2. Last reason for transfer.
3. Last transfer to alternate source.
4. Last retransfer to primary source.
5. Time load is without power.
6. Time ATS powered up.
7. Total time on Source 1.
8. Total time on Source 2.
9. Total number of primary source failures.
10. Total number of transfers.

M. Communications Modules:

1. Serial Communications: RS485 communications port enabling serial communications at baud rates up to and including 115.2 Kbps, user configurable, capable of direct connect or multi-drop network configuration.
2. Ethernet Communications: optional Ethernet TCP/IP communications via an internally mounted, self-powered communications card; 10/100 Mbit, auto-sensing, with RJ45 network connector.
3. Open Protocol: both serial and Ethernet communications shall be Modbus protocol; proprietary communications protocols are not acceptable.

N. External Power Supply: capability to connect to an external 24 VDC power supply to permit full operation and communications of the controller when both sources are de-energized.

O. Auto Load Shed: capability to be programmed to automatically shed the connected load upon a user-configurable underfrequency condition.

P. Customer Configurable Alarms: capability to display customer-configured alarm points, resettable via a remote contact or the front panel RESET pushbutton.

Q. Test Switch: key-operated, three-position test switch provided in the door, with Automatic, Load Test, and No-Load Test positions.

R. Motor Disconnect Switch: key-operated, two-position switch to disconnect the transfer switch motor, with Connect and Disconnect positions.

S. The Equipment System ATS units shall include programmable auxiliary contacts for use and coordination with the project's elevators.

2.09 POWER QUALITY METERING

A. The ATS shall be able to supply optional metering for current, voltage, real power, reactive power, energy use, power factor, and frequency. Metering shall be true RMS type, 1% accuracy for voltage and 0.5% for current, with a 5-amp secondary current transformer.

B. The following parameters shall be provided:

1. Phase current: Ia, Ib, Ic, In, and average current (Iavg).
2. Phase voltage: Va, Vb, Vc, Vab, Vac, Vbc.
3. Voltage and current unbalance.
4. Hz, PF, W, Var, VA.
5. Wh, VAh, VARh.
6. Voltage and current harmonics (% THD up to 8th order).
7. Phase rotation sensing.
8. Synchroscope (lead/lag).

C. The ATS shall be capable of monitoring and capturing waveform data during a utility power outage or other user-specified event:

1. A total of 10 active channels of waveform capture may be user configured.
2. Each channel shall be capable of capturing up to 256 cycles of waveform information.
3. Analog channels may be configured for 4, 8, 16, or 32 samples/cycle.
4. Digital channels shall be configured for 1 sample/cycle.
5. Waveform data shall be stored in industry-standard COMTRADE format.

D. The controller shall be capable of logging digital and analog measured parameters and storing the data in non-volatile memory, via a 10-channel data logger with each channel configurable to monitor a digital on/off or analog measured parameter, sampling rate configurable from 1 cycle to 60 minutes per sample, stored in non-volatile memory on a first-in, first-out basis.

2.10 WITHSTAND AND CLOSE RATINGS

A. The ATS shall be UL listed in accordance with UL 1008 for 3-cycle and 30-cycle close and withstand ratings. ATS units not tested and labeled for 3-cycle and 30-cycle ratings are not acceptable. Minimum UL-listed close and withstand ratings at 480 VAC (size in amps as shown on Drawings) shall be: 3-cycle rating 100 kA; 30-cycle rating 85 kA; current-limiting fuses 200,000 kA.

B. During 3-cycle and 30-cycle closing and withstand tests, there shall be no contact welding or damage. The 3-cycle and 30-cycle tests shall be performed without the use of current-limiting fuses. Tests shall verify that contact separation has not occurred and that contact continuity exists across all phases. Test procedures shall be performed in accordance with UL 1008, and testing shall be certified by Underwriters Laboratories, Inc.

C. When conducting temperature rise tests to UL 1008, the manufacturer shall include post-endurance temperature rise tests to verify the ability of the ATS to carry full rated current after completing the overload and endurance tests.

2.11 SYSTEM INPUTS AND TRANSFER TIME

A. Type: Open-transition (break-before-make) transfer switches, furnished with an external manual operator; 4-pole (switched neutral) construction where a neutral conductor is required.

B. Inputs: Each ATS shall have a normal-source input fed from its corresponding load-category breaker/subfeed at the double-ended substation distribution sections (Section 16600) and an emergency-source input fed from its corresponding distribution breaker/subfeed at the generator paralleling switchgear (Section 16800).

C. System Transfer Time: Life Safety Branch and Critical Branch ATS units shall transfer to generator power within 10 seconds of loss of normal power, per NEC Article 700 and NFPA 99, respectively - in addition to meeting the 400-millisecond minimum mechanical contact transfer speed of Article 2.03.

D. Controls: Time-delay-on-transfer, time-delay-on-retransfer, voltage/frequency sensing on both sources, and exercise/test controls, per Articles 2.06 through 2.08; BMS integration for source status, position, and alarm reporting.

PART 3 - EXECUTION

3.01 EXAMINATION

Verify the Basement Main Electrical Room housekeeping pad and both normal and emergency source feeder terminations are complete before setting ATS equipment.

3.02 INSTALLATION

A. Automatic Transfer Switches shall be provided with adequate lifting means for ease of installation of wall- or floor-mounted enclosures.

B. Provide access and working space as indicated or required.

C. Install and connect each ATS per the approved shop drawings and load assignment schedule; set time-delay and sequencing controls per the coordinated generator load-add/load-shed scheme (Section 16800).

D. Anchor each ATS enclosure to its housekeeping pad or wall/floor mounting structure in accordance with the manufacturer's certified seismic anchorage details and the Puerto Rico Building Code.

3.03 FIELD QUALITY CONTROL

Functionally test each ATS for correct transfer time, retransfer time delay, and voltage/frequency sensing, under simulated loss-of-normal-power conditions, prior to Substantial Completion; verify Life Safety Branch and Critical Branch ATS units transfer within 10 seconds. Document all test results.

END OF SECTION 16700

SECTION 16742 TELEPHONE AND DATA RACEWAY SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: A complete empty telephone/data raceway (pathway) system only, comprising the Main Telecommunications Room (MTR), floor-level Telecommunications Rooms (TRs), plywood backboards, main and branch conduits, backbone and horizontal cable trays, sleeves, supports, pull boxes, and outlet boxes with pull-strings/pull cords, sized and routed per ANSI/TIA-569 (Pathways and Spaces) to accommodate the Owner's future structured cabling installation. This Section covers rough-in infrastructure (pathways, conduit, cable tray, and room/space provisioning) only.

B. Work Not Included: The following are NOT in the D&B Contractor's Contract scope under this Section and shall be furnished and installed under a separate Owner contract by the Owner's structured cabling contractor:

1. Structured cabling itself, including all copper (UTP/F-UTP) horizontal cable, fiber optic backbone cable, and coaxial (CATV) cable.
2. Cable terminations, outlet jacks, faceplates, patch panels, cross-connects, and cable labeling/testing.
3. Active telecommunications and network equipment, including network switches, routers, wireless access point (WAP) units, and other rack-mounted equipment within the MTR and TRs.
4. Racks, cabinets, and equipment mounting hardware within the MTR and TRs (room and pathway provisioning only is provided under this Section; rack/equipment installation is by the Owner's structured cabling contractor).

C. Related Sections:

1. Section 16100 - Basic Electrical Materials and Methods.
2. Section 16112 - Raceways and Conduits.
3. Section 16131 - Outlet, Pull, and Junction Boxes.

1.02 REFERENCES

NFPA 70 (National Electrical Code), latest edition adopted in Puerto Rico; Puerto Rico Building Code (PRBC), incorporating the 2018 International Building Code (IBC) and 2018 International Fire Code (IFC) with Puerto Rico amendments; ANSI/TIA-569 (Telecommunications Pathways and Spaces); ANSI/TIA-568 (Generic Telecommunications Cabling for Customer Premises, referenced as the basis for pathway and outlet sizing only); ASCE 7 (wind loads); NFPA 99 (Health Care Facilities Code); requirements of the Junta Reglamentadora de Telecomunicaciones de Puerto Rico (JRTC).

1.03 SUBMITTALS

A. Submit for review properly identified product data for conduit, cable tray, backboards, sleeves, pull boxes, and outlet boxes, giving materials, finishes, accessories, and installation requirements.

B. Submit coordination drawings for the MTR and each TR showing room dimensions, backboard layout, cable tray and conduit entries, and pathway capacity, coordinated with the Owner's structured cabling contractor's rack, cabinet, and equipment layout requirements.

C. Furnish a set of "Record Drawings" to the A/E indicating accurate plan layout, conduit and cable tray routing, pull box locations, and TR/MTR room layouts as installed.

D. Submit documentation of the JRTC (Junta Reglamentadora de Telecomunicaciones de Puerto Rico) endorsement of the telecommunications point of connection, together with JRTC-endorsed drawings, prior to commencing telecommunications rough-in work at the point of connection.

1.04 QUALITY ASSURANCE

Install materials according to local and national codes and per ANSI/TIA-569. Coordinate the size, routing, and capacity of all pathways, conduits, and cable trays furnished under this Section with the Owner's structured cabling contractor so that the empty raceway system will accommodate the intended Category 6A (10 GbE-capable) horizontal cabling and fiber optic backbone cabling, even though that cabling is furnished and installed by others. Obtain JRTC endorsement of the telecommunications point of connection, with JRTC-endorsed drawings, prior to commencing telecommunications work at that point of connection.

1.05 DESIGN REQUIREMENTS

A. Main Telecommunications Room (MTR): Provide room and pathway provisioning for the MTR in the Basement near the Main Electrical Room, serving as the building's main point of entry for external telecommunications services (internet, telephone, and private fiber from the ASEM Central Services Building). Rack and equipment installation within the MTR is by the Owner's structured cabling contractor.

B. Point of Connection: Coordinate the preliminary point of connection at the manhole located north of the project site; final point of connection and service requirements shall be as determined by JRTC. Coordinate evaluation and endorsement of the connection with the corresponding telecommunications service provider/agency.

C. Telecommunications Rooms (TRs): Provide a minimum of one (1) TR per floor, consistent with the two-electrical-rooms-per-floor arrangement, with additional TRs provided as necessary so that no horizontal cable run from a TR termination point to any wall outlet will exceed the 292 ft maximum cable distance required for Ethernet cabling. Size each TR per ANSI/TIA-569 with adequate power, cooling (dedicated mini-split or served by HVAC), and UPS-backed power provisions; room provisioning,

sizing, and pathway connections only are provided under this Section — patch panels, network switches, and other active equipment are furnished and installed by the Owner's structured cabling contractor.

D. Minimum 10% spare capacity per Section 16100, Section 1.4.A shall be maintained in conduit and cable tray fill capacity for future load growth.

PART 2 - PRODUCTS

2.01 TELEPHONE/DATA RACEWAY SYSTEM

A. Extend main raceway conduits from the Main Telecommunications Room (MTR) to the point of connection at the underground telecommunications utilities system. The pathway system shall be complete, empty, and continuous from the site point of connection, via main raceway conduits and the MTR, and branch conduit to final telephone/data outlet locations, ready to receive the Owner's structured cabling.

B. Extend riser conduits and/or backbone cable tray from the MTR to each floor-level Telecommunications Room (TR).

C. Provide a minimum of 3 conduits (or equivalent cable tray capacity) between the MTR and each TR.

D. Refer to the telephone/data riser diagrams shown on the Drawings.

E. Branch conduits to final telephone/data outlet locations from the MTR or TRs shall be 3/4" minimum and not exceed a length of 250 feet.

F. Furnish and install necessary interior conduit, sleeves, strip cabinets, pull boxes, outlet boxes, and other materials for a complete empty conduit pathway system for telephone/data as shown on the Drawings. Structured cabling, terminations, and outlet jacks are not included; see Section 1.1.B.

G. Install conduit in accordance with Section 16112 - Raceways and Conduits.

H. Provide pull wires (pull-strings/pull cords) in all empty conduits, with a minimum 10 inches of slack at each end.

I. Where junction boxes are used to distribute the 3/4" conduit runs, the conduit(s) feeding the junction box shall be sized as specified in Section 16112.

J. Raceways shall contain not more than two 90-degree bends or the equivalent. Provide additional junction or pull boxes to meet this requirement.

2.02 CABLE TRAYS

A. Backbone Cable Tray: Provide ladder-type cable tray from the MTR to each TR, sized to accommodate fiber optic backbone pathway capacity for both data (hospital network) and telephone/voice systems. Ladder-type cable tray shall be used generally within mechanical/electrical rooms and MTR/TR-to-TR backbone runs.

B. Horizontal Cable Tray: Provide cable tray above ceilings, of wire basket type in patient care areas, sized to accommodate Category 6A (10 GbE-capable) UTP/F-UTP horizontal pathway capacity from each TR to all data/voice outlet locations, with EMT conduit stub-outs in walls to the outlet boxes.

C. Wireless Access Point (WAP) Pathway: Provide homerun conduit and/or cable tray pathway from the nearest TR to each coordinated WAP location; final WAP quantity and placement is by the Owner's wireless network contractor, but rough-in pathway shall be coordinated and provided under this Section.

D. Cable tray shall not pass through electrical rooms or fire-rated barriers without proper fire-stopping at each penetration.

E. Cable trays and all associated supports shall be bonded and grounded continuously per Section 16112 and Article 3.1 of this Section.

F. Support cable tray independently of ceiling grid and other trades' work at intervals per manufacturer's recommendations and structural requirements.

2.03 BACKBOARDS

A. MTR and TRs: Cover walls as indicated on the Drawings with 3/4" plywood, painted with gray fire-retardant paint.

B. Terminate telephone/data conduits at the top and bottom of the backboards.

2.04 FLOOR SLEEVES

A. Extend 6 inches above and below the slab construction at the MTR and each TR.

B. Provide 4-inch sleeves at above-grade TRs unless noted otherwise.

C. Provide iron pull eyes at ceiling slabs of the MTR and TRs for cable-pulling by the Owner's structured cabling contractor.

2.05 OUTLET BOXES

A. Wall Telephone/Data Outlet Boxes:

    a. 4-inch boxes with single-gang mud ring and EMT stub-out/pathway to the nearest accessible cable tray. Faceplates and jacks are furnished and installed by the Owner's structured cabling contractor; see Section 1.1.B.

B. Floor Telephone/Data Outlet Boxes:

    a. Provide a separate 4-inch box for each telephone/data position.

    b. Telephone/data floor outlet boxes shall have a mounting frame suitable for a duplex device opening, a brass cover with brass screws, and 2 hinged lids to allow the use of either or both openings; Walker 828R or accepted equivalent.

c. Do not connect more than 2 floor outlet boxes together. Provide one 1-1/4" conduit from the TR to feed a pair of floor outlets.

C. Outlet Rough-In Density: Provide outlet boxes and conduit stub-outs for a minimum of two (2) data/voice outlet locations per patient room, per workstation, and per nursing station location, with additional locations at imaging, operating rooms, and other special areas per the program, as shown on the Drawings.

D. Cable TV (CATV) Rough-In: Provide outlet boxes and conduit stub-outs for CATV provisioning at waiting areas and patient rooms as shown on the Drawings. Coaxial cabling, splitters/taps, and active CATV head-end equipment are not included; see Section 1.1.B.

2.06 SERVICE ENTRANCE CONDUIT

A. Underground: PVC, Schedule 40.

B. Aboveground: Rigid metallic.

2.07 HURRICANE AND SEISMIC REQUIREMENTS

B. Seismic Isolation Plane: All conduits and cable trays of this Section crossing the building's seismic isolation plane at the Interstitial Level shall use flexible connections/seismic loops to accommodate differential movement, coordinated with the building's seismic isolation system design.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install materials according to local and national codes and per ANSI/TIA-569.

B. Conduit from branch telephone/data outlets shall terminate at the top and bottom of the backboard unless indicated otherwise. Provide empty conduit with suitable pull wires. Allow 10 inches minimum slack at each end of pull wire.

C. Bury underground conduit a minimum of 24 inches below finish grade.

D. As indicated on the Drawings, provide an insulated No. 6 AWG grounding wire terminated on a grounding bar in the MTR and each TR, bonded to the building grounding system per Section 16112.

E. Ensure the empty raceway/pathway system installed for telephone, data, and spares is clearly marked and is not used for any other purpose.

F. Mount wall telephone/data outlets in one outlet box at 18 inches above finish floor, unless otherwise shown on the Drawings.

G. Mount telephone and data outlets as shown on the Drawings.

H. Provide fire-stopping at every cable tray and conduit penetration of a fire-rated barrier or electrical room wall/floor, per the fire-stopping system's listing.

3.02 COORDINATION

A. Coordinate MTR and TR room layout, backboard placement, and pathway entries with the Owner's structured cabling contractor prior to rough-in, so that the empty raceway system will accommodate the intended cabling without modification.

B. Coordinate the point of connection and any exterior work with the telecommunications service provider/agency and obtain JRTC endorsement, per Section 1.3.D, prior to commencing that work.

3.03 FIELD QUALITY CONTROL

A. Pull-test (mandrel test) all empty conduits after installation to verify a clear, unobstructed pathway free of debris and deformation.

B. Verify continuity and resistance of the grounding/bonding system for the raceway and cable tray system prior to close-in.

C. Verify no cable tray or conduit fill exceeds the capacity coordinated with the Owner's structured cabling contractor under Section 3.2.A.

END OF SECTION 16742

SECTION 16800 PARALLELING SWITCHGEAR

PART 1 - GENERAL

1.01 SUMMARY

A. This Section describes all labor, materials, equipment, and services necessary for and incidental to furnishing, installing, and testing the newly manufactured paralleling switchgear and generator control system that synchronizes and parallels the three (3) emergency diesel generator sets specified in Section 16900 onto a common bus and distributes generator power to the Essential Electrical System (EES) and Optional Standby Automatic Transfer Switches specified in Section 16700. The paralleling switchgear assembly shall be located in a dedicated room, separate from and adjacent to the Generator Room, as further described in Article 1.4 below.

B. The Switchgear Manufacturer shall manufacture and furnish all equipment described in this Section with a practical layout consistent with good engineering design practice and allowance for future expansion capability. The Switchgear Manufacturer's scope of work shall also include factory testing and comprehensive system site start-up and testing.

C. Related Sections:

1. Section 16100 - Basic Electrical Materials and Methods
2. Section 16600 - Double-Ended Substation (separate, related normal-power system; the double-ended substation's distribution sections provide the normal-source input to the same Automatic Transfer Switches fed on their emergency-source side by this Section's distribution breakers)
3. Section 16700 - Automatic Transfer Switches
4. Section 16900 - Diesel Engine-Driven Generators

1.02 REFERENCE STANDARDS

A. The design, equipment, installation, and testing shall be in strict accordance with the applicable requirements of ANSI, UL, IEEE, and NEMA, and with NFPA 99 and NEC Articles 517, 700, and 702 as adopted in Puerto Rico.

B. The generator switchgear construction, including all internal mounted components, shall be listed and labeled under UL Standard 1558 with a bus withstand rating of 100,000 amperes symmetrical for four (4) cycles minimum, at the time of bid opening. Manufacturers submitting equipment line-ups without UL 1558 listing and labeling with this withstand rating, prior to bid opening, shall not be accepted.

C. The entire paralleling switchgear system, including all controls, breakers, buswork, and components, shall be completely manufactured and assembled by a single manufacturer and shall be UL listed and labeled under that manufacturer's name.

D. All equipment and material supplied shall comply with the latest edition and amendments, as adopted by the AHJ in Puerto Rico, of the following standards and codes:

1. IEEE C37.20.1 - Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear
2. ANSI C37.50 - Low Voltage AC Power Circuit Breakers Used in Enclosures; Test Procedures
3. ANSI C37.51 - Metal-Enclosed Low Voltage AC Power Circuit Breaker Switchgear Assemblies Conformance Testing Procedures
4. IEEE C37.13 - Standard for Low Voltage AC Power Circuit Breakers
5. ANSI/IEEE C12 - Code for Electric Metering
6. ANSI/IEEE C39.1 - Requirements for Electrical Analog Indicating Instruments
7. ANSI C57.13 - Requirements for Instrument Transformers
8. FS W-C-375 - Circuit Breakers, Molded Case, Branch Circuit and Service
9. FS W-F-370 - Fuseholders (For Plug and Enclosed Cartridge Fuses)
10. NEMA SG3 - Power Switching Equipment
11. NEMA AB 1 - Molded Case Circuit Breakers
12. NEMA KS 1 - Enclosed Switches
13. NEMA ICS 1 - General Standards for Industrial Control and Systems
14. NEMA PB 2 - Dead Front Distribution Switchboards
15. NEMA PB 2.1 - Instructions for Safe Handling, Installation, Operation, and Maintenance of Dead Front Distribution Switchboards Rated 600 Volts or Less
16. NFPA 70 - National Electrical Code (NEC)
17. NFPA 110 - Standard for Emergency and Standby Power Systems (Level 1, Type 10, Class per the generator fuel reserve specified in Section 16900)
18. NFPA 99 - Health Care Facilities Code
19. Underwriters Laboratories UL 1558; IEEE C37.2 (protective relay device numbers); IEEE 242 (protective relay coordination)
20. Federal, Commonwealth of Puerto Rico, and local codes and amendments, including the Puerto Rico Building Code

1.03 STRUCTURAL AND SEISMIC PERFORMANCE REQUIREMENTS

A. The low-voltage paralleling switchgear shall have a seismic certification, based on shaker table testing, certified in accordance with the International Building Code (IBC) as adopted by the Puerto Rico Building Code, ASCE 7, and ICC-ES AC156, with Sds = 2.0 g or greater, appropriate to this project's Puerto Rico seismic design category. (Certification to an unrelated jurisdiction's building code, such as the

California Building Code, is not applicable to this project and shall not be substituted.)

B. Enclosures, hardware, and finishes shall be suitable for the ambient humidity and coastal/hurricane-exposed environment of Puerto Rico consistent with the indoor installation described in Article 1.4; painted finishes shall meet the corrosion-resistance requirement of Article 2.8.C.

1.04 SWITCHGEAR ROOM REQUIREMENTS

A. The paralleling switchgear assembly shall be located in a separate room of two-hour fire-rated construction, adjacent to, but not within, the Generator Room specified in Section 16900. The Switchgear Manufacturer shall coordinate equipment dimensions, access/egress, ventilation, and housekeeping-pad layout with this room configuration.

B. Verify the paralleling switchgear room is complete (two-hour fire-rated construction, ventilated, concrete housekeeping pad in place) and physically separate from the Generator Room before equipment is set; see Article 3.4.

1.05 SWITCHGEAR MANUFACTURER QUALIFICATIONS

A. It is the intent of the Owner to receive bids only from domestic manufacturers who provide competent engineering, manufacturing, production, testing, and field services to manufacture and provide a highly reliable, fully integrated, state-of-the-art critical power switchgear system that can be successfully supported by the Switchgear and Controls Manufacturer over the lifetime of the system. Qualified bidders shall meet the following requirements and provide the necessary supporting documentation; failure to provide this documentation shall be considered a non-responsive bid and shall result in bid disqualification.

B. The manufacturer shall have at least twenty (20) years of experience in the design, manufacturing, and support of generator paralleling switchgear and automatic transfer switches, and shall have at least twenty (20) similar successful installations in Puerto Rico.

C. The switchgear manufacturer shall have trained, factory-employed field service personnel on staff for installation support, start-up, and ongoing field support for the life of the system; the manufacturer shall not subcontract field service work or personnel. A 24-hour, toll-free hotline with a guaranteed call-back response within one (1) hour from a qualified factory technician, with a proven history of response, shall be in place at the time of bid.

D. Any manufacturer wishing to limit the number and type of field service visits included for start-up of this equipment shall state so in the bid, and shall provide published field service rates, including overtime and holiday rates, for additional visits, for bid evaluation purposes.

1.06 SUBMITTALS

A. Bid Submittal shall include: submittal and equipment lead time; warranty statement; terms and conditions; detailed bill of material; and physical elevation drawings.

B. Approval Submittal: the Switchgear Manufacturer shall furnish a submittal with adequate information to fully define the system offered, including:

1. A one-line diagram clearly indicating the functional relationship between equipment.
2. Outline drawings showing plan and elevation views of each piece of equipment, including size, weight, dimensions and weight of shipping splits, and typical conduit entry areas.
3. Detailed cubicle front-view and equipment door detail drawings showing all meter, annunciator, and control device locations with nameplate legends and required nameplate information.
4. Base plans for equipment floor channels, anchor bolts, and conduit entrance spaces.
5. Catalog data sheets for all circuit breakers and protective devices.
6. Short-circuit rating of bus, and interrupting and withstand ratings of breakers.
7. Detailed bill of material indicating long-lead items to be released first.
8. System delivery schedule.
9. Proposed sequence of operation for the entire system.
10. A statement listing all deviations and/or exceptions to this Specification.

C. Two copies of the reviewed submittal, approved and stamped by the consulting engineer, will be returned to the Switchgear Manufacturer for production release.

D. Protective relay coordination study for the generator breakers, bus, and distribution breakers, per IEEE C37.2 and NFPA 110, coordinated with Section 16700.

E. Synchronizing, load-sharing, and load-shed/load-add control sequence, coordinated with the generator controls of Section 16900.

1.07 OPERATION AND INSTRUCTION MANUALS

A. The Switchgear Manufacturer shall submit one complete hard copy and two digital copies of O&M manuals within two weeks after conclusion of equipment start-up and final acceptance. These manuals shall include, but not be limited to:

1. Detailed operating and maintenance instructions.
2. Approved "As-Built" shop drawing information updated to "As-Installed," including all field modifications.
3. Assembly splice-plate details for interconnection of shipping sections.

4. Wiring diagrams for each breaker, switch, etc., with all terminal markings and connections for other circuits.
5. Internal connection diagrams of relays, instruments, and control switches.
6. Complete parts list identifying manufacturer and type or model number for all principal parts.
7. Recommended spare parts list, with pricing, for one year of operation.
8. Hard copy of the equipment PLC program, bound separately.
9. Complete system interconnect diagrams.

B. The manufacturer shall offer an optional, comprehensive preventive maintenance program.

C. A complete set of O&M manuals shall be delivered to the Owner prior to training of Owner personnel.

D. O&M manuals shall contain 100% accurate "As-Installed" drawings, interconnect diagrams, schematic diagrams, wiring diagrams, component manuals, operating procedures, a system description with theory of operation, maintenance schedules and procedures, original programmed settings and parameters, and all other information necessary for the Owner to maintain, operate, test, and troubleshoot the system.

E. O&M manuals shall not rely solely on sub-component manuals; a thorough consolidation of operation and maintenance information shall be provided in a system overview guide covering all major components, including breakers, synchronizers, generator cubicle controls, genset controls, the PLC, the Operator Interface Panel (OIP), and the Master Cubicle.

1.08 WARRANTY

The Manufacturer shall provide a comprehensive two-year warranty covering all parts and labor to repair or replace any defect appearing within the two-year period from date of shipment. All parts, labor, and transportation costs to remedy any defect or non-compliance with the Contract Documents shall be provided by the Manufacturer at no cost to the Owner.

1.09 DESIGN REQUIREMENTS - GENERATOR PARALLELING AND DISTRIBUTION CONFIGURATION

A. The three (3) emergency diesel generators specified in Section 16900 shall connect to this dedicated paralleling switchgear assembly, which shall synchronize and parallel the three generators onto a single common bus, then distribute generator power to eleven (11) separate distribution breakers, as follows, per the Bridging Document Section 6.1.2:

1. One (1) distribution breaker feeding the emergency-source input of the Life Safety Branch ATS(s) (Section 16700).
2. One (1) distribution breaker feeding the emergency-source input of the Critical Branch ATS(s) (Section 16700).
3. Two (2) distribution breakers feeding the emergency-source input of the Equipment System ATS(s) (Section 16700).
4. Six (6) distribution breakers feeding the emergency-source input of the Optional Standby (Non-Essential) ATS(s) (Section 16700), governed by NEC Article 702.
5. One (1) dedicated load bank breaker for periodic generator load testing per NFPA 110.

B. The first four categories above (Life Safety, Critical, Equipment System, and Optional Standby) total ten (10) distribution breakers serving the three NFPA 99 Essential Electrical System (EES) branches (Life Safety, Critical, and Equipment System) and the Optional Standby (Non-Essential) system; together with the one (1) load bank breaker, this yields the eleven (11) total distribution breakers required.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

Subject to compliance with the requirements specified herein, the Basis of Design manufacturer is Russelectric, or other Owner-approved equal.

2.02 SYSTEM OVERVIEW

A. Furnish the generator control and distribution switchgear, arranged to control the operation and distribution of power for three (3) diesel generator sets, each rated 1,750 kW / 2,187 kVA, 277/480 V, 0.8 PF, 2,634 A FLA, 60 Hz, matching the generator ratings of Section 16900.

B. The emergency generator paralleling switchgear shall be 3-phase, 4-wire construction.

C. The switchgear shall be arranged for fully automatic or manual operation at the operator's discretion. The system shall provide safe manual operation completely independent of the automatic PLC system and the OIP/computer-based control system, using hard-wired interlocks, instruments, and control switches. Systems that provide redundant PLCs, computers, or operator interface panels/HMIs as the sole means of back-up manual operation are unacceptable. Each section shall include the AC instrumentation, relaying, pilot lights, selector switches, and accessories required to manually start/stop the engine generators, synchronize the

generators, and control all circuit breaker operations, and shall include provisions to mount and wire the engine/generator voltage regulator and/or governor control equipment supplied by the engine generator vendor.

D. All control voltage for auxiliary relays, circuit breakers, synchronizing, and other automatic equipment shall be obtained from the emergency generators and the engine starting batteries.

2.03 SEQUENCE OF OPERATION

A. All system operation and control functions shall be coordinated and integrated so that during automatic and/or manual operation no unsafe condition or malfunction of intended operation shall occur, and the highest possible reliability of operation shall be maintained.

B. Coordinate and integrate the functions and circuitry of all selector switches to ensure the various available settings do not cause a malfunction of the intended system operation.

C. Automatic Start Sequence: provide interconnecting control circuits to produce the following normal operating function when a system start command is given:

1. Upon receipt of a start signal, start all diesel generators.
2. Close the generator output circuit breaker for the first generator to reach 90% operating voltage and 58 Hz frequency; any generator may be first to close to the bus, independent of the others. Systems that sequentially select which generator may close to the bus, or that rely on timers to select the closing generator, are not acceptable.
3. Once the next diesel (randomly selected) reaches operating voltage and frequency, it shall synchronize to the on-line unit(s) and close into the bus.
4. In like manner, each generator shall synchronize to the on-line units and close into the bus, independent of the other units, until all available units are on the bus.
5. Provide positive lockout so that no two engine generators can be connected to a dead bus simultaneously.
6. Upon receipt of a stop signal, all individual generator circuit breakers shall open and the engine generators shall continue to run at no load for an adjustable cool-down period (0-56 minutes) before complete shutdown.

D. Utility Power Failure Sequence: provide interconnecting control circuits to produce the following normal operating function when a utility power failure occurs:

1. Upon utility power failure, sensed by the Automatic Transfer Switches (ATS), a signal shall be sent to the paralleling switchgear, initiating an automatic start sequence of all emergency engine generators.

2. The first generator to close to the emergency bus shall cause the Priority #1 ATSs to transfer to the emergency system (Priority #1 loads sized not to exceed the full-load capacity of any one generator). The remaining generators shall automatically parallel when in synchronism; as each is added to the bus, pilot contacts shall initiate load control circuits to transfer Priority #2 and #3 ATSs to the emergency bus. Failure of any generator while operating in automatic mode shall initiate load-shedding control, if necessary, to reduce total load to the capacity of the remaining generator(s) by shedding Priority #3 through #2 in reverse order of load addition.
3. If the first generator to achieve 90% rated voltage and 58 Hz fails to close to the bus, dead-bus closure logic shall immediately allow another generator running at proper voltage and frequency to close to the bus; the generator that failed to close shall continue attempting to synchronize for a period set by the fail-to-synchronize timer.
4. When utility power returns and all ATSs have transferred back to normal after their individual adjustable time delays, the generator circuit breakers shall open and the engines shall run unloaded through their cool-down cycle (adjustable 0-56 minutes).

2.04 LOAD CONTROL CIRCUITS

A. Provide control circuits, interlocks, and relays to protect against overloading.

B. The OIP shall include a load control screen allowing an operator to select individual loads and assign load kW values and load priority levels, with sub-priorities (1.1, 1.2, 1.3… within priority 1; 2.1, 2.2, 2.3… within priority 2, etc.) and individually adjustable time delays to sequence loads within a priority group.

C. Load-shedding controls shall be backed up by a bus frequency monitor that sheds all non-essential loads during a bus under-frequency condition.

D. A means to initiate load-shed bypass and permit supervised manual addition of shed loads shall be provided on the master control cubicle door or the OIP, to allow manual disabling of the load-shedding logic (except during an under-frequency condition).

2.05 CIRCUIT BREAKERS - GENERAL

A. All circuit breakers shall be electrically operated, 3-pole, draw-out type (Basis of Design: Siemens type WL, or equal), provided with self-aligning line-side and load-side disconnecting devices; breakers of the same rating shall be interchangeable, and each shall be equipped with a stored-energy operating mechanism.

B. Circuit breakers shall be rated nominal 508 VAC, 3-phase, 60 Hz, with minimum interrupting rating of 100,000 A symmetrical (100 kAIC); continuous current rating as indicated on the contract drawings/Article 1.9; rated dielectric strength per ANSI C37.04 and C37.06 for this voltage class.

C. Trip units shall be adjustable Long-Time, Short-Time, and Instantaneous overcurrent, with adjustable ground fault (LSIA), internally sensor-powered, with individual dials and adjustable rating plugs; the trip unit shall be powered by the system DC power supply to maintain power to the trip unit display at all times.

D. Each circuit breaker shall have an arc-reduction mode selector switch on the breaker door, illuminating blue when arc reduction mode (providing arc reduction downstream of the breaker) is selected; the OIP shall annunciate and alarm when a breaker is in arc-reduction mode, and shall re-alarm after an adjustable time if the switch remains active after being silenced.

E. Trip units shall include a 1.5%-accuracy digital ammeter with LCD display and Modbus communication to remote systems; current information shall also be viewable on the OIP by selecting the breaker on the single-line screen. Breakers shall include a full metering trip unit.

F. Operating mechanism: stored energy, maximum 5-cycle closing time; control voltage 24 VDC; trip and 120 VAC close/charge.

G. Provide auxiliary contacts, interlocks, and relays as required, plus four (4) spare auxiliary contacts (two "a" and two "b") in addition to those required for control, alarm, and interlocking functions.

H. Interchangeability per ANSI C37.20; controls shall function in both OPERATE and TEST positions; breaker control wiring per ANSI C37.11 with separate fusing of close and trip circuits.

I. Provide means for integral manual tripping and closing of breakers. All synchronizing circuit breakers shall have manual close defeat covers installed.

J. Provide mechanical interlock to prevent removal or insertion of a breaker while in the closed position, and an interlock that automatically discharges closing springs upon removal from or insertion into the compartment.

K. Accessories: hand-held, full-function trip unit tester; switchgear overhead lift device or portable circuit breaker lift.

2.06 DISTRIBUTION BREAKERS - LIFE SAFETY BRANCH

One (1) electrically operated, draw-out, UL 1066 circuit breaker rated 100 kAIC at 480 VAC, with adjustable overcurrent and short-circuit trip, feeding the emergency-source input of the Life Safety Branch ATS(s) (Section 16700), per Article 1.9.

2.07 DISTRIBUTION BREAKERS - CRITICAL BRANCH

One (1) electrically operated, draw-out, UL 1066 circuit breaker rated 100 kAIC at 480 VAC, with adjustable overcurrent and short-circuit trip, feeding the emergency-source input of the Critical Branch ATS(s) (Section 16700), per Article 1.9.

2.08 DISTRIBUTION BREAKERS - EQUIPMENT SYSTEM

Two (2) electrically operated, draw-out, UL 1066 circuit breakers rated 100 kAIC at 480 VAC, with adjustable overcurrent and short-circuit trip, feeding the emergency-source input of the Equipment System ATS(s) (Section 16700), per Article 1.9.

2.09 DISTRIBUTION BREAKERS - OPTIONAL STANDBY (NON-ESSENTIAL)

Six (6) electrically operated, draw-out, UL 1066 circuit breakers rated 100 kAIC at 480 VAC, with adjustable overcurrent and short-circuit trip, feeding the emergency-source input of the Optional Standby ATS(s) (Section 16700). This branch is governed by NEC Article 702 and is distinct from the three NFPA 99 EES branches above; it serves non-essential building loads (e.g., general office, food service, non-clinical support areas) that the Owner has elected to place on generator backup, per Article 1.9.

2.10 LOAD BANK BREAKER

One (1) electrically operated, draw-out, UL 1066 circuit breaker dedicated to connection of a permanent or portable load bank, enabling periodic generator testing under load per NFPA 110, per Article 1.9.

2.11 BUS CONFIGURATION

Single common paralleling bus, rated for the full output of all three generators operating in parallel (3 x 1,750 kW); bus sized and braced for the available fault current with all three generators contributing, with a bus withstand rating of 100,000 A symmetrical for four cycles minimum per Article 1.2.B. Master cubicle, generator cubicle, and distribution cubicle bus sections each provide one set of three-phase, 10,000 A main bus, neutral bus, and separate ground bus, silver-plated copper throughout, per Article 2.14.D.

2.12 GENERATOR BREAKERS

One (1) electrically operated, draw-out or fixed-mount generator output breaker per generator (3 total; 3,200 A frame, 100 kAIC at 480 VAC, adjustable overcurrent and short-circuit trip), each with synchronizing controls, reverse power/loss-of-field protection (Basler drawout type BE1-32 reverse power relay, or equal), and interlocking to prevent out-of-phase paralleling.

2.13 CONTROL AND SAFETY DEVICES

A. Alarm Horn: station alarm horn and silencing circuit with indicating lamp, rated 88-90 decibels at 10 feet, sounding on malfunction; if silenced, receipt of another signal re-sounds the horn (Ring-Back); the horn resets automatically once the failed circuit is corrected.

B. Annunciator Alarm Ring-Back: all alarms shall be Ring-Back type - silencing the horn re-arms it to re-sound on the next alarm.

C. Automatic DC Control Voltage System: an automatic "best battery source" DC control system shall provide stable DC control voltage for all DC components, derived from each engine's starting battery through a best-battery-source selector, isolating each battery so a single battery failure cannot disable the system, and maintaining stable control voltage as long as any battery source is within 20% of nominal during engine operation. Each generator control cubicle shall have a dedicated DC-to-DC converter; the master cubicle shall have dedicated DC-to-DC converters for each PLC, for the OIP, and for the communications network devices. Each converter shall regulate output to a stable 24 VDC over an 18-32 VDC input range, with 6 ms hold-up time, 20% reserve capacity, overvoltage protection to 110% output, and minimum 90% efficiency. The master cubicle shall additionally have an independent, short-duration, regulated 24 VDC power source to maintain switchgear control voltage during engine cranking; an external priority 120 VAC supply shall be furnished by the Electrical Contractor.

D. Automatic Synchronizer: separate microprocessor-based synchronizers (Basis of Design: Woodward type SPM-D2-10, or equal) shall be provided for each generator, plus one dedicated to control generator bus synchronization, designed for three-phase AC generators with frequency, phase, and voltage matching control compatible with the engine governor. Each synchronizer shall have a two-line LCD display for operation, alarm indication, and generator/bus voltage and frequency values, all control adjustments and I/O terminals legibly marked, and an LED synchroscope with separate LEDs indicating raise/lower frequency and raise/lower excitation signaling to the governor. Control designs utilizing "on-board" engine paralleling control systems, or a single synchronizer switched between multiple generator sources, are not acceptable. Synchronizers shall operate over -20°C to +70°C ambient, 95% non-condensing humidity, and meet the dielectric and surge withstand capability of IEEE 472-1974/ANSI C37.

E. Back-lit LED Annunciation Panel: individual 1.575 in. x 1.575 in. square translucent windows with black-engraved 3/8 in. lettering indicating alarm/failure/status condition; plug-in LED indicators with dual-circuit design incorporating four redundant LED strings so a failed string does not render the lamp inoperative; a push-to-test button on each annunciated section.

F. Current Transformers: 0-5 ampere output, wound type, molded construction, single secondary winding, primary/secondary ratio as required, burden and accuracy consistent with connected metering and relay devices, rated 50-400 Hz, 600 V at 10 kV BIL full wave, built to ANSI/IEEE C57.13 and UL in accordance with IEC 44-1.

G. Engine Generator Control: engine starting shall be controlled by hot-standby, dual-redundant system PLCs in the master control section, using distributed I/O residing in each generator control cubicle with its own power supply, chassis, and I/O cards. If both PLCs or an I/O module fail, the system shall permit manual start/paralleling. Programming is the responsibility of the switchgear manufacturer. A fail-to-synchronize time delay (adjustable 30-180 seconds) shall terminate synchronizer

operation and sound a warning horn if a generator cannot synchronize; after such a failure, the operator may connect one or all machines to the bus manually via the master control switch, manual synchroscope system, and breaker control switches. Each generator control section shall have separate alarm relays/lights to shut down and disconnect a failed generator and display the failure on the OIP; in automatic ("AUTO") mode a failure shuts down and locks out the affected engine until the engine selector switch is cycled through "stop" after correction, then returned to "AUTO."

H. Engine Generator Selector Switch: rotary multistage snap-action type, 600 V AC-DC silver-plated contacts, engraved escutcheon (Basis of Design: Electroswitch series 24, 30A at 600 VAC), four-position "Stop-Off-Auto-Run" switch on each generator control cubicle door, with the functions described for each position (Stop locks out controls and immediately trips the breaker/shuts down; Off allows normal shutdown after a cool-down delay while tripping the breaker; Auto places the unit on standby to start on an ATS start signal; Run starts and holds the unit running for test/manual operation until returned to Off or Stop).

I. Sync Selector and Frequency Meter Switches: each synchronizing breaker has a keyed sync switch and a separate keyed frequency meter switch to operate the master cubicle synchroscope and frequency meter, with removable keyed handles (removable only in the Off position) ensuring only one breaker can be synchronized at a time.

J. Manual Sync Enable Pushbutton: each generator control cubicle has a pushbutton allowing an operator to bring the generator into synchronism with the bus during manual paralleling.

K. Sync Check Relay: a separate sync check relay in the master control cubicle, used for manual sync operation only (5A rated output contacts); systems using the automatic synchronizer in a sync-check or automatic mode for manual operation are unacceptable.

L. Master "Manual-Auto" Control Switch: a spring-return-to-center, three-position selector switch on the master control cubicle door; placing it in "Manual" annunciates the condition and places the generator breakers and synchronizing under manual operation via a swing panel in the master control section (synchroscope, synchronizing lights, frequency meter, bus voltmeter) coordinated with the breaker control switches and synchroscope/frequency meter switches on each generator control section door.

M. Master Operator Interface Panel (OIP): an industrial computer with a 19-inch diagonal TFT color touch screen, 1920 x 1080 (16:9) HD resolution, 5 ms response rate, communicating with both system PLCs and updating PLC time every second for event coordination, with preprogrammed high/low set-point limits and a maintenance (cleaning) mode; screens are described in Article 2.14.

N. Meters: switchboard instruments, 4.5-inch square recessed case, 250-degree scale, white dial/black figures, 60 Hz, 1% accuracy, for ammeters (5 A scale for primary

current), frequency meter (55-65 Hz), wattmeters (calibrated, scale for available kW), and voltmeters (150 V, 3-wire movement, scale for primary voltage).

O. Meter Selector Switches: rotary multistage snap-action type, 600 V AC-DC silver-plated contacts (Electroswitch series 24, 30A at 600 VAC), for ammeter (Off, 1, 2, 3), sync (Off/On), frequency meter (Line, Off, Load), and voltmeter (Off, 1-2, 2-3, 3-1 / 1-N, 2-N, 3-N) functions.

P. Potential Transformers: 120 V single secondary, primary fusing, secondary circuit breaker protection, primary/secondary ratio as required, burden and accuracy consistent with connected devices, 60 Hz.

Q. Protective Relaying: utility-grade, drawout case or provided with CT and PT test switches to isolate relays from PTs/CTs for testing; protective relays shall be separate and independent from all other controllers, including the PLC control system and engine-mounted controls, coordinated with the generator breakers, bus, and distribution breakers per IEEE C37.2 and NFPA 110.

R. Synchroscope: switchboard instrument, 4.5-inch square recessed case, 360-degree scale, white dial/black figures, 60 Hz, 1% accuracy, 150 V movement, Slow-Fast scale.

S. Programmable Controllers: a pair of Siemens High-Availability Hot-Standby Redundant automation controllers (SIMATIC S7-1500H, CPU S7-1517H) with PROFINET I/O and Media Redundancy Protocol (MRP) ring topology; the primary and backup CPU run the same program/data, continuously synchronized via redundant full-duplex fiber-optic cables for seamless switchover on primary failure; program, data blocks, technology objects, and hardware configuration are stored on non-volatile flash memory. If both CPUs become inoperable, the system shall default to manual control with audible/visual alarms; a standby-mode start signal or an already-operating condition shall be handled per Article 2.3, with full manual control available via hardwired interlocks.

T. Over/Under Voltage and Frequency Relay: an overvoltage (100-125%), undervoltage (75-100%), overfrequency (50-70 Hz), and underfrequency (50-70 Hz) relay shall monitor bus voltage/frequency, alarm, and initiate load shedding as required, energizing red failure lights, auxiliary contacts, and a master control section alarm; each set point has an independent adjustable time delay (1-30 seconds). A bus under-frequency condition starts all available engines and immediately trips all non-Priority-#1 loads (load shedding); load is automatically restored once the bus returns to normal frequency and the alarm is reset via the failure reset pushbutton.

U. All control cubicles shall have interior convenience LED lighting with a motion detector (light on when the door is opened) and a convenience receptacle, both powered by an external, remote 120 VAC, 20 A control power source provided by the Electrical Contractor.

2.14 MASTER OPERATOR INTERFACE PANEL SCREENS

A. Menu Screen: indexes all OIP screens.

B. Security Screen: password required to change any control set point (up to eight password levels); no password required to view settings/status; password entry/change via a virtual keyboard, with an adjustable password timer that reactivates the lock after inactivity.

C. Date and Time Screen: allows the operator to change the system date and time.

D. Legend Screen: describes the meaning of each symbol/color on the one-line screen (Red = closed/energized, Green = open/de-energized, Flashing = trouble, Grey = future).

E. System Single Line Screen: main access screen, with a "Menu" soft-key; displays an interactive single line of the paralleling switchgear, an overview status block (auto/manual mode, load demand system on/off, load control auto/manual, load-test/no-load-test status), generator status and actual/rated kW and breaker open/closed status for each generator, feeder breaker open/closed status, with device symbols and bussing shown red when energized and green when de-energized. Touching a device symbol (engine, breaker, ATS, load bank) opens a pop-up screen with available information.

F. PLC Communication Status Screen: indicates OIP communication with both system PLCs, run/disabled state, and PLC scan time for each.

G. Engine Data Screens: a pop-up metering screen per generator with twelve individual dial-type analog meters (oil pressure, oil temperature, coolant temperature, left/right exhaust temperature, engine RPM, engine battery voltage, generator voltage, frequency, power factor, current, and kW), soft keys for phase-to-phase voltage (A-B, B-C, C-A) and individual phase current, and soft keys to switch the kW meter among kW, kVAR, and kVA; metered values also shown in digital readout form together with all available engine/generator communications data. Engine operating hours and total starts shall be displayed, with a bar-graph generator loading indication, a visual replication of the engine control switch position, and cool-down/fail-to-synchronize timer set points and real-time status.

H. Automatic Transfer Switch Data Screens: each transfer switch shall be represented by a pop-up metering screen with individual dial-type analog meters displaying voltage, frequency, power factor, current, and kW, with soft keys for phase-to-phase voltage (A-B, B-C, C-A) and individual phase current, and soft keys to switch the kW meter among kW, kVAR, and kVA; metered values also shown in digital readout form together with all ATS data available through the communications link to the transfer switch. The screen shall include a visual replication of the transfer switch showing its actual position, with timer set points and real-time timer status for cool-down and fail-to-synchronize functions displayed; an operator shall be able to control the

transfer switch from the screen. Each of the distribution ATS units described in Article 1.9 shall have the capability to provide and communicate this data to the system.

I. Demand Mode Screens: allow selection of one of three generator loading control modes -

   1. KW Based Spinning Reserve - operator selects the excess kW capacity to maintain; the system automatically adds/removes engines to maintain the selected reserve.
   2. Engine Generator Spinning Reserve - operator selects the number of engines to run for reserve capacity (e.g., N+1 or N+2); load is balanced/shared among on-line units, defaulting to keeping larger units on-line if the units are dissimilar.
   3. Percent KW Based Generator Demand - operator selects increase/decrease load set points (e.g., 90%) at which the next unit starts or a unit is taken off-line while maintaining capacity at the decrease set point. All three modes shall never remove a generator where doing so would overload the system; each mode has a set-point/status screen showing real-time add/remove values, engine sequence, on-line/off-line status, and totalized running hours.

J. Load Control Screen: displays load priority and expected kW for each load control device (ATS, breaker, or contactor) and start/load-shed/block-transfer signal status; operator can select priority and set anticipated load level per device, with sub-priority selection (e.g., 1.10 adds a load 10 seconds after priority 1 is called, 1.20 after 20 seconds), and displays device position status and manual add/shed status.

K. Master Control Screen: two virtual switches - automatic/manual mode selection, and generator no-load/load testing with selected load control devices - plus a bus alarm reset pushbutton and a running time counter (days, hours, minutes, seconds) for the latest system operation.

L. Load Bank Engine Controls Screen: a test screen to select which engines are tested, whether started all at once or sequentially (consecutive or concurrent), with a virtual selector switch per engine for test mode and a digital test-duration display per unit.

M. Manual Breaker Controls Screen: displays feeder breaker positions and allows Open/Close pushbutton control from the OIP (disabled in Automatic mode).

N. Active Alarm Screen: displays up to 2,048 active alarms with activation time; a red OIP alarm indicator illuminates on the master cubicle door; operator may acknowledge individual or all alarms and filter by priority/group.

O. Alarm and Event History Log Screen: displays up to 2,048 alarms/events, filterable by priority/group, with the ability to launch an external program to search daily-stored historical files by keyword or filter. Any switch operation, from the OIP or a hard-wired switch, shall be logged with time of operation and operator login.

P. Help Screens: accessible from each set-point/control screen, providing a brief explanation of the associated set points/controls.

Q. Generator System Run Reports: an OIP pushbutton initiates logging for generator and transfer sequence parameters required for system testing, producing three report types - Engine Generator Testing Data (per unit), Transfer Test and Timing Data, and the Alarm and Event Log.

1. Engine Generator Testing Data shall include date/time stamps of each gen-set run period and kW set-point requirement; graphical trend and maximum/average values of generator kW, kVA, and kVAR; graphical trend and maximum/average values of A, B, and C phase amperes; graphical trend and maximum/average values of AB, BC, and AC phase voltage; graphical trend and maximum/average values of generator volts, amps, RPM, and frequency; graphical trend and maximum/average values of engine coolant temperature, oil pressure, and battery voltage; and graphical trend and maximum/average values of engine left/right exhaust temperature.
2. Transfer Test Data shall include time/date stamps for each engine start signal (on/off) and normal/emergency position (open/closed).
3. Alarm and Event Log shall capture all alarms and events during the recording period, encompassing generator set, ATS, circuit breaker, and switchgear operational activity monitored by the switchgear PLC system.

R. Joint Commission Reports: a separate OIP pushbutton initiates logging of all information required to generate a report of generator and transfer switch parameters for a The Joint Commission (TJC) report, producing three report types - Engine Generator Testing Data (per unit), ATS Test Data, and the Alarm and Event Log.

2.15 INSTRUMENT AND CONTROL WIRING

A. Instrument and control wiring within the switchgear sections shall be flame-retardant, type SIS, extra-flexible, tinned copper, rated 600 V, approved for switchgear use.

B. Control wiring shall be protected with individual circuit breakers with trip indication, monitored by the system PLC and alarmed on the OIP and logged in the event log.

C. All wire terminations at meters, relays, and similar devices shall use ring-tongue or locking-spade crimp lugs, or as required by the device termination point.

D. All terminations shall be clearly identified with heat-embossed vinyl sleeve markers at each end (labeling tape or paper wire markers are not acceptable); wire numbers shall match the manufacturer's interconnection, schematic, and wiring drawings.

E. Terminal blocks shall use Cage-Clamp technology, clearly marked for wiring to be installed/reconnected by the Contractor; connections between shipping sections shall use plug connections to reduce installation time.

F. Cage-Clamp terminal blocks providing high clamping force, maintenance-free terminations, shall be provided for secondary wire terminations.

G. All current transformers shall be connected to shorting-type mechanical lever-arm switches with test points; CT secondary wiring shall be #12 AWG.

H. Control wiring shall be labeled at each terminal point, with designations keyed to wiring diagrams.

2.16 SWITCHGEAR CONSTRUCTION

A. Switchgear Framework: freestanding, floor-mounted, indoor type, NEMA 1; dead front, dead rear; fabricated on a die-formed steel base assembly, welded or bolted, to rigidly support the shipping unit for rolling and floor mounting; die-pierced holes for aligning adjacent sections and facilitating future additions; zinc-plated Grade 5 bolts, nuts, and Belleville spring washers; designed to withstand shipping/handling stresses in addition to operational electrical/mechanical stresses; code-gauge steel framework (12 gauge minimum) suitable for floor anchorage; rugged, rectangular-rigid steel assemblies with bracing, reinforcing gussets, and jig-welding, completely metal-enclosed; open bottom as required for conduit termination, with top/bottom conduit and bus duct areas clearly shown and dimensioned on shop drawings; removable side/top/front/back panels, bolt-attached and sized for one-person handling; hinged front and rear doors with lock-type operating handles on all cubicles; individual front doors for each power circuit breaker compartment (layout reviewed at shop drawing submittal); adequate top/bottom ventilation openings for the switchboard assembly.

B. Dimensions: conform to the arrangement/details shown on the drawings and the designated installation space; highest operating handles shall not exceed 6 ft 6 in above the switchgear sill; adequate gutter space on all sides for accessibility of feeder conductors and bus ducts.

C. Painting: all steel parts prepared by a five-step cleaning, phosphatizing, and sealing process, then finished ANSI 61 gray polyester powder coat, electrostatically applied and oven-cured, suitable for indoor and outdoor application, with corrosion resistance per ASTM B117 for 1,000 hours minimum.

D. Bus Bars and Interconnections: all buses and stub connections shall be silver-plated copper, plated after bending/machining; 480 V, 3-phase, 4-wire, 60 Hz unless otherwise specified; bus sized so current density does not exceed the current-carrying capacity of the rectangular copper bars per UL/NEMA standards, with heat-rise tests per UL 1558; buses/interconnections limited to 30°C temperature rise at load current capacity at 40°C ambient; bus bar and interconnection joints silver-plated, constant-high-pressure type, with Grade 5 zinc-plated bolts/nuts/Belleville washers; bus bracing capacity equal to or greater than the frame rating of the main breakers served; ground bus with 25% current-carrying capacity of the switchgear bus, extending the full assembly width; bus phase designation A, B, C front-to-back/top-to-bottom/left-to-right viewed from the front; main horizontal bus bars between sections located to permit maximum conduit/wiring area; main power bus

continuous ampere rating as shown on the contract drawings/Article 2.11, with bus connections to the power circuit breakers matching breaker frame size.

E. The switchgear shall consist of metal-enclosed cubicles and auxiliary compartments: power circuit breakers in individual front compartments with separate doors; buses in rear compartments with inter-cubicle and/or rear cable compartment isolation barriers; all compartments completely enclosed within grounded metal barriers isolating secondary control devices/wiring from all 480 V primary devices; interlocks for proper sequencing and safe operation; where a rear compartment houses control components, grounded metal personnel-protection barriers shall isolate the bus compartments.

F. Nameplates: externally visible, permanent nameplates on the switchgear and control cubicle doors identifying each instrument, instrument switch, meter, protective relay, control switch, indicating light, and circuit breaker compartment (relays designated by use and connected phase); nameplates shall be laminated plastic, bolt-attached, white-engraved characters on black background; internal equipment (relays, timers, PLC equipment) and terminal blocks shall be identified with thermally embossed labeling tape.

G. Miscellaneous: system controls shall use heavy-duty industrial-grade controls and relays; all synchronizing and failure circuit relays shall embody the fail-safe principle of dual contacts in parallel; the switchgear manufacturer shall provide coordinating wiring diagrams showing electrical connections between the control switchgear and the engine generators for use by the Electrical Contractor and generator service personnel during installation/checkout; provide an overhead circuit breaker hoist system traversing the length of the power switchgear via a front-and-rear rail system, manually operated by hand crank, minimum rated capacity 1,200 lbs.

2.17 EQUIPMENT DESCRIPTION - MASTER CONTROL CUBICLE

The master control cubicle shall control both automatic and manual synchronization of the engine generators, load management, and engine sequencing, and shall include: a synchronizing swing panel on the cubicle door with one bus AC voltmeter, one synchroscope, two synchronizing lamps, and one frequency meter (55-65 Hz, station bus and generator units); one automatic (best-battery) DC control voltage sensor system; one voltmeter selector switch (phase-to-phase and phase-to-neutral); two Siemens SIMATIC CPU S7-1517H High-Availability Hot-Standby Redundant PLCs with PROFINET communications, high-speed synchronization, supervised Ethernet, non-volatile flash memory, and integrated power supply; a 19-inch HD 1080p (1920 x 1080) touch-screen OIP per Article 2.14; a main bus over/under voltage-frequency alarm relay (Crompton type 27/59 or equal) with alarm indication; a bus alarm reset pushbutton; a sync-check relay for manual sync control; a master "Auto-Man" switch with red light; a lamp-test pushbutton; a back-lit annunciation panel per the schedule in Article 2.17.A below; a USB port on the cubicle door, connected to the OIP, for downloading event/alarm logs (e.g., Joint

Commission test reports); Ethernet ports (one on the door, one internal spare) wired to an Ethernet hub connecting the system PLCs and other Ethernet-capable devices via MODBUS TCP/IP for troubleshooting and customer access; one set of three-phase, 10,000 A main bus, neutral bus, and separate ground bus, all silver-plated copper; a 120 VAC convenience duplex receptacle wired for externally supplied control power; and control wiring, DC circuit breakers, Wago terminals, and nameplates as required, with all wiring labeled at both ends.

A. Master Cubicle Annunciation Panel Schedule: Alarm horn silenced (Amber, Status); Control not in automatic (Red, Status); Critical control voltage failure (Red, Alarm); Load shed on (Red, Alarm); PLC No. 1 in control (Green, Status); PLC No. 2 in control (Green, Status); Operator Interface Alarm (Red, Alarm); PLC failure, flashes on low battery (Red, Alarm); Arc reduction mode active (Red, Alarm); Start signal present (White, Status); four (4) spare points.

2.18 EQUIPMENT DESCRIPTION - GENERATOR CONTROL CUBICLES

A separate generator control cubicle shall be furnished for each of the three generators, arranged to control the start/stop sequence, synchronizing, monitoring, and metering of its associated engine generator, including: one AC voltmeter (phase-to-phase and phase-to-neutral); one AC ammeter; one wattmeter; one synchroscope switch with one removable keyed handle for manual synchronizing of one breaker at a time (key-interlocked); one manual sync enable pushbutton; one frequency meter switch with bus-off-generator nameplate (key-interlocked); one voltmeter selector switch; one ammeter selector switch; one circuit breaker control switch with a separate back-lit LED annunciator for breaker status (open, closed, withdrawn) matching the other annunciators; one PLC distributed I/O module (I/O modules, communication modules, power supplies, etc.) for starting/stopping controls; one automatic synchronizer (Woodward type SPM-D2-10 or equal) for individual phase-lock control; one reverse power relay (Basler drawout type BE1-32 or equal); one manual speed adjust with integral locking; an engine selector switch with "Stop/Reset-Off-Auto-Run" nameplate per Article 2.13.H; mounting and wiring of the governor load-sharing module furnished by the engine generator manufacturer; one Modbus/Ethernet gateway interface to the engine generator for alarm/status reading; a lamp-test switch; a back-lit annunciation panel per the schedule below; one 3,200 A frame, electrically operated, drawout power circuit breaker with adjustable overcurrent/short-circuit trip, rated 100 kAIC at 480 VAC; one set of three-phase, 10,000 A main bus, neutral bus, and separate ground bus (silver-plated copper); an illuminated, padlockable-cover arc-reduction selector switch; one set of three metering-class current transformers and one set of three potential transformers (ratios as required); control wiring, DC circuit breakers, fuses, fuse blocks, Wago terminals, and nameplates, labeled at both ends with permanent tubular sleeve wire markers; and one set of ILSCO mechanical bolted-pressure (set-screw) lugs for generator power cable connections.

A. Generator Cubicle Annunciation Panel Schedule: Engine alarm, summary alarm indication of fault type displayed on the OIP (Amber, Pre-alarm); Protective relay tripped (Red, Shutdown); Breaker failure (Red, Shutdown); Engine not available (Red, Flashing, Status); Engine running (Green, Status); Control voltage failure (Red, Shutdown); PLC I/O drop failure (Red, Shutdown).

2.19 EQUIPMENT DESCRIPTION - DISTRIBUTION BREAKER CUBICLES

Provide the required number of individual, metal-enclosed distribution feeder breaker cubicles to accommodate the eleven (11) distribution breakers specified in Article 1.9 (one Life Safety, one Critical, two Equipment System, six Optional Standby, and one load bank breaker); each cubicle shall house no more than three breakers per section, and each shall include: breakers per Article 2.5 sized as required (electrically operated, drawout, UL 1066, adjustable overcurrent and short-circuit trip, rated 100 kAIC at 480 VAC); an illuminated, padlockable-cover arc-reduction mode selector switch (blue, Off-On); one set of three-phase, 10,000 A main bus with fully rated neutral bus and separate ground bus (silver-plated copper); control wiring, DC circuit breakers, fuses, fuse blocks, Wago terminals, and nameplates, labeled at both ends; and ILSCO mechanical bolted-pressure (set-screw) lugs for all circuit breaker connections.

2.20 SCADA DESKTOP WORKSTATION

A. Provide and commission a SCADA workstation computer and software, installed in the paralleling switchgear room. All information available at the switchgear's OIP shall be available at the workstation, including all data screens, single-line diagrams, password protection, and controls; furnish hardware description, accessories description, warranty, and support documentation for the workstation PC.

B. Provide and commission a SCADA system for the generator control switchgear and ancillary equipment, including a Master Display Station (MDS) consisting of a desktop computer with remote web access via Ethernet. The SCADA system shall be menu-driven; have graphic multicolored displays; permit remote operation and control set-point adjustments; have security log-on protection; be multi-tasking, enabling system monitoring as a background task while performing a database or spreadsheet function as a foreground task; and display real-time data from each generator control cubicle (pre-alarm, alarm, engine status, engine selector switch status, generator breaker position, generator volts/amps/kW/frequency) and from the master control cubicle PLC (system annunciation, generator bus voltage/kW/frequency, load demand set-point and timer settings, manual/auto selector switch position, and all remaining master control settings). Limited control from the MDS shall include system test and load demand enable/disable and set-point adjustments.

C. Provide Win911 (or equal) alarm and paging integration to the system via an Ethernet connection provided by the Owner, including a NAT router.

D. The Master Display System shall consist of a Dell computer (or equal), furnished with a 24-inch monitor with three-year warranty, ergonomic mouse pad with wrist support, and a USB flash drive, and shall display the following on a minimum of four separate screens:

1. System One-Line: single-line diagram of the generator control switchgear and Automatic Transfer Switches, with power flow shown by color change (open breaker/de-energized bus green, closed breaker/energized bus red, locked-out breaker yellow), including a menu for the operator to access SCADA control and monitoring features.
2. Security/Log: restricts SCADA system access to authorized personnel, with over 1,000 levels of password capability.
3. Alarm and Events: a log of all status points, including shutdown and pre-alarm alarms, breaker operations (trip/close), set-point and timer adjustments, test operations, and power failures.
4. Setpoints: allows the operator to view or change the set points associated with load demand.

PART 3 - EXECUTION

3.01 COORDINATION

A. The Switchgear Manufacturer shall provide coordinating interconnect diagrams showing the electrical connections between all equipment specified in this Section, for use by the Electrical Contractor and switchgear service personnel during installation and checkout.

B. The Engine Generator Vendor (Section 16900) will supply the Switchgear Manufacturer with required engine interface hardware, electronic governor, and voltage regulator components, along with detailed interconnection and mounting drawings; the Switchgear Manufacturer shall mount and wire this equipment.

C. The Switchgear Manufacturer shall verify completion of all start-up commissioning and site testing of the paralleling switchgear system, and shall assist the Engine Generator Vendor as necessary with generator site start-up and testing.

D. The Electrical Contractor shall obtain and provide the selective coordination and arc-flash study and furnish the approved study, with required protective relay settings, to the switchgear manufacturer's start-up field engineer prior to commencement of switchgear startup procedures.

3.02 FACTORY TESTING

A. At the factory, the Switchgear Manufacturer shall test the switchgear and generator controls as required to verify proper operation of each component and demonstrate

full compliance with this Specification; factory test reports shall be available upon request.

B. Equipment shall be completely assembled, wired, adjusted, and tested at the factory; rigid inspections before and after assembly shall assure correctness of design and workmanship, and each switchgear assembly shall be tested for operation under simulated conditions.

C. After visual inspection, perform the following operational tests: operate all circuit breakers in connected and test positions and check all interlocks by attempting to close breakers into interlocked configurations; check racking mechanisms by removing/reinstalling each breaker; check the stored-energy mechanism of each breaker by tripping/closing/tripping after removal of control power; perform dielectric tests; and test all protective relay devices by simulation.

D. The Manufacturer shall supply all equipment, devices, and circuitry required to simulate all synchronizing and paralleling functions, digital and analog signal inputs/outputs and confirmation signals, and diesel generator control and operation, including automatic and manual operation of the paralleling circuit breakers and protective/indicating devices.

3.03 PACKING AND SHIPPING

A. The Switchgear Manufacturer shall prepare all equipment to protect it against damage in transit, adequately packed against handling, weather, shock, vibration, and corrosion during shipment.

B. All metering and equipment shall be protected for cleanliness during shipment, storage, and erection; each item shall be clearly marked, with boxes/crates/shipments numbered and identified with the Owner's purchase order number, Owner's name and delivery location, manufacturer's name and address, and contents; all equipment shall have clearly marked lifting/skidding provisions; each shipping unit shall be adequately and rigidly braced internally and externally; assemblies requiring disassembly for installation, or shipped disassembled, shall be uniquely identified as to assembly position, with all loose peripheral equipment boxed/crated/enclosed during storage, handling, and shipment.

C. All equipment and material shall be shipped to the job site unless otherwise instructed, adequately protected, braced, and secured to prevent physical and environmental damage during transit and handling; material not mounted on the major equipment during shipping shall be properly crated and shipped with the associated equipment.

D. Drawout circuit breakers shall be crated and shipped separately if recommended by the breaker vendor; otherwise breakers shall be shipped within the system.

E. The Vendor shall coordinate shipping of all equipment and material with the Contractor; shipping sections shall be arranged to permit transport through limited

access as required; equipment shall be equipped for handling by crane, pallet jack, and rollers.

3.04 EXAMINATION

Verify the paralleling switchgear room is complete (two-hour fire-rated construction, ventilated, concrete housekeeping pad in place per Article 1.4) and physically separate from the Generator Room (Section 16900) before setting equipment.

3.05 INSTALLATION

A. The Electrical Contractor shall provide labor for installation of the paralleling switchgear system plus all associated external power and control wiring, and shall be responsible for all rigging required for unloading and installation.

B. Set and align the switchgear on its concrete housekeeping pad per the Switchgear Manufacturer's installation procedures; the Manufacturer shall assist the Electrical Contractor as required in interpreting installation instructions, and the Electrical Contractor shall certify to the Manufacturer and Owner that installation has been performed per the latest documents and instructions.

C. Connect generator feeders and distribution feeders per the approved shop drawings; program synchronizing, load-sharing, and load-shed/load-add controls per the coordinated sequence of operation with Section 16900.

D. The Electrical Contractor shall be responsible for providing and installing a 1,750 kW load bank for start-up testing and adjustment of the system, sized to match the output of one generator, for use with the dedicated load bank breaker specified in Articles 1.9 and 2.10.

E. The Design-Build Contractor shall be responsible for the installation and connection of all interconnections of control and communication wiring between equipment supplied for the facility, including: the paralleling switchgear; the generators and auxiliary equipment (day tanks, battery chargers, remote annunciators, etc.) of Section 16900; the Double-Ended Substation of Section 16600; the SCADA computer specified in Article 2.20; the Building Management System; and the Automatic Transfer Switches of Section 16700.

F. Following installation, the Switchgear Manufacturer shall inspect and verify the correct installation of the switchgear, including all individual components.

3.06 FIELD QUALITY CONTROL

A. Perform functional testing of the synchronizing and paralleling scheme with all three generators, verifying correct phase sequence, voltage, and frequency matching before closing generator breakers onto the common bus.

B. Perform load-bank testing per NFPA 110 to verify load-shed/load-add logic and generator capacity under simulated single- and two-generator-out conditions, using the dedicated load bank breaker specified in Article 1.9/2.10.

C. Field-set and verify all protective relay settings per the selective coordination and arc-flash study specified in Article 3.1.D.

D. The Electrical Contractor shall be responsible for installation and testing of the settings on all switchgear circuit breakers based on the selective coordination study.

3.07 FIELD SERVICE START-UP AND TRAINING

A. The Switchgear Manufacturer shall provide a field service engineer for a pre-installation coordination meeting with the Engine Generator Vendor and Electrical Contractor to coordinate installation and interconnection of the switchgear and generators.

B. The Switchgear Manufacturer shall provide a field engineer for an initial visit to check out the switchgear installation and allow energization of the utility main service breaker if required, and shall provide a field engineer for post-installation start-up and testing assistance prior to system turnover, including initial instruction and training of the facility's operating personnel and demonstration of complete system operation for final acceptance.

C. At system start-up, the Manufacturer shall furnish two preliminary sets of installation, operating, and maintenance manuals; at the conclusion of site testing, the field engineer shall leave one manual at the site, amended with any changes occurring during start-up, to serve as a reference until final O&M manual sets are supplied. Instructions shall include recommended field test procedures per the referenced Standards and a schedule of prescribed field test frequency.

D. Approximately six months after complete system turnover, a follow-up visit shall be made to provide operating personnel instruction on the complete operation and maintenance program for the switchgear system.

E. The bid shall include the cost of a factory-authorized service representative to train the Owner's on-site work force on programming, relay setting, startup, shutdown, troubleshooting, servicing, and preventive maintenance of all equipment. Instruction shall be dedicated and intensive, provided by competent instructors fully familiar with the equipment, presented in an eight-hour session for which the Owner will provide a suitable classroom environment; the Owner may elect to record the sessions; training shall be scheduled with at least seven working days' advance notice; and both classroom and hands-on training shall cover: safety precautions; features and construction of the switchgear and accessories; routine inspection, test, and maintenance procedures; routine cleaning; features, operation, and maintenance of protective devices; interpretation of readings of indicating and alarm devices; review of the O&M manuals; and review of troubleshooting operations.

END OF SECTION 16800

SECTION 16900 DIESEL ENGINE-DRIVEN GENERATORS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: The furnishing, delivery, installation, testing, and commissioning of three (3) diesel engine-driven generator sets, associated day fuel tanks, and bulk diesel storage for the emergency standby power plant serving the Puerto Rico Trauma Hospital, Basement Generator Room, San Juan, Puerto Rico.

B. Coverage: The emergency generator plant constitutes the sole source of emergency and standby power for 100% of the building electrical load, including all NFPA 99 Essential Electrical System (EES) branches (Life Safety, Critical, and Equipment System) and the Optional Standby System per NEC Article 702. There are no normal-power-only (unbacked) building loads.

C. The system shall be classified and designed as:

1. NFPA 99 Category 1 - healthcare occupancy essential electrical system source.
2. NFPA 110 Type 10, Class 48 (or greater), Level 1 - emergency and standby power system.
3. NEC Article 700 - Emergency Systems (Life Safety Branch).
4. NEC Article 701 - Legally Required Standby Systems (Critical Branch, Equipment System).
5. NEC Article 702 - Optional Standby Systems (Optional Standby / Non-Essential loads).

D. Redundancy: Three (3) generator sets are installed in an N+1 configuration. Any two (2) generators operating in parallel shall carry 100% of the connected building load. The third generator is the standby spare. Run-hour equalization shall rotate the lead, lag, and spare designations among all three units on a scheduled basis.

1.02 RELATED SECTIONS

A. Related Sections include:

1. Section 16100 - Basic Electrical Materials and Methods.
2. Section 16700 - Automatic Transfer Switches.
3. Section 16800 - Paralleling Switchgear.

1.03 APPLICABLE CODES AND STANDARDS

A. Design, equipment, installation, and testing shall conform to the following codes and standards, latest editions adopted in Puerto Rico unless a specific edition is cited. The most stringent requirement governs.

B. Life Safety and Electrical Codes:

1. NFPA 99 - Health Care Facilities Code: Category 1 occupancy; Essential Electrical System (EES) requirements; generator performance, testing, and maintenance.
2. NFPA 110 - Standard for Emergency and Standby Power Systems: Level 1, Type 10, Class 48 (minimum); generator sets, ATS, fuel systems, battery systems, testing.
3. NFPA 70 (NEC) - National Electrical Code: Articles 445 (Generators), 700 (Emergency Systems), 701 (Legally Required Standby), 702 (Optional Standby), 517 (Health Care Facilities).
4. NFPA 37 - Standard for the Installation of Stationary Combustion Engines and Gas Turbines.
5. NFPA 30 - Flammable and Combustible Liquids Code: fuel oil storage and handling.
6. NFPA 101 - Life Safety Code: generator room fire rating, means of egress.
7. NFPA 72 - National Fire Alarm and Signaling Code (fire alarm in generator room).
8. NFPA 20 - Standard for the Installation of Stationary Pumps for Fire Protection (fire pump power coordination).

C. Engine and Generator Standards:

1. NEMA MG-1 - Motors and Generators: generator winding insulation, temperature rise, and electrical performance.
2. ISO 8528 - Reciprocating Internal Combustion Engine Driven Alternating Current Generating Sets (all applicable parts).
3. SAE J1349 - Engine Power Test Code: engine power rating.

D. Fuel System Standards:

1. NFPA 30 - Flammable and Combustible Liquids Code.
2. NFPA 37 - Stationary Combustion Engines: fuel piping, venting, and containment.
3. NFPA 110 - Emergency and Standby Power Systems: fuel system capacity, day tank requirements.
4. EPA 40 CFR Part 60 Subpart IIII - Standards of Performance for New Stationary Compression Ignition Internal Combustion Engines: Tier 2 emissions compliance.
5. UL 142 - Steel Aboveground Tanks for Flammable and Combustible Liquids (day tanks).

E. Puerto Rico and Utility Requirements:

1. Puerto Rico Building Code (PRBC), incorporating 2018 IBC with Puerto Rico amendments: structural loads, seismic, wind (Category 5, 180 mph design wind speed).
2. Puerto Rico Department of Health (PRDOH) - Hospital Licensure Regulations, Regulation 9184.
3. Puerto Rico Environmental Quality Board (PREQB / JCA) - air permit, emissions, and fuel storage permit requirements.
4. FAA Advisory Circular AC 150/5390-2 - Heliport Design: exhaust discharge location shall not compromise the heliport approach/landing zone or heliport FAA lighting.

1.04 SUBMITTALS

A. Submit the following at the Design Development phase for Engineer review and approval before purchase or fabrication:

1. Generator set data sheets: engine ratings (kW, fuel consumption at 25%/50%/75%/100% load), alternator ratings, winding class, insulation, short-circuit capability, voltage regulation, transient response, cooling type, dimensions, weight, fuel consumption curves.
2. Complete generator set outline drawing with dimensions, accessory locations, combustion air and radiator discharge areas, exhaust connection location, baseframe anchor bolt pattern.
3. Engine specifications: manufacturer, model, displacement, rated RPM, turbocharged confirmation, EPA Tier 2 certification documentation.
4. Alternator specifications: manufacturer, model, kVA/kW rating, power factor, voltage regulation class (G2 or better per ISO 8528-3), insulation class, temperature rise, short-circuit withstand.
5. Generator control panel schematic and description: auto-start sequence, synchronizing logic summary, protective relay list, alarm/shutdown set points.
6. Day tank shop drawings: UL 142 listing, dimensions, capacity, accessories (level gauge, overfill, vent, fill connections, day-tank transfer pump if applicable).
7. Fuel transfer system submittal: pump data, piping material, automatic transfer controls, float-switch level controls, alarm wiring.
8. Exhaust system submittal: exhaust silencer data (sound attenuation), flexible exhaust connector data, exhaust pipe material and insulation.
9. Vibration isolation submittal: isolator model, static deflection, rated load per mount, installation arrangement.
10. Acoustic treatment submittal: materials, STC ratings for room walls/ceiling/louvers, insertion loss of louver acoustic lining.

11. Battery system submittal: battery type, cold-cranking amps (CCA), charger model, battery rack.
12. Air permit application: D&B Contractor shall prepare and submit an air permit application to PREQB/JCA for three (3) emergency diesel generators; submit permit application documentation to Engineer.

B. Factory Test Reports - Submit before delivery is accepted:

1. Certified factory test report for each generator set: full-load run at 100%, 75%, 50%, 25%; voltage and frequency regulation data; transient voltage and frequency response on block-load application and load rejection; fuel consumption data.
2. Engine emission test data confirming EPA Tier 2 compliance.

C. Operation and Maintenance Manuals - Submit 30 days before commissioning:

1. Complete O&M manual: start/stop procedures, weekly/monthly/annual maintenance schedules, troubleshooting guide, parts list, engine tune-up specifications, alternator maintenance.
2. Fuel system O&M manual: day tank fill procedures, pump operation, level alarm setpoints.

1.05 QUALITY ASSURANCE

A. Generator Set Manufacturer: Provide generator sets from a single manufacturer who produces both the engine and alternator as a matched, integrated set, or who provides the complete integrated package with a single point of warranty responsibility. The complete generator set - engine, alternator, controls, baseframe - shall be factory-assembled and tested as a unit before shipment.

B. Factory Testing: Each generator set shall undergo a complete factory load test, minimum 2-hour run at 100% standby rated load. Certified test reports shall be submitted and accepted before delivery.

C. NFPA 110 Compliance: The complete system (generator sets, fuel system, starting batteries, and controls) shall be designed and installed to meet all NFPA 110 Level 1 requirements, including the 10-second start-to-load readiness requirement, fuel supply duration, monthly exercise, and annual load bank test.

D. Air Permit: The D&B Contractor shall obtain all required air quality permits from the Puerto Rico Environmental Quality Board (PREQB/JCA) for operation of three (3) diesel generators. Permit application shall be submitted at Design Development phase.

E. UL Listing: Each generator set shall be listed and labeled by Underwriters Laboratories (UL) under UL 2200 - Stationary Engine Generator Assemblies. The UL 2200 label shall be affixed to each complete generator set as shipped and installed. Submit UL listing documentation with product submittals.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Coordinate delivery with the construction schedule; the Generator Room must be fully enclosed, weathertight, and housekeeping pads complete before generator delivery.

B. Generator sets are large and heavy - confirm access route dimensions (door widths, corridor heights, turning radii) against generator dimensions before delivery.

C. Store generator sets indoors, protected from weather; do not expose alternator windings to condensation; if long storage is anticipated, energize the block heater during storage.

D. Shipping: Generator sets may be shipped on skids without batteries installed; batteries ship separately; install batteries per manufacturer's instructions after installation and before commissioning.

E. Handle only with the manufacturer's designated lifting provisions; do not use exhaust outlets, alternator cooling openings, or the control panel as lift points.

1.07 WARRANTY

A. Generator Set (Engine and Alternator): Manufacturer's standard warranty, minimum two (2) years from initial commissioning or two and a half (2.5) years from ship date, whichever occurs first, against defects in materials and workmanship.

B. The warranty shall include repair or replacement of failed components; warranty service shall be available from a factory-authorized service center located in Puerto Rico or available by next-day travel from the continental United States.

PART 2 - PRODUCTS

2.01 GENERATOR SET RATINGS AND PERFORMANCE

A. Provide three (3) complete diesel engine-driven generator sets, identical and interchangeable, with the following minimum ratings and characteristics:

1. Quantity: Three (3), identical, interchangeable units.
2. Standby Power Rating: 1,750 kW per unit at 0.8 power factor lagging (2,187.5 kVA per unit).
3. Firm N+1 Capacity (any 2 paralleled): 3,500 kW at 0.8 pf, sized to carry 100% of the total connected building load.
4. Total Installed Capacity: 5,250 kW (3 x 1,750 kW).
5. Output Voltage: 480Y/277 V, three-phase (3Ø), four-wire, 60 Hz.
6. Power Factor: Rated at 0.8 pf lagging; alternator capable of operating between 0.8 pf lag and unity pf.

7. Frequency: 60 Hz; steady-state frequency regulation ±0.5% (NEMA MG-1 Class G2 or better).
8. Voltage Regulation: Steady-state ±0.5% from no-load to full load (ISO 8528-3 Class G2 or better).
9. Load Acceptance: Ready to accept full rated load within 10 seconds from start signal per NFPA 110 Level 1.
10. Transient Voltage Response: Voltage dip ≤ 15% on application of rated block load (100% load step); recovery to ±3% within 3 seconds.
11. Transient Frequency Response: Frequency dip ≤ 10% on application of rated block load; recovery to ±2% within 5 seconds.
12. Fuel Type: Ultra-Low-Sulfur Diesel (ULSD, ≤ 15 ppm sulfur).
13. Engine Type: Turbocharged, four-stroke diesel; EPA Tier 2 compliant.
14. Cooling: Unit-mounted, engine-driven radiator and cooling fan; self-contained; no external chilled water cooling.
15. Starting: Electric start, 24 V DC battery; automatic start on loss of utility; two (2) independent starting attempts before alarm.
16. Ambient Temperature: Rated at 40°C (104°F) ambient maximum; designed for Puerto Rico tropical ambient conditions.
17. Seismic Anchorage: Baseframe anchored to the Basement Generator Room housekeeping pad per Puerto Rico Building Code seismic requirements.

B. **REQUIRED:** The D&B Contractor shall confirm by complete building load calculation that 3,500 kW of firm N+1 capacity is adequate for 100% of the facility connected load, including: all ORs, ICUs, Trauma Stabilization, Emergency Department, imaging, heliport, fire alarm, nurse call, Disaster Control Center, elevators, lighting, medical gas compressors and vacuum, BMS/IT infrastructure, mechanical/HVAC equipment (including chillers), and all Optional Standby loads. Calculation shall account for motor starting inrush, VFD harmonic loads, and minimum 10% future surge capacity. If 3,500 kW is found to be insufficient, increase generator kW rating to the next standard size without additional cost to the Owner.

2.02 DIESEL ENGINE

A. Diesel Engine Technical Requirements:

1. Type: Four-stroke, turbocharged (and after-cooled/intercooled) diesel engine; liquid-cooled.
2. Aspiration: Turbocharged and charge-air-cooled (TCAC); no naturally aspirated units.
3. Emissions: EPA 40 CFR Part 60 Subpart IIII, Tier 2 compliant; confirmed by emissions test report; air permit required from PREQB/JCA.

4. Fuel Consumption: Submit at 100%, 75%, 50%, and 25% load; at 100% standby load, typical consumption ≤ 0.36 gal/kWh; confirm by factory test.
5. Speed: 1,800 RPM (direct-coupled or gear-coupled to 4-pole alternator for 60 Hz output); constant speed isochronous governor.
6. Governor: Electronic isochronous governor; steady-state speed regulation ±0.25% from no-load to full load; load-sharing capability for paralleling.
7. Lubrication: Full-flow pressure lubrication; oil temperature within engine limits at rated output and 40°C ambient; provide oil drain valve with extension for oil changes.
8. Cooling System: Liquid-cooled engine block; unit-mounted radiator and cooling fan; maintain engine temperature within design limits at rated load and 40°C ambient.
9. Air Filter: Dry-type air filter with restriction indicator; sized for the generator room intake air quality.
10. Block Heater: Engine coolant block heater (thermostatically controlled, 120 V AC) to maintain coolant at minimum 90°F (32°C) for immediate starting; block heater energized from a dedicated essential branch circuit at all times.
11. Engine Protection: Electronic engine control with automatic protective shutdown for low oil pressure, high coolant temperature, overspeed, overcrank (failure to start), and low coolant level; alarm only (no shutdown) for low fuel level (day tank), low coolant temperature, and battery charger failure.

B. ***NOTE:*** *Block heater circuits shall remain energized from the Essential Electrical System at all times, before, during, and after a generator run, to maintain engine readiness. Block heaters shall NOT be on normal-power-only circuits that would de-energize during utility outages.*

2.03 ALTERNATOR (AC GENERATOR)

A. Alternator Technical Requirements:

1. Type: Brushless, revolving-field, self-excited, single-bearing or two-bearing design; factory-aligned and coupled to engine.
2. Winding: Three-phase, four-wire, reconnectable for 480Y/277 V output; copper magnet wire windings.
3. Insulation Class: Class H insulation; Class F temperature rise (105°C maximum winding temperature rise) for conservative thermal margin.
4. Excitation: Brushless excitation with Permanent Magnet Generator (PMG) pilot exciter preferred; PMG provides stable excitation current independent of generator output waveform distortion from nonlinear loads.

5. Voltage Regulator: Solid-state, electronic automatic voltage regulator (AVR); steady-state voltage regulation ±0.5% no-load to full load; compatible with reactive droop/reactive load-sharing signal for paralleling operation.
6. Harmonic Distortion: Total voltage harmonic distortion (TVHD) ≤ 5% at rated load with linear loads per NEMA MG-1.
7. Short-Circuit Withstand: Alternator capable of supplying minimum 300% of rated current for 10 seconds to allow upstream protective devices to clear faults per ISO 8528.
8. Power Factor Capability: 0.8 pf lag at rated kW to unity pf at rated kW; capable of leading pf operation to absorb capacitive reactive power from VFDs and power correction capacitors.
9. Protection: Internal anti-condensation heater (120 V, thermostatically controlled); winding temperature sensors (RTDs or thermistors) for alarm and protection.
10. Degree of Protection: IP22 minimum (drip-proof) for the alternator inside the Generator Room.

2.04 GENERATOR CONTROL PANEL

A. Each generator set shall be furnished with a factory-mounted, NEMA 1 generator control panel. Automatic Start/Stop Controls:

1. Auto mode: Upon receipt of start signal (utility failure detected), engine starts automatically; accelerates to rated speed and voltage; ready signal transmitted for synchronizing and paralleling.
2. Manual mode: Local manual start/stop for testing and maintenance; local manual emergency stop pushbutton (mushroom-head, red, lockout type).
3. Cool-down timer: Automatic cool-down run at no load (adjustable 0-30 minutes) before engine shutdown after transfer back to utility; timer bypassed by manual stop.
4. Crank disconnect: Automatic disconnect of starting motor upon engine start (overcrank protection: 3 start attempts maximum, then alarm and lockout).

B. Metering and Displays: Each control panel shall provide local indication of:

1. Output voltage (all three phases - VAB, VBC, VCA); output current (all three phases - IA, IB, IC); output frequency (Hz); real power output (kW); power factor.
2. Engine oil pressure (PSI or kPa); engine coolant temperature (°F or °C); engine speed (RPM); battery charging voltage and current.
3. Run hours (cumulative); day tank fuel level (% or inches).

C. Alarm and Shutdown Annunciation (minimum):

1. Alarms (auto restart not interrupted): Low fuel level (day tank); low coolant temperature; battery charger fault; generator on load; high coolant temperature warning; low oil pressure warning.
2. Protective Shutdowns (engine stops, requires manual reset): High coolant temperature shutdown; low oil pressure shutdown; overspeed shutdown; overcrank (failure to start) shutdown; low coolant level shutdown; emergency stop (local or remote).
3. All alarm and shutdown points shall provide dry-contact outputs for remote monitoring.

D. Load-Share and Paralleling Interface:

1. kW load-sharing line: Analog signal output for isochronous load-sharing with the Section 16800 paralleling switchgear.
2. Reactive load-share (kVAR): AVR reactive droop or cross-current compensation for reactive load sharing with other paralleled units.
3. Sync check input: Accept synchronizing pulse from the Section 16800 paralleling switchgear to close the generator output breaker when in synchronism.
4. Run-hour equalization: Control panel shall accept remote lead/lag/spare assignment commands from the Section 16800 paralleling switchgear load-management controller; panel shall display current assignment (LEAD / LAG / SPARE).

2.05 BATTERY STARTING SYSTEM

A. Battery Starting System Technical Requirements:

1. Battery Type: Lead-acid, sealed maintenance-free; 24 V DC system; two (2) batteries per generator wired in series for 24 V.
2. Cold Cranking Amps (CCA): Minimum CCA rating sufficient to crank the engine at 0°C per engine manufacturer's specification.
3. Battery Quantity: Two (2) sets of batteries per generator, a primary set and a secondary/backup set; automatic changeover relay so that if the primary set is depleted, the secondary set engages for a second start attempt.
4. Battery Rack: Non-conductive or insulated battery rack within the generator enclosure or on the engine baseframe; secured for seismic loads.
5. Battery Charger: One (1) automatic two-rate (float/equalize) battery charger per generator, 120 V AC input, 24 V DC output; sized to fully recharge depleted batteries within 4 hours of a 10-second cranking demand.
6. Charger Power: Charger powered from a dedicated Essential Electrical System circuit (Critical Branch or Equipment System) to ensure batteries are

continuously charged during normal operation, utility outages, and generator operation.

7. Testing: Battery load-test (discharge test) shall be performed annually; replace batteries every 3 years or per manufacturer's recommendation, whichever is sooner.

2.06 VIBRATION ISOLATION

A. Provide factory-furnished, spring or rubber anti-vibration isolators between each generator set baseframe and the concrete housekeeping pad:

1. Isolator static deflection: Minimum 1 inch for spring isolators; or rubber isolators with spring rate appropriate for the generator set weight and operating frequency.
2. Isolators shall be rated for the full weight of the generator set plus 25% safety factor.
3. Install isolator quantity and placement per manufacturer's instructions; ensure level installation.
4. Flexible connections: Flexible pipe connectors on all fuel, coolant, and exhaust connections at the generator to absorb vibration; flexible stainless steel bellows connectors on exhaust.
5. Flexible electrical connections: All conduit to the generator control panel shall use flexible metallic conduit or liquid-tight flexible conduit from the last rigid conduit support to the panel; minimum 18-inch flexible section.

2.07 DAY FUEL TANKS

A. Provide one (1) freestanding day fuel tank per generator set, located within the Basement Generator Room. The day tanks provide a local fuel reserve directly serving each engine's fuel system.

B. Day Tank Technical Requirements:

1. Quantity: Three (3), one per generator set.
2. Capacity: Maximum permitted indoor fuel volume per NFPA 30, NFPA 37, NFPA 110, and the Authority Having Jurisdiction (AHJ); D&B Contractor shall confirm the maximum permitted indoor volume with the AHJ and local fire marshal prior to finalizing day tank size.
3. Fuel Type: Ultra-Low-Sulfur Diesel (ULSD, ≤ 15 ppm sulfur).
4. Construction: UL 142 listed, double-wall steel aboveground tank; welded steel construction; all seams continuous-welded and leak-tested at the factory.
5. Containment: Double-wall construction provides secondary containment; interstitial space monitored by leak detection sensor.

6. Spill Basin: Each day tank installed in a concrete spill containment basin capable of holding 110% of the tank's volume; basin waterproofed and liquid-tight; no floor drain inside the basin.
7. Fill Connection: Top-fill connection with anti-siphon valve; camlock fill fitting; dust cap on fill fitting.
8. Vent: Atmospheric vent per NFPA 30; vent routed to the exterior of the generator room per NFPA 37; vent termination with insect screen and weather cap.
9. Supply to Engine: Bottom-mounted fuel supply fitting with shut-off valve; gravity-fed or pump-fed to engine per engine manufacturer's fuel system requirements.
10. Return from Engine: Return fuel line from engine back to day tank; return fitting with check valve.

C. Day Tank Accessories (each tank):

1. Fuel level gauge: Float-type or electronic level gauge with local visual display; alarm outputs for Low Fuel (≤ 25% capacity) and High Fuel (≥ 90% capacity, stop transfer pump).
2. Leak detection sensor: Electronic interstitial leak detector in the double-wall annular space; alarm output to the generator control panel on detection of fuel in the interstitial space.
3. Overfill prevention: Float valve or solenoid valve on the fill line to stop filling at 90% tank capacity; overfill prevention per NFPA 30.
4. Manual isolation valve: Manually operated ball valve on the supply line between the day tank and engine for maintenance isolation; accessible without special tools.
5. Fuel level controls: Float switches or electronic level sensor; low-level alarm at ≤ 25% capacity.
6. Emergency fuel shutoff: Fusible-link or remote-operated emergency fuel shutoff valve on the supply line from the day tank to the engine; per NFPA 37; fusible link shall melt at ≤ 165°F (74°C) to shut off fuel flow in case of fire.

2.08 BULK DIESEL STORAGE AND SUPPLY

A. Provide a building main diesel bulk storage tank supplying the three (3) generator sets, independent of and in addition to the individual day tanks specified in Article 2.7. The bulk storage tank shall provide a minimum 5-day (120-hour) full-load on-site fuel reserve, sized per the D&B Contractor's fuel consumption calculation for the installed generator capacity (3,500 kW normal redundant operating capacity, sized to carry 100% of the connected building load); tank capacity shall be established by that calculation and shall not be limited to a fixed nominal volume. Tank construction, secondary containment, venting, spill containment, and leak detection shall comply with NFPA 30, NFPA 37, NFPA 110, and the AHJ.

B. Resupply Agreement: In addition to the 5-day (120-hour) on-site main tank reserve, the Owner shall separately maintain a contracted diesel resupply agreement guaranteeing delivery sufficient to sustain a minimum 20-day full-load operating capacity, supplementing the on-site bulk storage reserve.

C. Fuel piping, day tank fill pumps, tank venting, spill containment, and leak detection between the bulk storage tank and each day tank shall be provided per NFPA 30 and NFPA 110.

2.09 EXHAUST SYSTEM

A. Each generator set shall have a dedicated exhaust system from the engine exhaust manifold to the exterior of the building, including a critical-grade silencer, flexible exhaust connector, insulated exhaust piping, and weather-resistant rain cap at the exterior discharge point.

B. Exhaust System Technical Requirements:

1. Exhaust silencer: Critical-grade exhaust silencer; insertion loss minimum 25 dB(A); installed upstream of rigid exhaust piping; sized to minimize backpressure at rated engine load per engine manufacturer's maximum allowable backpressure.
2. Flexible exhaust connector: Stainless steel flexible bellows connector between the engine exhaust manifold and silencer inlet; absorbs engine vibration and thermal expansion; rated for exhaust temperature.
3. Exhaust piping: Carbon steel Schedule 40 black iron pipe; sized per engine manufacturer's recommendations (one pipe size larger than engine exhaust outlet); all joints continuously welded; no screwed fittings in exhaust piping.
4. Thermal insulation: Insulate all exhaust piping and silencer within the building with mineral wool or calcium silicate insulation to limit surface temperature ≤ 60°C (140°F) in occupied areas; metal jacket or stainless steel wrap over insulation.
5. Pipe supports: Exhaust pipe supported by spring-isolated pipe hangers to prevent vibration transmission; minimum 2-inch clearance to combustible construction.
6. Exterior discharge: Exhaust discharge at exterior building wall above grade; stainless steel rain cap or elbow turned downward; discharge directed away from building air intakes, occupied areas at grade, the heliport FATO zone and approach path, and the LUMA utility substation.
7. Condensate drain: Low-point condensate drain on each exhaust system with drip leg and manual drain valve; condensate collected in a corrosion-resistant container.
8. Separation: Each of the three generator exhaust systems shall be independent and separated; no common exhaust manifold or combined silencer.

2.10 GENERATOR ROOM VENTILATION AND COMBUSTION AIR

A. The Mechanical Engineer shall design the Generator Room ventilation system to provide adequate combustion air for engine operation at full load and to remove waste heat from the radiators. The Electrical Contractor shall coordinate with the Mechanical Contractor on the following requirements:

1. Combustion air: Each engine requires a clean, unobstructed air supply at the air filter intake. The generator room ventilation system shall provide adequate outdoor air to support three (3) engines at rated load simultaneously, per the combined combustion air volume requirement stated in the engine manufacturer's installation specifications.
2. Radiator air discharge: Each generator set's engine-driven radiator fan discharges heated cooling air into the generator room. The generator room ventilation system shall exhaust this heated air to the exterior to prevent recirculation. Airflow path: fresh air intake louvers, generator room, radiator discharge, exhaust louvers.
3. Room temperature limit: The generator room temperature shall not exceed 40°C (104°F) at the engine air filter intake under any combination of operating generators (up to three) at full load.
4. Intake louver location: Fresh air intake louvers shall be located away from the exhaust discharge points and fuel storage vents to prevent recirculation of hot combustion exhaust into the engine air supply.
5. Louver acoustic treatment: See acoustic treatment requirements in Article 2.11.

B. ***CAUTION:*** *Exhaust discharge and intake louver locations shall be coordinated with the Architect and MEP team to prevent exhaust re-entrainment. Exhaust backpressure shall be checked against the engine manufacturer's maximum allowable backpressure at full load with all exhaust components installed.*

2.11 ACOUSTIC DESIGN REQUIREMENTS

A. The Generator Room shall be acoustically treated to limit sound transmission to adjacent occupied spaces and to the building exterior, per the project acoustic design criteria and applicable Puerto Rico noise ordinances. The following minimum treatments shall be provided:

1. Room walls and ceiling: Acoustically rated assembly with minimum STC (Sound Transmission Class) 55 for walls separating the Generator Room from occupied spaces or corridors; double-layer gypsum board or concrete masonry with resilient channels and acoustic batt insulation, or an engineered acoustic wall assembly per the project's acoustic engineer's design; all wall penetrations sealed with UL-listed acoustic firestopping.

2. Intake and exhaust louvers: Internally-lined acoustic louvers at all generator room combustion air intake and cooling air exhaust wall openings; acoustic lining shall not reduce the required free area for combustion and cooling air; insertion loss minimum 15 dB(A) across the louver.
3. Radiator discharge flexible connection: Canvas (neoprene-coated fabric) or elastomeric flexible duct connector between the generator radiator discharge and the room exhaust plenum or duct; flexible connector shall incorporate internal acoustic lining (minimum 1-inch thick fiberglass or mineral wool rated for airstream exposure) providing minimum 10 dB(A) insertion loss; connector absorbs fan-generated vibration and prevents rigid duct noise transmission; minimum connector length 18 inches to allow effective sound attenuation and vibration decoupling.
4. Exhaust silencer: Critical-grade silencer per Article 2.9; the exhaust silencer is the primary attenuation device for engine exhaust noise.
5. Vibration isolation: Anti-vibration isolators reduce structure-borne vibration transmission from generators to the building structure, which in turn reduces low-frequency noise radiation from floors, walls, and ceilings above.
6. Doors: Acoustic-rated doors (minimum STC 45) on all Generator Room access doors; gasketed and bottom-swept; self-closing; fire-rated per the room's two-hour fire rating requirement.

B. Noise Limit Objectives (Design Guideline):

1. Occupied spaces adjacent to Generator Room walls: ≤ 55 dB(A) measured in the adjacent space with all three generators at full load.
2. Building exterior at the property line: Comply with applicable Puerto Rico municipal noise ordinances for industrial noise during emergency operations.

C. ***NOTE:*** *These noise limits are design objectives subject to confirmation by the project acoustic engineer. The D&B Contractor shall retain or coordinate with a qualified acoustic engineer to verify compliance. Generator noise limits during emergency operation may be subject to regulatory exceptions in Puerto Rico; confirm with the local AHJ.*

2.12 GENERATOR ROOM - PHYSICAL REQUIREMENTS

A. The Basement Generator Room shall meet the following minimum physical and life safety requirements:

1. Fire rating: Two-hour fire-rated construction, walls, floor/ceiling assembly, and all penetrations; self-closing, automatic-closing fire-rated doors with panic hardware per NFPA 101.
2. Ventilation: Dedicated combustion air intake and heated air exhaust system designed by the Mechanical Engineer per engine air requirements; no HVAC recirculation to/from other building zones.

3. Floor: No floor drains inside the Generator Room per NEC requirements for electrical rooms; provide housekeeping floor sloped to a containment sump within the room for spill management.
4. Housekeeping pads: Reinforced concrete pads for each generator set; pads anchored with seismic anchor bolts per anchorage calculations.
5. Lighting: Minimum 30 fc (300 lux) at equipment maintenance level; emergency/exit lighting on the Life Safety Branch; wall-mounted industrial utility lighting fixtures with wire guards.
6. Seismic design: All equipment, pads, fuel storage, exhaust piping, and electrical equipment installed and anchored per Puerto Rico Building Code seismic requirements.
7. The paralleling switchgear (Section 16800) shall be located in a separate, two-hour fire-rated room adjacent to, but not within, the Generator Room.

2.13 APPROVED MANUFACTURERS:

A. MTU (Roll Royce Solutions)
B. Cummings
C. Caterpillar

PART 3 - EXECUTION

3.01 INSTALLATION - GENERAL

A. Install all equipment in accordance with manufacturer's instructions, this specification, NEC Article 445 (Generators), NFPA 37, NFPA 110 Level 1, and NFPA 99 Category 1 requirements.
B. Prior to connecting generators to the building's electrical system, obtain written approval from the Owner's Engineer and confirm all field acceptance tests are complete.
C. The NFPA 110 acceptance criteria apply at project completion - the system must demonstrate the 10-second start requirement, the correct load transfer sequence, and all protective functions before the Facility may occupy for clinical operations.

3.02 EQUIPMENT PADS AND ANCHORAGE

A. Complete all concrete pads and anchorage as follows:
    1. Complete all generator room concrete housekeeping pads and install anchor bolts before generator delivery.

2. Set generator sets on anti-vibration isolators; level each unit; torque anchor bolts through isolator base plates per manufacturer's specification; record torque values.
3. Install fuel day tanks on concrete pads within containment basins before fuel piping connection.

3.03 FUEL SYSTEM INSTALLATION

A. Install fuel system per NFPA 30 and NFPA 37:

1. Install all fuel piping per NFPA 30 and NFPA 37; slope piping for gravity drainage; support piping at maximum 8-foot intervals with pipe hangers.
2. Install flexible connections at the day tank fuel inlet and at the engine fuel inlet/return; use only fuel-resistant materials.
3. Install all fuel shutoff valves and emergency fusible-link shutoff valves per NFPA 37; label each valve with a permanent tag.
4. Install tank vent piping to the exterior of the building; terminate per NFPA 30 (minimum 12 inches above roof or grade, away from air intakes, openings, and ignition sources).
5. Install overfill prevention valves, leak detection sensors, and level gauges on each day tank and the bulk storage tank per supplier instructions.
6. Prior to fuel fill, pressure-test all fuel piping to 1.5x working pressure per NFPA 30; document and submit pressure test records.

3.04 EXHAUST SYSTEM INSTALLATION

A. Install exhaust system as follows:

1. Install exhaust flexible bellows connectors at the engine exhaust outlet; do not make rigid connections directly to the engine.
2. Install exhaust silencers in designated locations per shop drawings; support the silencer independently from exhaust piping to prevent pipe stress on the silencer housing.
3. Install all exhaust piping on spring-isolated pipe hangers; allow for thermal expansion at pipe bends and expansion joints.
4. Apply thermal insulation on all exhaust piping within the building; verify surface temperature ≤ 60°C on the insulation jacket after installation and full-load operation.
5. Install condensate drip legs and drain valves at low points; tag all drain valves.
6. Install rain cap or elbow at the exterior exhaust discharge; confirm discharge direction avoids the heliport FATO zone, building air intakes, and occupied grade-level areas.

3.05 ELECTRICAL CONNECTIONS

A. Install all electrical connections as follows:

1. Install generator output cables from each generator control panel/output terminals to the corresponding generator output breaker in the Section 16800 paralleling switchgear.
2. Install battery charger circuit from the Essential Electrical System branch panel to each generator battery charger.
3. Install block heater circuit from the Essential Electrical System branch panel to each generator block heater.
4. Install load-sharing and synchronizing signal cables between each generator control panel and the Section 16800 paralleling switchgear; use shielded twisted-pair cable per switchgear manufacturer's requirements; ground shields at one end only.

B. **REQUIRED:** Life Safety Branch wiring from the paralleling switchgear to the Life Safety ATS and from the ATS to Life Safety branch circuits shall be kept entirely separate and physically independent from Critical Branch, Equipment System, and Optional Standby wiring per NEC 700.10. Do not share conduit, cable tray, or wiring enclosures between the Life Safety Branch and any other branch.

3.06 GROUNDING

A. Install all grounding and bonding connections as follows:

1. Ground each generator alternator neutral solidly to the generator room ground bus; conductor size per NEC 250.30.
2. Ground generator enclosure (frame/baseframe) to the generator room ground bus; separate conductor from the neutral grounding.
3. Bond fuel day tanks and the bulk storage tank to the building ground system per NFPA 30 for static electricity control.

3.07 FIELD ACCEPTANCE TESTING

A. Perform the following acceptance tests with the Owner's Representative and Authority Having Jurisdiction (AHJ) present where required by NFPA 110. Submit a certified field acceptance test report before requesting clinical occupancy.

B. Visual Inspection and Pre-Start Checks (each generator):

1. Verify nameplate data matches specification and approved shop drawings.
2. Verify all accessories installed and connected: block heater, battery charger, exhaust silencer, flexible connectors, vibration isolators, fuel connections, level gauges, leak detectors.
3. Check engine oil level; check coolant level; verify fuel in day tank.

4. Verify battery connections; record battery voltage (must be ≥ 24 V DC with charger connected).
5. Verify block heater circuit energized; verify coolant temperature ≥ 90°F before test start.
6. Verify exhaust system complete and discharge unobstructed.
7. Verify generator room ventilation system operational and louvers open.

C. Individual Generator Set Tests:

1. Manual start test: Start each generator manually from the control panel; verify rated voltage and frequency within 10 seconds; verify no alarms or shutdowns; run 15 minutes at no-load; record voltage and frequency stability.
2. Automatic start test: With the generator set in AUTO mode, simulate a utility loss signal; verify automatic start and load readiness within 10 seconds; time and record.
3. Protective shutdown tests: Test each protective shutdown by simulation or injection - low oil pressure, high coolant temperature, overspeed, overcrank; verify correct shutdown and alarm annunciation; reset after each test.
4. Load test, individual generator: Apply 25%, 50%, 75%, and 100% of rated kW load in steps via portable load bank; record voltage and frequency at each load step; verify voltage regulation ±0.5%, frequency regulation ±0.5%; record fuel consumption data.
5. Block load test: Apply 100% rated load in a single step; verify voltage dip ≤ 15% and frequency dip ≤ 10%; verify recovery within 3 and 5 seconds respectively; record oscillograph or event recorder data.

D. Paralleling and Synchronizing Tests:

1. Two-generator parallel test: Start Generator 1; bring to rated output; start Generator 2; verify automatic synchronization and paralleling; verify load sharing (≤ 10% load deviation between units); verify no out-of-phase close occurs.
2. Three-generator parallel test: Start and parallel all three generators; verify load sharing among all three; verify bus frequency and voltage stability at full building load.
3. Load shedding test: With all generators paralleled at near-rated load, simulate generator overload by exceeding combined capacity; verify Optional Standby loads shed in sequence; verify Critical and Life Safety loads are NOT shed.
4. Loss-of-generator test: With two generators paralleled, trip one generator output breaker; verify the remaining generator picks up load; verify distribution breakers remain closed for all essential loads.

5. Run-hour equalization rotation test: Verify the paralleling controller assigns lead/lag/spare designations and commands the correct unit to start on simulated utility loss based on the programmed rotation schedule.
6. ABT scheme verification: Simulate utility failure with all generators in AUTO; verify the generator plant starts, paralleling occurs, ATSs transfer to the generator source, and time-to-load meets NFPA 110 Level 1 Type 10 requirements (full system load transfer within 10 seconds of start signal).

E. ATS Integration Test:

1. With all three generators paralleled, de-energize the utility source; verify each ATS transfers to the generator (emergency) source in the required sequence; record transfer times for the Life Safety and Critical Branch ATSs (must be ≤ 10 seconds for NFPA 110 Level 1).
2. Retransfer test: Restore the utility source; verify each ATS retransfers to utility in the correct sequence; verify generator plant cool-down and shutdown.

F. Fuel System Acceptance Test:

1. Fill each day tank to at least 50% capacity; verify fuel level gauge reads correctly.
2. Verify low fuel alarms at each day tank at the control panel.
3. Verify emergency fuel shutoff (fusible link) valves are correctly installed and labeled.
4. Submit fuel system pressure test records confirming all piping is leak-free.
5. Verify the bulk storage tank fuel level, leak detection, and alarm outputs at the BMS.

3.08 COMMISSIONING AND NFPA 110 INITIAL LOAD BANK TEST

A. Upon successful completion of all acceptance tests, perform the NFPA 110 initial full-load load bank test:

1. NFPA 110 Level 1 requires a minimum 2-hour full-load run of the complete EES; perform with the full building load plus portable load bank to reach 100% of installed generator rated capacity (or as directed by NFPA 110 and the AHJ).
2. Run two generators in parallel at 100% combined rated kW (3,500 kW) for a minimum 2 hours; cycle the third generator in during the test to verify paralleling at full load.
3. Monitor and record voltage, frequency, engine parameters (oil pressure, coolant temperature), fuel consumption, and ambient temperature every 15 minutes throughout the test.
4. Document and submit a full-load test report signed by the Contractor's licensed Electrical Engineer.

5. Schedule: Coordinate the load bank test with the Owner; the test shall occur before clinical occupancy.

3.09 TRAINING

A. Provide minimum eight (8) hours of on-site training for the Owner's Facilities Engineering staff, per Section 16100, Section 1.11. Training shall cover:

1. Generator start/stop: Manual start, manual stop, AUTO mode operation, emergency stop.
2. Paralleling switchgear: How to manually synchronize, how to read the synchroscope, load-share display, lead/lag/spare rotation, manual override of automatic controls.
3. Fuel system: Day tank and bulk storage tank fill procedures, fuel sampling procedure.
4. Alarm response: What each alarm means, what to do on each alarm, who to call.
5. Monthly exercise procedure: Step-by-step monthly test procedure per NFPA 110; documentation log requirements.
6. Annual load bank test: Scope of the annual test, how to coordinate with the AHJ, what documentation is required.
7. Emergency procedures: What to do if a generator fails during a utility outage; how to manually transfer between units.

3.10 CLOSEOUT SUBMITTALS

A. Submit the following closeout documents before substantial completion:

1. Certified field acceptance test report, all tests in Article 3.7, signed by a licensed Electrical Engineer.
2. NFPA 110 initial load bank test report, signed by a licensed Electrical Engineer and reviewed by the AHJ.
3. As-built drawings: Generator room layout, fuel system piping diagram, exhaust system diagram, wiring diagrams, final relay settings.
4. Fuel system pressure test records.
5. Battery installation and initial voltage records.
6. Generator room anchor bolt torque records.
7. Air permit from PREQB/JCA for three (3) diesel generators.
8. Fuel storage permit from the AHJ/PREQB for the bulk diesel storage tank, sized per the D&B Contractor's fuel consumption calculation to provide the minimum 5-day (120-hour) full-load reserve required by this Section.
9. O&M manuals for all equipment (generators, fuel system, exhaust system).

10. Training completion record with attendee signatures and topics covered.
11. Spare parts list and location of initial spare parts inventory.

END OF SECTION 16900

5.0 MECHANICAL PRELIMINARY TECHNICAL SPECIFICATIONS

MECHANICAL SYSTEMS PRELIMINARY TECHNICAL SPECIFICATIONS

Fire Suppression · Plumbing · HVAC · Medical Gases

RFP / DESIGN-BUILD USE NOTICE

These mechanical preliminary technical specifications are revised for use as RFP/bridging performance criteria for the selection of a Design-Build Entity for the New Puerto Rico Trauma Hospital. They establish minimum architectural requirements, quality criteria, design intent and coordination expectations, and are not issued as final permit or construction specifications by themselves.

The selected Design-Build Entity shall verify existing and proposed conditions, coordinate all disciplines, perform required engineering and code analysis, prepare and submit the final permit and construction documents, and obtain all required approvals through Puerto Rico licensed design professionals of record.

References in these sections to “Contractor” mean the selected Design-Build Entity after award. References to “Architect,” “Engineer,” “A/E,” “Resident Engineer,” or similar review parties mean the applicable Design Professional(s) of Record and/or ASEM/Owner review representative, as applicable under the RFP and final Design-Build Agreement.

Named products, manufacturers and details are minimum quality benchmarks unless the RFP expressly states otherwise. Proposed equals, substitutions, delegated design items, shop drawings, product data and samples shall demonstrate compliance with the RFP Bridging Documents, applicable codes, healthcare requirements and the final Design-Build Agreement.

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FIRE SUPPRESSION SYSTEMS

SECTION 21 05 00 COMMON WORK RESULTS FOR FIRE SUPPRESSION

PART 1 — GENERAL

1.01 SUMMARY

A. This Section includes common requirements for fire suppression systems that apply to other fire suppression Sections.

B. The fire suppression systems shall serve the Puerto Rico Trauma Hospital (ASEM), a 215,880 SF, 10-story Risk Category IV healthcare facility at Centro Médico, San Juan, Puerto Rico. The facility shall be treated as a fully sprinklered healthcare occupancy per NFPA 101.

1.02 REFERENCES

A. NFPA 13 — Standard for the Installation of Sprinkler Systems, latest edition.

B. NFPA 14 — Standard for the Installation of Standpipe and Hose Systems, latest edition.

C. NFPA 20 — Standard for the Installation of Stationary Pumps for Fire Protection, latest edition.

D. NFPA 24 — Standard for the Installation of Private Fire Service Mains and Their Appurtenances.

E. NFPA 72 — National Fire Alarm and Signaling Code (coordination only).

F. NFPA 101 — Life Safety Code.

G. Puerto Rico Building Code (PRBC) — latest adopted edition.

H. FM Global / UL Listings — All equipment listed and approved for intended service.

1.03 SURGE DESIGN BASIS

A. All fire suppression systems shall be designed for the surge occupancy of 182 beds (two beds per patient room). Fire protection occupant load calculations per NFPA 101 shall reflect surge bed count.

1.04 SUBMITTALS

A. Shop Drawings: Complete hydraulic calculations, equipment layouts, riser diagrams, and material specifications for all fire suppression systems.

B. Product Data: Manufacturer's data sheets and listings for all sprinkler heads, fire pumps, valves, and accessories.

C. Water Supply Analysis: Flow test data from ASEM water main at the point of connection, demonstrating adequate supply for system demand plus 10% safety margin.

D. Coordination Drawings: Coordinated with all other MEP trades to confirm clearances and access.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Licensed fire protection contractor in Puerto Rico with minimum 5 years of healthcare facility experience.

B. All work shall be performed in compliance with the AHJ and ASEM facilities requirements.

C. Hydraulic calculations shall be prepared by a NICET Level III certified fire protection technician or licensed PE.

END OF SECTION 21 05 00

SECTION 21 12 00 FIRE SUPPRESSION STANDPIPES

PART 1 — GENERAL

1.01 SUMMARY

A. Provide Class I automatic wet standpipe system per NFPA 14 throughout the 10-story building. The system shall have one dedicated riser per stairwell (two risers total), base-interconnected with isolation valves.

1.02 SYSTEM DESCRIPTION

A. System Type: Class I per NFPA 14. The building is fully sprinklered per NFPA 13; Class I standpipe provides fire department hose connections only.

B. Two (2) standpipe risers — one per stairwell (Stair 1 and Stair 2) — interconnected at the base with the fire main header fed from the fire pump discharge.

C. Fire Department Connection (FDC / Siamese): Two (2) exterior two-way Siamese connections at the building perimeter, accessible to fire department apparatus, with check valve and automatic ball drip per NFPA 14. Required — not optional.

PART 2 — PRODUCTS

2.01 STANDPIPE HOSE VALVES

A. 2-1/2" angle hose valves, UL listed, at each floor landing in each stairwell.

B. Valves: Cast iron or brass body, wheel handle, with cap and chain.

C. Pressure-reducing valves where required by NFPA 14 to limit residual pressure.

2.02 PIPING

A. Schedule 40 black steel, ASTM A53 / A135, with grooved or threaded fittings.

B. Minimum pipe size: 4" for standpipe risers; 2-1/2" for branch lines to hose valves.

PART 3 — EXECUTION

3.01 INSTALLATION

A. Install per NFPA 14. All valves supervised open with tamper switches connected to fire alarm system per NFPA 72.

B. Conduct hydrostatic test at 200 psi for 2 hours or 50 psi above working pressure, whichever is greater.

END OF SECTION 21 12 00

SECTION 21 13 13 WET-PIPE FIRE SUPPRESSION SPRINKLERS

PART 1 — GENERAL

1.01 SUMMARY

A. Provide complete automatic wet-pipe fire suppression sprinkler system per NFPA 13 throughout the entire facility. Pre-action systems shall be provided in electrical rooms and data/server rooms.

1.02 SYSTEM DESCRIPTION

A. Water supply from ASEM main water ring via dedicated 4" fire service meter. Fire cistern 36,000 gallons supplemented by rainwater collection.

B. Hazard classification: Light Hazard — patient rooms, corridors, administrative. Ordinary Hazard Group 1 — mechanical/utility rooms, storage. Special hazard provisions for OR areas per NFPA 99 Chapter 14.

C. Design density: Light Hazard per NFPA 13 Table 11.2.3.1.2 over the most hydraulically demanding design area.

PART 2 — PRODUCTS

2.01 FIRE PUMP

A. Type: Diesel engine-driven, split-case horizontal centrifugal, listed per NFPA 20.

B. Performance: 1,000 GPM at 150 PSI rated working pressure.

C. Diesel Tank: Integral, minimum 500-gallon capacity (minimum 8-hour run time at rated load).

D. Jockey (pressure maintenance) pump: Automatic electric-driven.

E. Fire pump room: 2-hour fire-rated construction, dedicated ventilation, and drainage pit. Located in Basement level.

2.02 SPRINKLER HEADS

A. Quick-response type in all occupied areas per NFPA 13.

B. Concealed type with painted cover plate in all patient care areas, corridors, and public spaces.

C. Upright/pendent type in mechanical rooms and storage areas.

D. ESFR heads where required for high-piled storage areas.

E. No sprinklers in: electrical switchgear rooms, transformer vaults, MRI rooms — provide alternative protection as required by AHJ.

2.03 PIPING

A. Schedule 10 carbon steel, Victaulic grooved-end for mains; Schedule 40 where required by code.

B. No plastic pipe in clinical areas. Stainless steel where exposed in sterile environments.

2.04 FIRE CISTERN

A. Underground reinforced concrete, 36,000-gallon capacity, dedicated to fire protection only.

B. Fed from ASEM water main and supplemental rainwater collection.

C. Seismic design coordinated with structural engineer. Low-level alarm connected to fire alarm panel and BMS.

PART 3 — EXECUTION

3.01 INSTALLATION

A. Install per NFPA 13. Hydraulic calculations required for all systems.

B. All control valves supervised open with tamper switches reporting to fire alarm panel per NFPA 72.

C. Flow switches at each floor and zone, waterflow alarms reporting to fire alarm panel.

D. Fire pump controller: Listed per NFPA 20; all alarms (pump start, loss of power, phase failure) reporting to fire alarm and BMS.

3.02 TESTING

A. Hydrostatic test at 200 psi for 2 hours.

B. Water supply flow test from ASEM water main prior to design completion.

C. All tests witnessed by AHJ and Owner's representative.

END OF SECTION 21 13

PLUMBING SYSTEMS

SECTION 22 05 00 COMMON WORK RESULTS FOR PLUMBING

PART 1 — GENERAL

1.01 SUMMARY

A. This Section includes common requirements applicable to all specified plumbing work.

B. The plumbing systems shall serve a 215,880 SF, 10-story healthcare facility. All systems shall comply with the FGI Guidelines for Design and Construction of Hospitals (latest edition), the Puerto Rico Plumbing Code, and all referenced standards.

1.02 REFERENCES

A. FGI Guidelines for Design and Construction of Hospitals — latest edition.

B. International Plumbing Code (IPC) as adopted by Puerto Rico.

C. ASSE 1010, 1017, 1070 — Plumbing device standards.

D. ASHRAE 188 — Legionellosis: Risk Management for Building Water Systems.

E. ASTM B88 — Copper Water Tube. ASTM D2665 — PVC Drain Pipe. AWWA C-151 — Ductile Cast Iron Pipe.

F. NFPA 54 — National Fuel Gas Code (LPG). NFPA 58 — LP-Gas Code (storage).

1.03 SURGE DESIGN BASIS

A. All plumbing systems shall be sized for surge occupancy of 182 beds (two beds per patient room). Domestic water demand calculations, fixture unit counts, pipe sizing, and booster pump capacity shall be based on surge occupancy.

1.03b EQUIPMENT PROPOSALS — OWNER APPROVAL REQUIRED

A. These are performance-based specifications for a Design-Build RFP. No plumbing equipment, fixtures, or materials are pre-specified by manufacturer, brand, or model number for the plumbing systems.

B. The D&B Contractor shall propose all plumbing equipment and materials that meet or exceed the requirements specified herein and shall submit complete product data to the Owner and Engineer for written approval PRIOR to procurement or installation. No equipment shall be ordered without prior written approval.

C. There are no alternates or substitutions since no base product is specified. All proposed equipment is subject to Owner/Engineer approval.

1.04 PIPING MATERIALS — PLUMBING PIPE MATERIAL SCHEDULE

All piping materials shall conform to the following schedule:

Type of Service	Min Dia.	Max Dia.	Aboveground	Underground	Fitting Characteristics
City Water Hot or Cold	1/2"	2"	Rigid Copper Typ. L Seamless ASTM B88	Rigid Copper Typ. K Seamless ASTM B88	Welded or Viega Propress
	2-1/2"	4"	Ductile Cast Iron AWWA C-151	Ductile Cast Iron AWWA C-151	
Sanitary and Ventilation	2"	6"	PVC SCH 40 DR22 ASTM D2665	4" <=PVC SCH 40 6" >=SDR 14-PR	Glue or Compressions Welded

END OF SECTION 22 05 00

SECTION 22 05 13 GENERAL REQUIREMENTS FOR PLUMBING WORK

PART 1 — GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary General Conditions, Special Conditions, and applicable General Requirements Specification sections apply to this Section.

B. All requirements of Section 22 05 00 — Common Work Results for Plumbing — apply to this Section. This Section incorporates the General Plumbing Specifications, adapted and updated to CSI MasterFormat 2020 and project-specific requirements for the Puerto Rico Trauma Hospital.

1.02 DEFINITIONS

A. "Contractor" or "Plumbing Contractor" refers to the D&B Contractor's plumbing subcontractor or the plumbing trade performing the specified plumbing work.

B. "Engineer" refers to the Mechanical Engineer of Record (PE licensed in Puerto Rico, CIAPR member) responsible for the plumbing design of this project.

C. "Approved Equal" means any equipment or material that, in the opinion of the Engineer, is equal in quality, durability, appearance, strength, design, and performance to the equipment or material specified, and will function adequately in accordance with the proposed design.

1.03 SUMMARY — SCOPE OF PLUMBING WORK

A. The plumbing work shall include a complete, tested, and ready-for-operation plumbing system as shown on the drawings and specified herein, including: (1) Potable water service from ASEM water main with new meter; (2) Potable water cistern 30,000 gal with chlorination; (3) VFD booster pump system for flush-valve demand; (4) Dual-zone pressure risers (CW, HWS, HWR) for Floors 1–4 and 5–9; (5) LPG-fired domestic hot water heaters N+1; (6) Sanitary drainage, waste, and vent systems; (7) Fire service from ASEM water main with dedicated 4" fire meter; (8) Medical gas systems per NFPA 99 Category 1; (9) All plumbing fixtures, trim, and accessories. Surge design basis: all systems sized for 182 beds (two beds per room).

B. Any equipment or material shown on drawings and not mentioned in specifications, or vice versa, and all accessories and minor details not shown but necessary to complete the work and provide a system ready for operation, shall be provided by the Contractor without additional expense to the Owner.

C. The Contractor shall provide all supervision, labor, material, equipment, machinery, plant, and any and all other items necessary to complete the plumbing system.

1.04 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

A. The specifications and drawings are intended to agree with each other and to be mutually explanatory and complementary. The work shall be performed as called for by both. Any disagreement arising from these specifications shall be decided by the Engineer, whose interpretation is final.

B. In cases of disagreement between drawings and specifications, or within either document itself, or between one trade and another, the better quality, greater quantity, or more costly work shall be included in the contract price; the matter shall be referred to the Engineer for decision and/or adjustment.

C. Drawings are diagrammatic and indicate the general arrangement of systems. Drawings are not to be scaled. The Contractor shall follow drawings in laying out work, check drawings of other trades to verify available spaces, and maintain maximum headroom at all points. Where headroom or space conditions appear inadequate, the Engineer shall be notified before proceeding.

D. If directed by the Engineer, the Contractor shall make reasonable modifications in the layout as needed to prevent conflict with other trades or for proper execution of the work, without extra charge.

E. All items of equipment are specified as singular items; however, the Contractor shall provide and install the number of items of equipment as indicated on the drawings and required for complete systems. The Contractor shall determine from the drawings the exact number of units required.

1.05 QUALITY ASSURANCE

A. Submission of an unqualified proposal commits the Contractor to perform all work expressed in the drawings and specifications without additional compensation. Such submission commits the Contractor, without extra compensation, to: (1) abide by all rules and regulations of authorities having jurisdiction; (2) provide every item of work required to complete intended installations; (3) coordinate work with other trades to prevent conflicts.

B. All plumbing work shall be performed by licensed plumbing contractors in Puerto Rico. ASPE (American Society of Plumbing Engineers) recommended practices shall be followed throughout.

1.06 REGULATORY REQUIREMENTS

A. The Contractor shall give all necessary notices, obtain all permits, and pay all government sales taxes, fees, and other costs, including utility connections and extensions. All permits shall be delivered to the Engineer before requesting acceptance and final payment.

B. The Contractor shall include in the work, without extra cost to the Owner, all labor, materials, services, apparatus, and drawings required to comply with all applicable laws, ordinances, rules, and regulations, whether or not shown on drawings and/or specifications.

C. All plumbing work shall comply with: Puerto Rico Plumbing Code, IPC, FGI Guidelines, NFPA 99 (medical gases), ASHRAE 188 (Legionella), ASSE 1010/1017/1070, NFPA 13/14/20 (fire protection), NFPA 54/58 (LPG), and all referenced standards in Section 22 05 00.

1.07 FIELD MEASUREMENTS

A. The Contractor shall visit the site and base all measurements, both horizontal and vertical, from established benchmarks. The work shall agree with these established lines and levels.

B. Should the Contractor discover any discrepancy between actual measurements and those indicated that prevents following good practice or the intent of the drawings and specifications, the Engineer shall be notified, and the Contractor shall not proceed until receiving instructions from the Engineer. No allowance will be granted for failure to visit the site.

1.08 WARRANTY

A. The Contractor shall leave the entire plumbing installation in proper working condition and shall, without additional cost, replace all work, material, and/or equipment or any part thereof that develops defects (except from ordinary use) within five (5) years from the date of final approval for equipment under 5 tons, and one (1) year for equipment above.

B. The Contractor shall be responsible for all damages resulting from defective material and/or equipment and shall repair or replace injuries to existing work caused by such defects without additional charges to the Owner.

C. The Contractor shall furnish manufacturer certificates or guarantees to the effect that they will furnish new parts, materials, or equipment where defects occur due to faulty manufacture for a period of one (1) year from the date of final approval.

1.09 SUBMITTALS

A. Product Data: Manufacturer's data sheets, performance curves, and certifications for all major plumbing equipment and fixtures.

B. Shop Drawings: Complete plumbing riser diagrams, fixture schedules, pipe sizing calculations, and coordination drawings coordinated with all other MEP trades.

C. Calculations: Water demand calculations based on surge occupancy (182 beds); hydraulic calculations for booster pump sizing; pipe sizing calculations for both pressure zones.

D. Submit all items for Engineer review minimum 30 days before fabrication, procurement, or delivery.

PART 2 — PRODUCTS

2.01 EQUIPMENT — GENERAL

A. All equipment and materials required for the work, except as specifically specified otherwise, shall be new, of first-class quality, and shall be furnished, delivered, erected,

connected, and complete in every detail. Where no specific kind or quality of material is given, a first-class standard article as approved by the Engineer shall be furnished.

B. The Contractor shall locate all equipment that must be serviced, operated, or maintained in fully accessible positions, including valves, traps, motors, controllers, switchgear, and drain points. Access doors shall be provided where required for better accessibility.

2.02 EQUIPMENT PROPOSALS AND OWNER APPROVAL

A. No equipment is pre-specified by manufacturer or model in these specifications. These are performance-based specifications for a Design-Build RFP. The Contractor shall propose all equipment that meets or exceeds the performance, efficiency, acoustic, seismic, code, and material requirements specified herein.

B. The Contractor shall submit complete product data, performance data, shop drawings, and calculations for ALL proposed equipment to the Owner and Engineer for review and approval PRIOR to procurement, fabrication, or installation. No equipment shall be ordered or installed without prior written approval from the Owner and Engineer.

C. Since no base equipment is specified, there are no alternates or substitutions. All proposed equipment is subject to Owner/Engineer approval based on compliance with these performance specifications. The Contractor shall not propose equipment that does not fully comply with all requirements herein.

D. Should any approved equipment subsequently prove defective or unsatisfactory, the Contractor shall, without cost to the Owner, replace it with equipment meeting the original performance specifications and re-submit for Owner approval.

E. Where the proposed equipment requires any redesign of structure, partitions, foundations, piping, or wiring, all such redesign and new drawings shall be prepared by the Contractor at their own expense and approved by the Engineer before proceeding. All additional piping, structural supports, insulation, controls, motors, starters, and electrical wiring required shall be furnished and installed at no additional cost to the Owner.

PART 3 — EXECUTION

3.01 SYSTEM INSTALLATION

A. The installation of plumbing systems shall be performed by experienced personnel under the supervision of competent foremen, in accordance with ASPE recommended practices and those of the manufacturers of the equipment and materials involved, to obtain a functional and neat installation.

B. The Engineer shall have the privilege of stopping any work or use of material that in the Engineer's opinion is not being properly installed. The Contractor shall remove all material delivered and work erected that does not comply with the contract drawings, at no additional cost to the Owner.

3.02 FOUNDATIONS, SUPPORTS, PIERS, AND ATTACHMENT

A. The Contractor shall furnish and install all necessary foundations, supports, pads, bases, and piers required for all plumbing equipment and piping. All concrete pads shall extend 4" beyond machine base in all directions with top edge chamfered. Insert 3" steel dowel rods into floors to anchor pads. Shop drawings for all foundations and pads shall be submitted to the Engineer for approval before construction.

B. Construction of foundations, supports, pads, bases, and piers where mounted on the floor shall be of the same materials and same quality of finish as the adjacent surrounding flooring material. All equipment shall be securely attached to the building structure in an approved manner.

3.03 CUTTING AND PATCHING

A. The Contractor shall provide all cutting and patching necessary to install the work specified in this Section. Patching shall match adjacent surfaces. No structural members shall be cut without the approval of the structural engineer.

3.04 ELECTRICAL CONNECTIONS

A. The Contractor shall furnish and install all power wiring complete from the power source to each motor or equipment junction box, including power wiring through starters. The Contractor shall install all starters not factory-mounted on equipment.

B. The Contractor shall, regardless of voltage, furnish and install all temperature control wiring for all plumbing equipment. After all circuits are energized and completed, the Contractor shall be responsible for all power wiring.

3.05 INTERRUPTION OF EXISTING SERVICES

A. Whenever the work performed under this Section makes mandatory the interruption of existing services, such work shall be performed at a time that causes the least conflict with ongoing hospital operations. All interruptions shall be coordinated with the General Construction Supervisor and ASEM facilities management. Work shall be performed continuously, including labor after hours and overtime as required.

B. This requirement is critical given the project's location on the active ASEM campus — any interruption to water, drainage, or medical gas services in adjacent occupied hospital buildings must be coordinated at minimum 72 hours in advance with ASEM facilities management and ICRA/ILSM plan approval.

3.06 CLEANING AND PROTECTION

A. All piping and equipment shall be thoroughly cleaned of foreign substances inside and out before the system is placed in operation. During construction, open ends of piping shall be protected by temporary covers or sealed to prevent entry of foreign elements including moisture.

B. If foreign matter should stop any part of the system after being placed in operation, the system shall be disconnected and cleaned wherever necessary to locate and remove obstructions. All work damaged in the course of removing obstructions shall be repaired and replaced at no additional cost to the Owner.

C. The Contractor shall protect all work and material from damage by their work or workmen, and shall be responsible for all work and equipment until finally inspected, tested, and accepted. The Contractor shall protect work against theft, injury, and damage, and shall carefully store material and equipment received at the site that is not immediately installed.

3.07 SCAFFOLDING, RIGGING, AND HOISTING

A. The Contractor shall furnish all scaffolding, rigging, and hoisting services necessary for the erection and delivery into the premises of any equipment and apparatus furnished. All scaffolding shall be removed from the premises when no longer required.

3.08 FIELD QUALITY CONTROL

A. The Contractor shall furnish the services of an experienced superintendent who shall be constantly in charge of the installation of the work, together with all skilled workmen, fitters, metal workers, welders, helpers, and labor required to unload, transfer, erect, connect, adjust, start, operate, and test each system. The Engineer shall have the privilege of stopping any work not being properly installed.

3.09 COORDINATION OF TRADES

A. The Contractor shall give full cooperation to other trades and shall furnish in writing all information necessary to permit the work of other trades. The Contractor shall coordinate all plumbing work with architectural, structural, electrical, HVAC, fire protection, and medical gas trades. Submit coordination drawings in BIM (Revit preferred) for Owner review.

3.10 QUIET OPERATION AND VIBRATION CONTROL

A. All plumbing work shall operate under all conditions of load without any sound or vibration that is objectionable in the opinion of the Engineer. Conditions considered objectionable by the Engineer shall be corrected in an approved manner at the Contractor's expense. Vibration control shall be by means of approved vibration eliminators as recommended by the manufacturer.

B. Particular attention shall be directed to preventing noise and vibration transmission from mechanical equipment rooms to adjacent occupied areas. The Contractor shall incorporate vibration isolator bases, sound absorber pads, and sound insulation as required. This applies to equipment suspended in ceilings or mounted on roof. Rubber-in-shear isolators: single type designed for 1/4" deflection; double type for 1/2" deflection under imposed load. All vibration isolation systems shall be installed per manufacturer's instructions.

3.11 PAINTING

A. All outdoor plumbing equipment, hangers, and other metallic surfaces (except aluminum and copper) shall be wire-brushed, cleaned, and painted with two (2) coats of anticorrosion primer (Rust-Oleum 1069 Red Primer or approved equal). Final color as indicated by the Architect.

B. All interior plumbing equipment, hangers, and other metallic surfaces (except aluminum, copper, and stainless steel) shall be wire-brushed, cleaned, and painted with one (1) coat of anticorrosion primer (Rust-Oleum 769 Red Primer or approved equal). Final color as indicated by the Architect.

3.12 TESTS

A. All piping and equipment shall be tested as specified under the various Sections of work. Additional tests shall be provided as required for approval by agencies having jurisdiction. All labor, materials, instruments, and power required for testing shall be furnished by the Contractor.

B. Tests shall be performed in the presence of and to the satisfaction of the Engineer and such other parties as may have legal jurisdiction. All defective work shall be promptly repaired or replaced, and the test repeated until the system receives approval. All damages resulting from tests shall be repaired and damaged materials replaced.

C. Specific test requirements: (1) Cold water distribution — 150% of working pressure, minimum 150 psi, for 4 hours; (2) Hot water system — same pressure; verify recirculation maintains 120°F minimum at most remote point; (3) Sanitary drainage — hydrostatic test (fill to top of highest vent) or air test at 5 psi for 15 minutes; (4) Medical gas piping — per NFPA 99 (blowdown, pressure test, cross-connection, purity, flow tests); (5) Fire protection piping — 200 psi for 2 hours.

3.13 WATERPROOFING

A. Where any plumbing work passes through waterproofing, including waterproof concrete, the method of installation shall be approved by the Engineer before work is done. The Contractor shall furnish all necessary caulking and flashing required to make all openings absolutely watertight — especially critical for all penetrations in Puerto Rico's hurricane-exposed environment.

3.14 TESTING AND BALANCING

A. Testing and balancing of all domestic water and plumbing systems shall be accomplished as follows: (1) obtain the required water flow quantities at various operating conditions demonstrating compliance with the design, including simulation of flush-valve peak demand; (2) obtain the condenser and chilled water quantities required by the various components (coordinated with Section 23 23 00); (3) verify hot water recirculation system balance and 120°F minimum temperature at most remote point per zone.

B. All testing and balancing work shall be performed by an independent NEBB-certified test and balance agency under direct supervision of a qualified Engineer approved by the Owner. All instruments shall have been accurately calibrated within the last six (6) months (affidavits of calibration shall be furnished to the Owner's Engineer). The TAB Contractor and Owner Representative shall meet at least two (2) weeks prior to the anticipated start of testing to finalize procedures.

C. Testing and balancing shall not begin until systems have been completed and are in full working order. The Plumbing Contractor shall put all plumbing equipment into full operation and shall continue operation during each working day of testing and balancing.

D. The TAB Contractor shall include an extended warranty of ninety (90) days after completion of test and balance work and submission of the report, during which the Owner's Representative may request a recheck or resetting of any component.

E. Upon completion, the TAB Contractor shall submit seven (7) copies of the balance report plus one marked-up set of plumbing drawings indicating test point locations.

3.15 FINAL INSPECTION

A. The Contractor shall arrange and schedule final inspection of all plumbing work and shall notify the Engineer in writing that the Contractor has thoroughly checked the work and it is, in the opinion of the Contractor, ready for final inspection.

B. During the entire period scheduled for final inspections, the General Contractor, the Plumbing Subcontractor, and representatives of each manufacturer of equipment involved shall be present. All organizations shall have sufficient and competent personnel present so that adjustments can be made to all systems.

C. Final inspection shall include a record of water flow quantities to each zone, balancing of systems, proper function of each piece of electrical equipment, and individual system performance verification including: cistern level monitoring alarms, booster pump performance under flush-valve demand, hot water recirculation temperature by zone, chlorination residual, and BMS data point verification.

3.16 OPERATING AND MAINTENANCE MANUALS

A. The Contractor shall deliver to the Owner five (5) copies of all operating and maintenance manuals for each piece of equipment installed on the project. Manuals shall include: manufacturer's installation, operation, and maintenance instructions; complete list of all spare parts and replacements; recommended maintenance schedules; emergency shutdown and restart procedures; warranty certificates.

B. The Owner shall receive all equipment operating handbooks prior to the final acceptance and training phase.

C. The Contractor shall provide minimum eight (8) hours of Owner staff training on the potable water and plumbing systems (cistern, booster pumps, BMS monitoring, LPG hot water heaters, chlorination system) before final acceptance.

END OF SECTION 22 05 13

SECTION 22 11 00 FACILITY WATER DISTRIBUTION

PART 1 — GENERAL

1.01 SUMMARY

A. Provide domestic cold and hot water distribution systems including cistern, booster pumps, dual-zone pressure risers, recirculation, and all appurtenances for the complete facility.

1.02 SYSTEM DESCRIPTION

A. Water Supply: From ASEM main water distribution ring at main street. Contractor shall provide new potable water meter and service connection from the ASEM water main.

B. Cistern: 30,000-gallon potable water storage cistern. Reinforced concrete, seismic design. Continuous BMS level monitoring with high/low alarms.

C. Chlorination: Automatic chlorination system required — continuous dosing with residual analyzer and BMS low-residual alarm.

D. Pressure Zones: Two independent distribution zones — Low Zone (Floors 1–4) and High Zone (Floors 5–9). Each zone served by independent risers: one CW riser, one HWS riser, one HWR recirculation riser.

E. Fixtures: Flush valve (flushometer) type for all water closets and urinals. Booster system sized for flush-valve peak instantaneous demand. No gray water system — all fixtures served from potable supply.

PART 2 — PRODUCTS

2.01 BOOSTER PUMP SYSTEM

A. Type: Variable-speed (VFD) booster pump set — duty plus standby. Sized for flush-valve peak demand at surge occupancy.

B. Minimum inlet pressure at all flush valves: 25–35 psi residual. Maximum system pressure: 80 psi with PRVs per ASSE 1003.

C. BMS connection required: monitor pressure, flow, pump status, VFD speed, with alarms for low pressure, pump failure, and standby pump activation.

D. Hydropneumatic tank to absorb flush-valve flow spikes.

2.02 DOMESTIC HOT WATER

A. Generation: LPG (propane)-fired water heaters, N+1 configuration, 120°F minimum. LPG storage tank per NFPA 58, piping per NFPA 54.

B. Distribution: Recirculating system with dedicated HWS and HWR risers per pressure zone (two HWS + two HWR risers total). Maximum 0.5-gallon wait time at fixture per FGI.

C. Legionella Control: Per ASHRAE 188. Thermal disinfection (periodic flush at 160°F) per zone. BMS temperature monitoring.

D. Mixing: Thermostatic mixing valves (ASSE 1017) at all patient-accessible fixtures — 110°F maximum at patient showers and lavatories.

2.03 PIPE INSULATION — PLUMBING PIPING INSULATION SCHEDULE

Hot water piping shall be insulated as follows:

Temp (F)	Min Dia.	Max Dia.	Thickness	K Value	Material	Exterior Finish	Int. Exposed Finish
HW 100–120F	1/2"	1-1/2"	**1"**	K=0.22 BTU-IN/FT-H @75F	Rigid Fiberglass Micro-Lok by Johns Manville	6 oz. Canvas + MON ECO 55-50 Mastic + 0.016" Alum. Jacket w/VB Foil	MON ECO 55-50 + Manville Zeston PVC 30 MLS White. FS<=25/SD<=50 ASTM E84
	2"	3"	**1"**				
	4"	8"	**1.5"**				

2.03 PLUMBING PIPING INSULATION SCHEDULE — HOT WATER

All domestic hot water supply and return piping shall be insulated per the following schedule. Flame Spread <=25 / Smoke Dev. <=50 per ASTM E84.

Temp (F)	Min Dia.	Max Dia.	Thickness	K Value	Material	Exterior Finish	Int. Exposed Finish
HW 100-120F	1/2"	1-1/2"	**1"**	K=0.22 BTU-IN/FT-H@75F	Rigid Fiberglass Micro-Lok by Johns Manville	6 oz. Canvas + MON ECO 55-50 Mastic + 0.016" Alum. Jacket w/VB Foil	MON ECO 55-50 + Manville Zeston PVC 30 MLS White Gloss. FS<=25/SD<=50 ASTM E84
	2"	3"	**1"**				
	4"	8"	**1.5"**				

PART 3 — EXECUTION

3.01 INSTALLATION

A. All joints in copper water piping shall be brazed (hard solder) or Viega Propress press-fit connections. Lead-free solder only where soft solder is permitted.

B. Install anti-scald devices, backflow preventers, and pressure reducing valves per ASSE standards and code requirements.

C. Flush all systems with prior to disinfection. Disinfect per AWWA C651 and local health department requirements.

3.02 TESTING

A. Test cold water distribution at 150% of working pressure, minimum 150 psi, for 4 hours.

B. Test hot water system at same pressure. Verify recirculation system maintains minimum 120°F at most remote point.

C. Perform flush-valve flow tests to verify booster pump performance at peak demand.

END OF SECTION 22 11 00

SECTION 22 13 00 FACILITY SANITARY SEWERAGE

PART 1 — GENERAL

1.01 SUMMARY

A. Provide complete sanitary drainage, waste, and vent (DWV) systems for the facility, including floor drains, cleanouts, roof drains, acid waste, and grease interceptor.

1.02 SYSTEM DESCRIPTION

A. Sanitary drainage within the building (aboveground): PVC Schedule 40 DR22 ASTM D2665.

B. Below-slab and underground sanitary piping: 4" and smaller — PVC SCH 40; 6" and larger — SDR 14-PR; continuing to exterior manhole connection.

C. Vent system: Individual and circuit venting per code. All roof vent terminal penetrations minimum 10 feet from any air intake.

D. Acid waste: Polypropylene or PVDF piping for laboratory and imaging department sinks. Neutralization tank before connection to sanitary system.

E. Grease interceptor: Required for cafeteria/kitchen waste per local authority requirements.

PART 2 — PRODUCTS

2.01 FLOOR DRAINS

A. Floor drains in all soiled utility rooms, janitor closets, equipment rooms, ORs, procedure rooms, and bathrooms. Deep-seal trap (4" minimum) with trap primer where drains may dry out.

PART 3 — EXECUTION

3.01 INSTALLATION

A. All underground piping bedded in granular material per code. Maintain minimum slope of 1/4" per foot for 4" and smaller; 1/8" per foot for 6" and larger.

B. Cleanouts at all changes of direction greater than 45°, at base of each stack, and at 100-foot maximum intervals.

3.02 TESTING

A. Hydrostatic test: Fill system to top of highest vent; maintain for 15 minutes with no visible leakage.

B. Air test: 5 psi for 15 minutes where hydrostatic test is not practical.

END OF SECTION 22 13 00

SECTION 22 63 00 GAS SYSTEMS FOR LABORATORY AND HEALTHCARE FACILITIES — MEDICAL GASES

PART 1 — GENERAL

1.01 SUMMARY

A. Provide complete medical gas and vacuum piping systems including source equipment, distribution piping, zone valves, outlet stations, master alarm systems, and area alarms per NFPA 99 Category 1 (Hospital level) requirements.

B. This is a life-safety system. All work shall comply with NFPA 99 (latest edition), FGI Guidelines, and local Puerto Rico Department of Health regulations.

1.02 MEDICAL GASES REQUIRED

A. Medical Oxygen (O_2) — Green piping.

B. Medical Vacuum (VAC) — White piping.

C. Medical Air (MA) — Yellow piping.

D. Nitrous Oxide (N_2O) — Blue piping (ORs and procedure rooms).

E. Nitrogen (N_2) — Black piping (ORs — surgical power tools).

F. Waste Anesthesia Gas Disposal (WAGD) — Magenta piping (all ORs and anesthetizing locations).

1.03 QUALIFICATIONS

A. Medical gas installer: ASSE 6010 certified.

B. Medical gas inspector: ASSE 6020 certified.

C. Final certification: Independent third-party Medical Gas Systems Verifier, ASSE 6030 certified. The verifier shall be independent of the installing contractor per NFPA 99. Required prior to Owner acceptance and system activation.

1.04 SURGE DESIGN BASIS

A. All patient room outlet stations shall be double stations (two outlets per gas per room) to accommodate surge capacity of two beds per room per NFPA 99.

B. Source equipment capacity (PSA oxygen, medical air compressors, vacuum pumps) shall be verified against simultaneous surge demand including potential for multiple patients on mechanical ventilation.

PART 2 — PRODUCTS

2.01 MEDICAL OXYGEN — PSA GENERATION PLANT

A. On-site Pressure Swing Adsorption (PSA) oxygen generation plant, duplex N+1 generators, automatic alternating. Each generator sized for 100% of peak demand independently.

B. Purity: USP/CGA Oxygen 93. Continuous concentration monitoring with alarm.

C. Air supply: Dedicated oil-free compressors (duplex), with air treatment train — filtration, drying, buffer receivers — upstream of PSA.

D. Reserve: High-pressure cylinder manifold with automatic switchover per NFPA 99 Category 1.

E. Emergency Oxygen Supply Connection (EOSC): Exterior connection per NFPA 99 for emergency supply truck connection.

F. Redundant cross-connection to existing ASEM hospital oxygen system with isolation valves, check valves, and pressure regulation.

G. Source priority sequence (four-tier redundancy per NFPA 99): (1) Primary — PSA generation plant (N+1 generators, on-site continuous supply); (2) Reserve — high-pressure cylinder manifold with automatic switchover; (3) Redundant cross-connection to existing ASEM Central Services Building oxygen system, with isolation valves, check valves, and pressure regulation; (4) Emergency Oxygen Supply Connection (EOSC) on building exterior for emergency supply truck/trailer connection. The control and alarm system shall manage automatic changeover between sources with master alarm annunciation at both master alarm panels and BMS per NFPA 99.

2.02 MEDICAL AIR COMPRESSORS

A. Triplex configuration, oil-free, automatic alternating/sequencing.

B. Air dryers: Desiccant (regenerative) type, duplex — required for low dew point in Puerto Rico's tropical climate.

C. Air purity: CGA G-7.1 Grade E. CO monitor and dew point monitor with alarms.

D. Receiver tank, bacterial/inlet filtration per NFPA 99 Category 1.

2.03 MEDICAL VACUUM

A. Centralized, modular vacuum plant — quadruplex (4 pumps), oil-sealed (oil-recirculating) liquid/rotary vane type.

B. VFD on each pump for capacity modulation. Automatic lead/lag/standby sequencing across four units.

C. Vacuum level: 12–15" Hg below atmospheric at all station outlets.

D. WAGD: Separate dedicated system from medical vacuum. Active WAGD per NFPA 99.

2.04 PIPING

A. Mains and risers: Copper Type K, seamless, ASTM B819 (cleaned for oxygen service).

B. Branch piping to outlets: Copper Type L, seamless, ASTM B819.

C. All joints: Brazed with silver-phosphorus alloy in nitrogen purge. No solder, compression, or push-fit fittings.

D. Color-coded and labeled per NFPA 99 at all outlets, valves, and branches.

2.05 ZONE VALVES

A. Two (2) zone valve assemblies per patient care floor — one per wing (east and west) — per NFPA 99.

B. One (1) dedicated zone valve assembly per Operating Room, located in corridor outside each OR.

C. All zone valves in labeled, locked boxes in corridors with gauges.

2.06 OUTLET STATIONS

A. DISS (Diameter-Index Safety System) per NFPA 99 — gas-specific, non-interchangeable.

B. Minimum outlets per room type:

1. Trauma OR: O_2 (3), VAC (3), MA (2), N_2O (1), N_2 (1), WAGD (1).
2. Trauma ICU Private Room: O_2 (2), VAC (2), MA (1).
3. Trauma Stabilization Cubicle: O_2 (2), VAC (2), MA (1).
4. Minor Procedure Room: O_2 (2), VAC (2), MA (1).
5. Patient Room (Med-Surg, Telemetry, Rehab): O_2 (2), VAC (2) — double station for surge occupancy of two beds per room.

2.07 ALARM SYSTEMS

A. Master Alarm Systems: Two (2) independent master alarm systems, wired on independent circuits, located at two separate 24-hour monitored locations per NFPA 99. Both connected to BMS.

B. Area Alarm Panels: One (1) per floor or zone, at nursing station or zone entrance.

C. Alarms: High/low pressure all gases, vacuum level, source equipment failure, WAGD, PSA concentration, dew point.

PART 3 — EXECUTION

3.01 INSTALLATION

A. Install per NFPA 99. All piping cleaned, purged, and capped per ASTM B819 until connection.

B. No cross-connections between gas systems under any circumstances.

3.02 TESTING AND CERTIFICATION

A. Test per NFPA 99: initial blowdown, standing pressure test, cross-connection test, purity test (O_2 concentration, CO, dew point), flow test at each outlet.

B. All testing witnessed by ASSE 6030-certified verifier. Submit test reports to Owner prior to system activation.

END OF SECTION 22 63 00

HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC) SYSTEMS

SECTION 23 05 00 COMMON WORK RESULTS FOR HVAC

PART 1 — GENERAL

1.01 SUMMARY

A. This Section includes common requirements applicable to all specified HVAC work, including design criteria, codes, submittals, quality assurance, and general execution requirements.

1.02 DESIGN CRITERIA

A. Outdoor Design Conditions (San Juan, PR): 91°F DB / 79°F WB summer; ~80% RH.

B. Indoor Design Conditions: Patient rooms 70–75°F / 30–60% RH. ORs 68–75°F / 20–60% RH per ASHRAE 170.

C. System Type: Constant air volume (CAV) — no VAV. Required for reliable dehumidification in Puerto Rico's tropical humid climate.

D. Chilled water: 38°F supply / 53°F return / 15°F ΔT. Variable primary flow.

E. Surge design basis: All HVAC systems sized for surge occupancy of 182 beds (two beds per room). Cooling load analysis based on surge peak load.

1.02b EQUIPMENT PROPOSALS — OWNER APPROVAL REQUIRED

A. These are performance-based specifications for a Design-Build RFP. No HVAC equipment is pre-specified by manufacturer, brand, or model number for the HVAC systems.

B. The D&B Contractor shall propose all HVAC equipment that meets or exceeds the requirements specified herein and shall submit complete product data to the Owner and Engineer for written approval PRIOR to procurement or installation. No equipment shall be ordered without prior written approval.

C. There are no alternates or substitutions since no base product is specified. All proposed equipment is subject to Owner/Engineer approval based on compliance with these performance specifications.

1.03 REFERENCES

A. ASHRAE 55 — Thermal Environmental Conditions for Human Occupancy.

B. ASHRAE 62.1 — Ventilation for Acceptable Indoor Air Quality.

C. ASHRAE 90.1 — Energy Standard for Buildings.

D. ASHRAE 170 — Ventilation of Health Care Facilities. PRIMARY standard for room-by-room ACH, pressure relationships, filtration.
E. ASHRAE 188 — Legionellosis Risk Management.
F. FGI Guidelines for Design and Construction of Hospitals, latest edition.
G. SMACNA — HVAC Duct Construction Standards, Metal and Flexible.
H. NFPA 90A — Standard for the Installation of Air-Conditioning and Ventilating Systems.
I. NFPA 92 — Standard for Smoke Control Systems.

1.04 SUBMITTALS

A. Mechanical Basis of Design (BOD) Narrative.
B. Computerized Cooling Load Analysis: Room-by-room and block load using Trane TRACE 3D Plus, Carrier HAP, or equivalent. Basis for all equipment sizing.
C. HVAC room-by-room air balance schedule per ASHRAE 170.
D. Equipment product data and performance curves.
E. BMS/DDC control sequences of operation.
F. Acoustic consultant report for chiller room.

1.05 QUALITY ASSURANCE

A. HVAC contractor: Licensed in Puerto Rico, minimum 5 years healthcare HVAC experience.
B. TAB: Independent agency, AABC or NEBB certified. Required for project closeout.
C. Commissioning: Owner's independent Commissioning Agent (CxA) to witness all TAB and functional testing.

END OF SECTION 23 05 00

SECTION 23 05 13 GENERAL REQUIREMENTS FOR HVAC WORK

PART 1 — GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary General Conditions, Special Conditions, and applicable General Requirements Specification sections apply to this Section.

B. All requirements of Section 23 05 00 apply to this Section. This Section incorporates the General Air Conditioning Specifications, adapted and updated to CSI MasterFormat 2020 and project-specific requirements for the Puerto Rico Trauma Hospital.

1.02 DEFINITIONS

A. "Contractor" or "Mechanical Contractor" refers to the D&B Contractor's mechanical subcontractor performing the specified HVAC work.

B. "Engineer" refers to the Mechanical Engineer of Record (PE licensed in Puerto Rico, CIAPR member) responsible for the mechanical design.

C. "Equal" or "Or Equal" means equipment or material that, in the opinion of the Engineer, is equal in quality, durability, appearance, strength, design, and performance to the specified item and will function adequately in the proposed design.

1.03 SUMMARY — SCOPE OF HVAC WORK

A. The HVAC work shall include a complete, tested, and ready-for-operation HVAC system, including: (1) Chilled water plant — three (3) centrifugal chillers 800 ton min. each (2+1), variable primary flow, bypass; (2) Cooling towers — six (6) stainless steel cells Level-2; (3) DOAS — Level-9 Mechanical Room; (4) AHUs — two (2) double-wall per patient floor plus dedicated for ORs/ICU; (5) FCUs — one (1) double-wall 24,000 BTU/hr per patient room; (6) Ductwork, insulation, dampers, grilles, louvers; (7) BMS/DDC with two-way energy valves; (8) Stair pressurization and smoke control; (9) Fire/smoke dampers.

B. All equipment or material shown on drawings and not mentioned in specifications, or vice versa, and all accessories and minor details necessary to complete the work, shall be provided by the Contractor without additional expense to the Owner.

1.04 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

A. Specifications and drawings are mutually explanatory and complementary. The work shall be performed as called for by both. Any disagreement shall be decided by the Engineer, whose interpretation is final.

B. In cases of disagreement between drawings and specifications, the better quality, greater quantity, or more costly work shall be included in the contract price.

C. Drawings are diagrammatic and indicate the general arrangement of systems. The Contractor shall check drawings of other trades to verify spaces available and maintain maximum headroom. As directed by the Engineer, the Contractor shall make reasonable modifications in layout to prevent conflicts with other trades at no extra charge.

1.05 QUALITY ASSURANCE

A. Submission of an unqualified proposal commits performance of the work as expressed in the drawings and specifications without additional compensation, and commits the Contractor to: (1) abide by all rules and regulations of authorities having jurisdiction; (2) provide every item of work required to complete intended installations; (3) coordinate work with other trades to prevent conflicts.

1.06 REGULATORY REQUIREMENTS

A. The Contractor shall give all necessary notices, obtain permits, and pay all fees and costs in connection with the work. All work shall comply with NFPA 90A, NFPA 92, ASHRAE 170, FGI Guidelines, PRBC, and all referenced standards in Section 23 05 00.

1.07 FIELD MEASUREMENTS

A. The Contractor shall visit the site and base all measurements from established benchmarks. Should the Contractor discover discrepancies that prevent following the intent of the drawings, the Engineer shall be notified before proceeding.

1.08 WARRANTY

A. The Contractor shall, without additional cost, replace all work, material, and/or equipment or any part thereof that develops defects (except from ordinary use) within five (5) years from the date of final approval for equipment under 10 tons, and one (1) year for equipment 10 tons and above.

B. The Contractor shall furnish manufacturer certificates guaranteeing parts and equipment replacement where defects occur due to faulty manufacture for a period of one (1) year from the date of final approval.

1.09 SUBMITTALS

A. Product data, shop drawings, hydraulic and cooling load calculations, BMS submittals, and acoustic consultant report shall be submitted for Engineer review minimum 30 days before fabrication or delivery.

PART 2 — PRODUCTS

2.01 EQUIPMENT — GENERAL

A. All equipment and materials shall be new, first-class quality, and arranged to fit properly into building spaces. Equipment requiring servicing, operation, or maintenance shall be in fully accessible positions. Access doors shall be provided where required.

2.02 EQUIPMENT PROPOSALS AND OWNER APPROVAL

A. No equipment is pre-specified by manufacturer or model in these specifications. These are performance-based specifications for a Design-Build RFP. The Contractor shall propose all HVAC equipment that meets or exceeds the performance, efficiency, acoustic, seismic, code, and material requirements specified herein.

B. The Contractor shall submit complete product data, performance data, shop drawings, and calculations for ALL proposed HVAC equipment to the Owner and Engineer for review and approval PRIOR to procurement, fabrication, or installation. No equipment shall be ordered or installed without prior written approval from the Owner and Engineer.

C. Since no base equipment is specified, there are no alternates or substitutions. All proposed equipment is subject to Owner/Engineer approval based on compliance with these performance specifications.

D. Should any approved equipment subsequently prove defective or unsatisfactory, the Contractor shall replace it with equipment meeting the original performance specifications at no cost to the Owner.

E. Where the proposed equipment requires redesign of structure, partitions, foundations, piping, ductwork layout, or wiring, all such redesign and new drawings shall be prepared by the Contractor at their own expense and approved by the Engineer. All additional ductwork, piping, structural supports, insulation, controls, motors, starters, and electrical wiring required shall be furnished and installed at no additional cost to the Owner.

PART 3 — EXECUTION

3.01 SYSTEM INSTALLATION

A. Installation shall be performed by experienced personnel under supervision of competent foremen per ASHRAE and manufacturer recommendations. The Engineer may stop any work or use of material not being properly installed.

3.02 FOUNDATIONS, SUPPORTS, PIERS, AND ATTACHMENT

A. The Contractor shall furnish and install all foundations, supports, pads, and piers required for HVAC equipment. Concrete pads shall extend 6" beyond machine base in all directions with top edge chamfered. Insert 3" steel dowel rods into floors. Shop drawings for all foundations shall be submitted for Engineer approval before construction. All equipment shall be securely attached to the building structure.

3.03 CUTTING AND PATCHING

A. The Contractor shall provide all cutting and patching necessary to install the work. Patching shall match adjacent surfaces. No structural members shall be cut without approval of the structural engineer.

3.04 ELECTRICAL CONNECTIONS

A. The Contractor shall furnish and install all power wiring from power source to each motor and equipment junction box, including wiring through starters. The Contractor shall install all temperature control wiring for HVAC equipment.

3.05 INTERRUPTION OF EXISTING SERVICES

A. Work requiring interruption of existing services shall be performed at a time that causes the least conflict with ongoing hospital operations. All interruptions shall be coordinated with the General Construction Supervisor and ASEM facilities management. Work shall be performed continuously including after-hours and overtime as required.

3.06 CLEANING AND PROTECTION

A. All piping, ducts, and equipment shall be thoroughly cleaned of foreign substances inside and out before the system is placed in operation. During construction, all open ends shall be protected with temporary covers to prevent entry of foreign elements. The Contractor shall protect all work and material from damage and shall be responsible for all work and equipment until finally inspected, tested, and accepted.

3.07 SCAFFOLDING, RIGGING, AND HOISTING

A. The Contractor shall furnish all scaffolding, rigging, and hoisting services necessary for erection and delivery of equipment. All scaffolding shall be removed from premises when no longer required.

3.08 FIELD QUALITY CONTROL

A. The Contractor shall furnish the services of an experienced superintendent constantly in charge of the installation, together with all skilled workmen required to erect, connect, adjust, start, operate, and test each system. The Engineer may stop any work not being properly installed.

3.09 COORDINATION WITH OTHER TRADES

A. The Contractor shall give full cooperation to other trades, furnish information in writing as needed, and coordinate all HVAC work with architectural, structural, electrical, plumbing, fire protection, and medical gas trades. Submit coordination drawings in BIM (Revit preferred).

3.10 QUIET OPERATION AND VIBRATION CONTROL

A. All work shall operate without sound or vibration objectionable to the Engineer. Conditions considered objectionable shall be corrected at the Contractor's expense. Particular attention shall be given to preventing noise and vibration transmission from the Main Chiller Room (below the Operating Rooms) to adjacent areas per Section 23 64 00 acoustic requirements.

B. Vibration isolation devices shall include: (1) inertia-base spring isolators for all equipment; (2) sound absorber pads; (3) vibration isolators for weather-exposed equipment equipped with limit stops per ASCE 7/PRBC wind loads; (4) steel parts (except springs) galvanized; springs cadmium plated. All vibration isolation systems shall be installed per manufacturer's instructions.

3.11 PAINTING

A. All outdoor equipment, hangers, and other metallic surfaces (except aluminum and stainless steel) shall be wire-brushed, cleaned, and painted with two (2) coats of anticorrosion primer. All interior metallic surfaces (except aluminum and stainless steel) shall receive one (1) coat of anticorrosion primer. Final color as indicated by the Architect.

3.12 TESTS

A. All piping, ductwork, and equipment shall be tested as specified. Labor, material, instruments, and power required for testing shall be furnished by the Contractor. Tests shall be performed in the presence of the Engineer and other parties having legal jurisdiction. All defective work shall be repaired and tests repeated until approved.

3.13 WATERPROOFING

A. Where work passes through waterproofing, the method of installation shall be approved by the Engineer before work is done. The Contractor shall furnish all caulking and flashing to make openings absolutely watertight — especially critical for all exterior louver penetrations in Puerto Rico's hurricane-exposed environment.

3.14 TESTING AND BALANCING (TAB)

A. TAB shall be performed by an independent AABC or NEBB certified agency. Work shall include: (1) obtain required air quantities at all operating conditions confirming constant-volume delivery; (2) verify pressure relationships in all ORs, isolation rooms, and critical care spaces per ASHRAE 170; (3) balance all chilled water and condenser water systems and verify two-way energy valve ΔT (15°F); (4) verify DOAS performance — leaving dew point, energy recovery effectiveness, and constant airflow; (5) verify stair pressurization (0.05–0.35 in. w.c.) and smoke control sequences per NFPA 92. TAB is a required condition of project closeout.

3.15 IDENTIFICATION

A. All equipment shall be tagged with nameplates showing equipment tag number, service, capacity, and electrical characteristics. All piping shall be labeled per ASME A13.1 indicating service and flow direction. All ductwork shall be labeled at each floor level indicating service and system designation.

3.16 OPERATION AND MAINTENANCE MANUALS

A. O&M manuals shall include: manufacturer's installation/operation/maintenance instructions; equipment schedules with final as-installed capacities; BMS/DDC as-built control sequences; recommended maintenance schedules; emergency shutdown/restart procedures; and spare parts list for minimum one (1) year of operation. Provide minimum eight (8) hours of Owner staff training per major system (chillers, DOAS, BMS) before final acceptance.

END OF SECTION 23 05 13

SECTION 23 09 00 INSTRUMENTATION AND CONTROL FOR HVAC

PART 1 — GENERAL

1.01 SUMMARY

A. Provide complete Building Management System (BMS) with Direct Digital Controllers (DDC) for all HVAC systems, fully centralized in a computer-based system (head-end server with operator workstation).

B. Network protocol: BACnet/IP open protocol. All DDC controllers report to central computer.

PART 2 — PRODUCTS

2.01 TWO-WAY ENERGY VALVES

A. All chilled water coils (AHUs, fan coils, DOAS) shall be controlled by two-way energy valves (pressure-independent characterized control valves with integral flow measurement and energy/ΔT monitoring).

B. Valves shall maintain design ΔT (15°F), eliminate low-ΔT syndrome, automatically balance flow, and report real-time flow, supply/return temperature, energy consumption, and valve position to BMS.

2.02 BMS MONITORING POINTS

A. HVAC: Supply airflow and duct static pressure; return/supply air temperature; zone temperature and humidity; CO_2 levels; AHU filter differential pressure; chiller plant sequencing; DOAS leaving air temperature/dew point; two-way energy valve flow and ΔT; fan VFD speed; OR room pressure (continuous with door indicators); fire/smoke damper position.

B. Plumbing: Potable cistern level (high/low alarms); booster pump status; pressure in both risers; HWR temperatures by zone; chlorination system status.

C. Medical Gases: Master alarm system — source equipment status, main line pressures, all gas/vacuum conditions — reported to BMS supplementary to dedicated NFPA 99 panels.

END OF SECTION 23 09 00

SECTION 23 23 00 REFRIGERANT PIPING

PART 1 — GENERAL

1.01 SUMMARY

A. Provide condenser water piping between chiller condensers and cooling towers, and chilled water distribution piping, per this Section.

PART 2 — PRODUCTS

2.01 CHILLED WATER PIPING INSULATION — PIPE INSULATION SCHEDULE

All chilled water and reheat water piping shall be insulated per the following schedule. All materials: FSI ≤25 / SDI ≤50 per ASTM E84, NFPA 90B.

Service	Min Dia.	Max Dia.	Thickness	K / R Value	Material	Outdoor Finish	Indoor Concealed	Indoor Exposed
CHW 40–60F	1/2"	1"	**1-1/2"**	K=0.19 @50F R-7.9 (2-1/2"+: R-10.5)	PIR with Integral VR (Perm≤0.05)	VR Jacket + 6oz Canvas + MON ECO Mastic + 0.016" Alum. Jacket	VR Jacket + MON ECO Mastic White	VR Jacket + MON ECO + Zeston PVC 30 MLS White. FS≤25/SD≤50
	1-1/4"	2"	**1-1/2"**					
	2-1/2"	8"	**2"**					
Reheat 95–120F	1/2"	1"	**1"**	K=0.26 @107F R-3.8/ 5.8/7.7	Rigid Fiberglass Micro-Lok by Johns Manville	6oz Canvas + MON ECO Mastic + 0.016" Alum. Jacket w/VB Foil	MON ECO Mastic 55-50 White + VB Foil	MON ECO + Zeston PVC 30 MLS White. FS≤25/SD≤50
	1-1/4"	2"	**1-1/2"**					
	2-1/2"	8"	**2"**					

END OF SECTION 23 23 00

SECTION 23 64 00 PACKAGED WATER CHILLERS AND COOLING TOWERS

PART 1 — GENERAL

1.01 SUMMARY

A. Provide three (3) factory-assembled, charged, and run-tested water-cooled centrifugal chillers configured 2 duty + 1 standby (2+1/N+1), in the Basement Main Chiller Room (sound-isolated per Section 23 64 00 Part 2.05). Also provide six (6) induced-draft cooling tower cells in the Level-2 Mechanical Roof Yard. All equipment shall be factory-assembled and ready for field installation.

B. Units shall produce the specified tonnage per the scheduled data in accordance with AHRI 550/590 (current edition). Units shall bear the AHRI certification label as applicable.

1.02 REFERENCES

A. AHRI 550/590 — Performance Rating of Water-Chilling and Heat Pump Water-Heating Packages Using the Vapor Compression Cycle (current edition).

B. AHRI 575 — Method of Measuring Machinery Sound Within an Equipment Space.

C. ASHRAE 15 — Safety Standard for Refrigeration Systems (current edition).

D. ASHRAE 90.1 — Energy Standard for Buildings (current edition) — minimum efficiency compliance.

E. ASME Section VIII — Boiler and Pressure Vessel Code (pressure vessel construction).

F. ANSI/UL 465 — Central Cooling Air Conditioners.

G. ARI Standard 365 — Commercial and Industrial Unitary Air-Conditioning Condensing Units.

H. Puerto Rico Building Code (PRBC) — seismic and wind load requirements.

I. ASCE 7 — Minimum Design Loads for Buildings and Other Structures.

1.03 QUALITY ASSURANCE

A. Manufacturer Qualifications: Firms regularly engaged in manufacture of water-cooled centrifugal chillers and cooling towers, with products in satisfactory use in similar service for not less than ten (10) years.

B. Installer Qualifications: Firm with at least five (5) years of successful installation experience on projects with chiller plant systems similar to that required for this project.

C. No equipment is pre-specified by manufacturer or model. These are performance-based specifications. Equipment from any qualified manufacturer meeting all requirements specified herein is acceptable. The Contractor shall propose equipment and obtain written Owner/Engineer approval prior to procurement.

D. No alternates or substitutions apply since no base equipment is specified. All proposed equipment is subject to Owner/Engineer approval based on compliance with these specifications.

1.04 SUBMITTALS AND OWNER APPROVAL

A. The Contractor shall submit the following for Owner and Engineer review and approval PRIOR to procurement or installation of any chiller or cooling tower equipment:

B. Product Data: Manufacturer's technical data with contractor's name, project name, and installation instructions for each piece of equipment. Generic data will not be accepted. Submittals shall clearly indicate specific service, section, and article number of specifications governing.

B. Performance Data: Submit factory performance test report indicating energy input versus cooling output from 100% full load to minimum stable load, using constant entering condenser water temperature. Test per AHRI 550/590 at a certified test facility. The factory test instrumentation calibration shall be traceable to NIST. Certified test report signed by an officer of the manufacturer's company is required; pre-printed certification is not acceptable.

C. Sound Data: Submit Sound Pressure Level (SPL) in decibels (dB), referenced at 20 micropascals, rated per AHRI 575. Ratings shall represent the loudest operating condition. Reducing entering condenser water temperature or raising leaving chilled water temperature to obtain better sound ratings is not permitted.

D. Shop Drawings: Scaled drawings showing dimensioned layouts, equipment footprint, elevations, relation to space enclosure, required service and access clearances, pipe sizes and locations, and wall/floor penetrations.

E. Record Drawings: At project closeout, submit record drawings of installed equipment, accessories, and connections.

F. Rigging, installation, and start-up procedures; O&M manuals, parts lists, and troubleshooting guides.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Chillers shall be delivered to the job site completely assembled and fully charged with refrigerant and oil. Maintain the manufacturer’s original packing and crating until the unit is on-site and ready for permanent installation.

B. Where possible, store equipment inside protected from weather in the original packing and crating. When necessary to store outside, store above grade and enclose with waterproof wrapping.

C. Prior to installation, the Contractor shall verify with the Engineer that all equipment is in good condition and all accessories are intact. Do not accept damaged units; report any damage to the equipment manufacturer immediately.

1.06 WARRANTY

A. The Contractor shall leave the entire chiller and cooling tower installation in proper working condition and shall, without additional cost, replace any work, material, and/or equipment or any part thereof that develops defects (except from ordinary use) within five (5) years from the date of final approval issued by the Engineer.

B. Chiller manufacturer shall provide complete unit parts warranty (excluding refrigerant) for one (1) year from the date of final approval.

C. The Contractor shall be responsible for all damages resulting from defective material and/or equipment and shall repair or replace all injuries to existing work caused by such defects without additional charges to the Owner.

D. The Contractor shall furnish manufacturer certificates or guarantees to furnish new parts, materials, or equipment where defects occur due to faulty manufacture for a period of one (1) year from the date of final approval.

1.07 MAINTENANCE — FIRST YEAR

A. The chiller manufacturer shall provide, as part of the contract, the first-year oil and filter change for each chiller.

B. The chiller manufacturer shall provide an annual inspection of gears and all bearings (where applicable) for the first five (5) years, with a written report forwarded to the Owner each year confirming completion.

C. The chiller manufacturer shall provide first-year purge unit maintenance as applicable.

PART 2 — PRODUCTS

2.01 WATER-COOLED CENTRIFUGAL CHILLERS

A. General: Factory-assembled, weather-proofed, internally control-wired, fully charged with refrigerant. Quantity: Three (3). Configuration: 2 duty + 1 standby (N+1/2+1).

B. Capacity: Each unit minimum 800 tons refrigeration at the following design conditions:

1. Chilled Water: 38°F leaving evaporator / 53°F entering evaporator. Design ΔT = 15°F.
2. Condenser Water: 85°F entering / 97°F leaving at 2.3 GPM/ton.
3. Firm plant capacity (2 units operating): 1,600 tons minimum.

C. Efficiency: Minimum 0.56 kW/ton (full load) or better per ASHRAE 90.1 at the design conditions. Submit AHRI-certified performance data. Comply with ASHRAE 90.1 at both full load and part load (IPLV) conditions.

D. Compressor: Fully hermetic, high-efficiency centrifugal compressor. Impeller shall be statically and dynamically balanced. Compressor vibration shall not exceed 0.15 inches per second. Unit shall have an independent refrigeration circuit with easily accessible service ports and factory-installed filter drier.

E. Refrigerant: Low-GWP refrigerant compliant with the Montreal Protocol, AIM Act, and all applicable EPA regulations at the time of procurement. HFO blends or HFCs with GWP below 700 are preferred. No refrigerants containing HCFC-123 shall be used. Coordinate refrigerant selection with Owner prior to final equipment selection.

F. Controls: Factory-mounted DDC controller with BACnet/IP interface to the building BMS. All unit wiring shall be color-coded. Factory-wired terminal block with pressure lugs for power wiring.

G. Performance Testing: Each chiller shall be factory performance-tested at an AHRI-certified test facility. The owner or his representative shall be notified at least ten (10) days in advance to witness the test. A certified test report signed by a company officer shall be submitted

prior to project completion. Performance penalties per AHRI 550/590 tolerances shall apply if units fail to meet submitted performance. Equipment manufacturer shall not invoice for chillers until successful completion of performance test with acceptance or penalty deduction.

2.02 CHILLED WATER PUMPS

A. Type: Vertical inline centrifugal, variable primary flow (primary-only). One pump per chiller — three (3) total (2 duty + 1 standby).

B. VFD on each pump. Automatic lead-lag-standby sequencing interlocked with chillers.

C. Required bypass: Chilled water bypass pipe with modulating control valve across supply and return headers at chiller plant. Fail-open on loss of control signal. BMS-controlled based on primary loop flow vs. minimum chiller flow setpoint.

2.03 COOLING TOWERS

A. General: Factory-assembled and tested, induced-draft, vertical air discharge. Quantity: Six (6) cells — 4 duty + 2 backup — located in Level-2 Mechanical Roof Yard. Each unit shall process minimum 3,000 GPM at 95°F entering / 85°F leaving (condenser water design conditions).

B. Construction — Casing: Principal structural panels, elements, basin, and fan deck shall be constructed of stainless steel Type 304. All nuts, bolts, and fasteners shall be stainless steel Type 304. The support structure shall be protected with a factory-applied corrosion-resistant coating system (equal to or exceeding SSPC SP6 surface prep + epoxy primer + polyurethane topcoat) or shall be fabricated from stainless steel. No galvanized steel frames.

C. Basin: Cold water basin shall be stainless steel Type 304, sized and sloped for complete drainage. Basin shall include anti-sedimentation screens and low-water level protection.

D. Inlet Louvers: Wave-form fiberglass-reinforced polyester (FRP) or equivalent non-corrosive material. Louvers shall minimize water splash-out.

E. Fan Motors: VFD-ready, with permanently lubricated bearings and moisture protection (IP55 minimum enclosure). One VFD per cell for condenser water temperature control and energy savings.

F. Drift Eliminators: Limit drift losses to 0.005% or less of the design circulating water flow rate. Multi-pass chevron or cellular design.

G. Noise Attenuation: Low-noise fan blades and/or discharge/intake sound attenuators. Acoustic calculations required given proximity to patient care floors. Maximum sound level at the property line per local noise ordinance.

H. Seismic and Wind: Comply with seismic and wind requirements for Puerto Rico per PRBC 2018 Amendment and ASCE 7. Spring/neoprene vibration isolators with seismic snubbers under each cell. All condenser water piping crossing seismic isolation planes shall have flexible connectors.

2.04 INSPECTION — SITE CONDITIONS

A. The Contractor shall carefully examine the site and conditions under which the chillers and cooling towers will be installed. Familiarize with existing conditions, character, extent, quality, and quantity of work to be performed and materials to be furnished. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to the Engineer. Filing of a proposal shall be presumptive evidence that the Contractor has complied with these requirements; later claims for labor, equipment, or materials required due to difficulties that could have been foreseen will not be recognized.

2.05 CHILLER ROOM ACOUSTIC AND VIBRATION ISOLATION

A. The Main Chiller Room is directly below the Trauma Surgery Department and Operating Rooms on the Ground Level. The following acoustic and vibration isolation measures are required:

1. Room Enclosure: Walls, floor slab, and ceiling (underside of Ground Level slab) shall be constructed with sound-rated assemblies — minimum STC 60 — including mass-loaded assemblies, resilient layers, and/or floating floor construction as determined by the acoustic consultant.
2. Equipment Isolators: Inertia-base spring vibration isolators on all chillers, pumps, cooling tower fans, and rotating equipment. Sized for each piece of equipment to attenuate vibration transmission to the building structure.
3. Piping: Flexible vibration-isolation connectors at all chilled water and condenser water equipment connections.
4. Doors: Acoustically rated minimum STC 50, gasketed, and self-closing.
5. Ducts: Silencers on all ducts penetrating chiller room boundaries.
6. Acoustic Consultant Report: Required at Design Development phase confirming NC-20 to NC-25 in ORs above. Report shall be submitted to Owner for review.

PART 3 — EXECUTION

3.01 EQUIPMENT INSTALLATION

A. All equipment shall be set in place, leveled to within 1/8 inch across the entire dimension of the unit in all directions, and connected as indicated on the drawings. All equipment shall be properly protected from damage during construction and thoroughly cleaned; factory-applied paint shall be touched up where scratched or otherwise damaged prior to final acceptance.

B. Roof-level cooling tower installations shall be set on structural bases with vibration isolators per the approved shop drawings and structural engineer's design. Locate units to maintain the minimum service and airflow clearances recommended by the manufacturer.

C. Installation procedures shall be in strict accordance with the manufacturer's published instructions and contract documents herein before specified.

3.02 FIELD QUALITY CONTROL

A. Performance Test: Run-test each chiller and cooling tower cell and check for proper rotation, refrigerant pressures, proper chilled water and condenser water temperatures, excessive noise or vibration, and rated flow. Repair or replace any parts found defective.

B. Witness Testing: All field performance tests shall be witnessed by the Owner's Commissioning Agent (CxA). The Contractor shall provide advance notice of all test schedules.

3.03 EQUIPMENT CONNECTIONS

A. See hydronic piping specifications (Section 23 23 00) for all chilled water and condenser water piping connections, insulation, and testing requirements.

B. Electrical connections in accordance with applicable electrical specifications; equipment wiring diagrams to be submitted with shop drawings.

3.04 DEMONSTRATION AND TRAINING

A. Train Owner's representatives in procedures and schedules related to start-up, shutdown, troubleshooting, servicing, and preventive maintenance of the chiller plant and cooling towers. Minimum eight (8) hours of training. Schedule training through the Owner's representative prior to final acceptance.

3.05 TESTING AND BALANCING

A. Refer to Section 23 05 00 and Section 23 05 13 for Testing, Adjusting, and Balancing requirements for all chilled water and condenser water systems.

END OF SECTION 23 64 00

SECTION 23 74 00 PACKAGED OUTDOOR HVAC EQUIPMENT — DOAS AND AHUs

PART 1 — GENERAL

1.01 SUMMARY

A. Provide Dedicated Outdoor Air System (DOAS) units and Air Handling Units (AHUs) for the facility. All systems shall be constant air volume (CAV) — no VAV — to ensure reliable dehumidification in Puerto Rico's tropical climate.

PART 2 — PRODUCTS

2.01 DEDICATED OUTDOOR AIR SYSTEM (DOAS)

A. Location: Ninth Level Mechanical Room, directly below heliport.

B. Configuration: Dedicated units treating 100% outdoor air — filter, cool, dehumidify, and reheat before delivery to AHUs and FCUs. N+1 for critical care areas.

C. Dehumidification: Target leaving dew point 50–55°F to manage entire building latent load.

D. Energy Recovery: Total energy recovery (enthalpy wheel or membrane), minimum 60% effectiveness. No cross-contamination with isolation/contaminated exhaust streams.

E. Patient Room Bathroom Exhaust Integration: Bathroom exhaust ducted to DOAS energy recovery device. Sensible/total recovery — plate or membrane type (no wheel for toilet exhaust). Bathroom exhaust ducts serving DOAS to be insulated.

F. Outdoor air intakes: Positioned away from heliport downwash, generator exhaust, cooling tower discharge, and vent terminals per ASHRAE 170/FGI separation requirements. Bird/insect screens at all intakes.

2.02 AIR HANDLING UNITS (AHUs)

A. Patient care floors: Two (2) AHUs per floor (common areas), fed by independent chilled water risers (Riser 1 to AHU-A, Riser 2 to AHU-B).

B. ORs, ICU, isolation, procedure rooms: Independent dedicated AHUs — not the patient-room arrangement.

C. Construction: Double-wall casing with insulation encapsulated between inner and outer metal liners.

D. Components: MERV-14 minimum filtration (HEPA for ORs and isolation rooms); chilled water coil with two-way energy valve; electric reheat coil (dehumidification only — no space heating required in PR); supply/return fans with VFDs; stainless steel drain pan with deep-seal trap; insulated condensate drain.

E. Surgical AHUs: UV-C germicidal irradiation (UVGI) downstream of cooling coil and over drain pan. Access doors interlocked to de-energize lamps. Run-time monitoring via BMS.

F. Chilled water coil ΔT: 15°F (38°F EWT / 53°F LWT) at design conditions. Constant volume operation — temperature controlled by two-way energy valve.

2.03 FAN COIL UNITS (FCUs)

A. Quantity: One (1) FCU per patient room, plus perimeter zones, offices, and support spaces as required.

B. Capacity: Minimum 24,000 BTU/hr per patient room (surge occupancy: two beds per room).

C. Construction: Double-wall casing. Type: Concealed ceiling or vertical, chilled water with VFD/ECM motor.

D. Control: Two-way energy valve on chilled water coil, individual room thermostat via DDC/BMS.

E. Condensate: Stainless steel drain pan; condensate drain insulated with vapor barrier; overflow protection.

F. Filtration: MERV-8 at return; MERV-14 ventilation air from DOAS.

G. All FCU ventilation air from DOAS — no direct outdoor air intake at individual FCUs.

END OF SECTION 23 74 00

SECTION 23 31 00 HVAC DUCTS AND CASINGS

PART 1 — GENERAL

1.01 SUMMARY

A. Provide complete ductwork systems for supply, return, exhaust, and outdoor air distribution per SMACNA HVAC Duct Construction Standards and ASHRAE 170.

PART 2 — PRODUCTS

2.01 DUCTWORK

A. Material: Galvanized steel per SMACNA. Minimum 26-gauge for low-pressure systems.

B. Velocity: Maximum 1,500 FPM mains; 1,000 FPM branches in clinical spaces.

C. Static pressure design: 0.08" WG per 100 LF — supply and return ductwork. 0.015" WG per 100 LF — exhaust ductwork.

2.02 DUCTWORK INSULATION SCHEDULE

All ductwork shall be insulated per the following schedule:

Location	Duct Type	K Value	R Value	Density	Thickness	Material Type	NFPA Grade
Interior Concealed	Supply/Return/Exhaust	0.25 BTU-IN/HR @75° F	R-6	1.5 LB/FT^3	1-1/2"	Flexible Fiberglass with FSK Vapor Barrier	—
Interior Exposed	Supply/Return/Exhaust	0.25 BTU-IN/HR @75° F	R-8	1.5 LB/FT^3	2"	Rigid Fiberglass with FSK Vapor Barrier	FS C25 / Smoke C50 per ASTM E84
Exterior	Supply	0.25 BTU-IN/HR	R-10	6 LB/FT^3	2"	Rigid Polyisocyanurate with Canvas, Mastic, Painted	—

Location	Duct Type	K Value	R Value	Density	Thickness	Material Type	NFPA Grade
		@75° F				White, Aluminum (0.16) Cover	

2.03 FIRE/SMOKE DAMPERS

A. Combination fire/smoke dampers (FSD), UL 555/555S listed, at all duct penetrations of fire-rated floor or shaft enclosures — outdoor air and exhaust ducts traversing vertical chases from Floor 1 through Floor 10.

B. Electric actuators with end-switch position indication reported to fire alarm panel and BMS.

C. Access doors at every FSD for inspection, testing, and reset per NFPA 80/105.

2.04 AIR DISTRIBUTION GRILLES AND LOUVERS

A. All supply, return, and exhaust grilles/registers: Aluminum construction with opposed-blade dampers (OBD). Smooth cleanable surface in clinical areas.

B. Exterior louvers: Aluminum, drainable-blade type, hurricane-resistant. Tested per ASTM E1233 or equivalent for water penetration resistance at design wind speed per ASCE 7/PRBC. Bird/insect screens at all outdoor air intakes.

PART 3 — EXECUTION

3.01 INSTALLATION

A. Install per SMACNA. All duct penetrations of fire-rated assemblies with approved fire-stopping.

B. Duct leakage class per SMACNA. Pressure test all systems serving critical care areas prior to ceiling close-out.

C. All OR and isolation room supply air through ceiling diffusers designed for laminar or non-aspirating flow per FGI and ASHRAE 170.

3.02 STAIR PRESSURIZATION AND SMOKE CONTROL

A. Both stairwells mechanically pressurized per NFPA 92: maintain 0.05–0.35 in. w.c. positive pressure relative to adjacent floors with stair doors closed.

B. Barometric relief dampers or VFD fan modulation to limit door-opening force to maximum 30 lbf per NFPA 101.

C. Stair pressurization fans on essential power; auto-start on general fire alarm; status and alarms to fire alarm system and BMS.

D. HVAC systems interlocked with fire alarm for smoke control sequence per NFPA 90A and NFPA 92.

3.03 TESTING AND COMMISSIONING

A. TAB: Complete Test, Adjust, and Balance by independent AABC or NEBB certified agency. All supply, return, exhaust, and outdoor air quantities measured room-by-room.

B. Critical space verification: ACH and pressure relationships in all ORs, AII isolation rooms, and critical care spaces certified per ASHRAE 170. Documented at each room.

C. DOAS performance verification: Leaving dew point, energy recovery effectiveness, constant volume delivery.

D. Functional testing: Chillers, cooling towers, pumps (VPF and bypass), DOAS, AHUs, FCUs, BMS sequences, fire/smoke dampers, stair pressurization, alarms.

E. All testing witnessed by Owner's Commissioning Agent (CxA). Deficiencies corrected and re-tested before Owner acceptance.

F. Closeout documentation: Final TAB report, commissioning report, as-built drawings, O&M manuals, equipment warranties, and minimum 8 hours Owner staff training per system.

END OF SECTION 23 31 00

END OF MECHANICAL SPECIFICATIONS

MECHANICAL SYSTEMS

These specifications are performance-based for a Design & Build RFP. The Design-Build Entity shall engage a Professional Engineer licensed in Puerto Rico and a CIAPR member as Engineer of Record. All drawings and specifications produced by the Design-Build Entity shall be signed and sealed by the Puerto Rico PE prior to submission for permits.

Attachment C: Bridging Documents - Report

PUERTO RICO TRAUMA HOSPITAL

PREPARED FOR

Administración de Servicios Médicos de Puerto Rico (A.S.E.M.)

Puerto Rico Medical Center | San Juan, Puerto Rico

August 13, 2026

FINAL REPORT

Bridging Documents for the New Puerto Rico Trauma Hospital



DE LA TORRE – ESTÉVEZ
ARCHITECTS - PLANNERS

NOTICE OF DOCUMENT USE

A. PROPRIETARY RIGHTS, LIMITED AUTHORIZATION, AND RESTRICTIONS ON USE OF BRIDGING DOCUMENTS

These drawings, specifications, narratives, criteria, reports, calculations, schedules, details, and other materials comprising the Bridging Documents have been prepared exclusively to establish the Owner's programmatic requirements, functional and operational objectives, design intent, performance requirements, minimum quality standards, and technical basis of design for the Request for Proposals and Design-Build procurement process for the Puerto Rico Trauma Hospital Project.

Except as otherwise expressly provided in the applicable Professional Services Agreement, these Bridging Documents constitute instruments of professional service prepared by De La Torre–Estévez Architects and shall remain subject to all applicable proprietary, copyright, intellectual-property, and professional-use protections. No ownership interest, copyright, or unrestricted right of use is transferred by the issuance, distribution, reproduction, or authorized use of these documents.

Subject to the prior written consent of De La Torre–Estévez Architects and the terms and conditions established by the Owner, the Medical Services Administration of Puerto Rico ("ASEM"), a limited, nonexclusive, and nontransferable authorization is granted solely to ASEM and to those Design-Build entities formally authorized by ASEM to participate in the procurement process. Such authorization is limited exclusively to reviewing, evaluating, interpreting, and using the Bridging Documents for the preparation and submission of proposals and, following award, as reference design guidance for the development of the Project's final design and construction documents.

These Bridging Documents are not final design documents, permit documents, bid documents for conventional construction procurement, fabrication documents, shop drawings, or construction documents. They shall not be used, in whole or in part, for permitting, fabrication, ordering or procurement of construction materials or systems, installation, construction, or any other purpose unrelated to the authorized Design-Build procurement process. Direct use of these documents for construction is expressly prohibited.

The selected Design-Build entity, acting through its duly licensed Architect of Record, Engineer(s) of Record, specialty consultants, delegated-design professionals, contractors, subcontractors, manufacturers, and suppliers, as applicable, shall be solely responsible for developing, completing, coordinating, reviewing, and certifying all final architectural, engineering, permitting, procurement, fabrication, and construction documents required for the proper execution and completion of the Project.

The Design-Build entity shall independently investigate and verify all existing conditions, field dimensions, elevations, quantities, utility locations, site constraints, design assumptions, technical criteria, code requirements, and other information affecting the Work. Information contained in the Bridging Documents shall not relieve the Design-Build entity or its design

professionals from their independent professional judgment, due diligence, coordination obligations, or responsibility for the accuracy, completeness, constructability, code compliance, permitting, safety, and performance of the final design and completed Work.

No representation or warranty is made that the Bridging Documents are complete or suitable for direct construction use. Any unauthorized use, reproduction, modification, adaptation, distribution, disclosure, or reliance upon these documents shall be at the sole risk of the person or entity undertaking such use and without liability to De La Torre–Estévez Architects or its consultants. No third-party rights, licenses, or benefits are created by the preparation, issuance, or authorized distribution of these documents.

B. PROJECT DESIGN NARRATIVES — PURPOSE, SCOPE, OWNER CONFIRMATION, AND DESIGN-BUILD ENTITY RESPONSIBILITIES

The architectural, structural, electrical, and mechanical narratives included in these Bridging Documents describe the recommended design concepts, systems, services, performance criteria, functional relationships, technical assumptions, and anticipated scope requirements established for the Puerto Rico Trauma Hospital at the current Advanced Architectural Design Development stage. These narratives are intended to communicate the Owner's programmatic objectives, operational requirements, design intent, basis-of-design concepts, minimum performance expectations, and preliminary technical direction for use in the Request for Proposals and subsequent Design-Build process.

The Advanced Architectural Design Development and the related architectural, structural, electrical, and mechanical narratives were developed under the direction of De La Torre-Estevez Architects, as Bridging Architect, based upon the firm's professional architectural judgment and experience in healthcare planning and design, together with the professional input of the applicable engineering disciplines. They also reflect the programming, planning, clinical, operational, functional, and service requirements developed, coordinated, and agreed upon with the Medical Services Administration of Puerto Rico (ASEM). This process culminated in the Schematic Design reviewed and approved by ASEM as the basis for further development of the Project.

ASEM's review and approval of the Schematic Design confirm the programmatic basis, planning criteria, service requirements, and general design direction represented at that stage. Such review and approval do not convert the Schematic Design, the Advanced Architectural Design Development, or any other Bridging Document into a final design, permit document, construction document, or certification of complete code compliance, and do not relieve the Design-Build Entity or its design professionals of their independent professional duties and responsibilities.

The Advanced Architectural Design Development was prepared with consideration of the codes, standards, regulations, and healthcare design guidelines identified as applicable to the Project and reasonably required for the scope and level of completion represented by this Bridging Documents stage. Any code analysis, design criteria evaluation, system development,

preliminary sizing, interdisciplinary coordination, or compliance review performed for the Bridging Documents is limited to, and commensurate with, the information developed at this stage. It shall not be interpreted as a final code analysis, final engineering verification, final system design, or representation that the permit documents, construction documents, or completed Work have been fully developed or verified for compliance with every applicable requirement.

The narratives shall be read together with the Advanced Architectural Design Development Drawings, preliminary technical specifications, programmatic information, reports, surveys, studies, criteria, and other Bridging Documents issued by or on behalf of ASEM. The narratives are complementary to, and shall not be interpreted independently from, the remaining Bridging Documents. Any Owner-directed revision to the approved program, scope, layouts, system concepts, performance criteria, or service requirements shall be documented and confirmed in writing by ASEM, and the Design-Build Entity shall evaluate and incorporate the resulting design, cost, schedule, permitting, coordination, and construction impacts.

The narratives are not intended to constitute complete final designs, final engineering calculations, final system selections, final construction documents, or a complete statement of every component, service, connection, control, accessory, or requirement necessary for construction and operation of the Project. Their purpose is to establish the recommended technical and design basis from which the Design-Build Entity shall independently develop the complete Project design.

Upon proceeding with the Project beyond the Bridging Documents stage, the Design-Build Entity shall be solely responsible, through its duly licensed Architect and Engineers of Record and other qualified design professionals, for independently reviewing, verifying, validating, coordinating, supplementing, refining, and completing the concepts, systems, and requirements described in the narratives and other Bridging Documents. The Design-Build Entity shall identify and apply all codes, standards, regulations, authority requirements, healthcare guidelines, amendments, and official interpretations applicable to the final design, permitting, construction, occupancy, and operation of the Project, including those in effect or made applicable after issuance of the Bridging Documents.

The Design-Build Entity's use, adoption, modification, or further development of any concept, layout, system, criterion, assumption, or recommendation contained in the Bridging Documents shall be based upon its own independent professional review and shall constitute its acceptance of professional responsibility for incorporating that information into the final Project design. The Design-Build Entity shall prepare, sign and seal as required, and assume full professional responsibility for all analyses, calculations, studies, drawings, specifications, schedules, diagrams, models, reports, permit documents, construction documents, and other design deliverables necessary to provide a complete, coordinated, code-compliant, permit-ready, construction-ready, operational, and maintainable facility.

Unless separately retained under a subsequent written professional services agreement, De La Torre-Estevez Architects shall not serve as the Architect of Record, Engineer of Record, delegated designer, or design professional responsible for the Design-Build Entity's final

design, permit documents, construction documents, means and methods, construction, or completed Work. Nothing in the Bridging Documents shall be interpreted as transferring to the Bridging Architect responsibility for professional services, design decisions, documents, certifications, or construction activities undertaken by or on behalf of the Design-Build Entity after commencement of its design development services.

1. OWNER CONFIRMATION OF NARRATIVE RECOMMENDATIONS

Before advancing the final design of each discipline, the Design-Build Entity shall review the corresponding narrative recommendations with ASEM and obtain confirmation of the Owner's current programmatic, operational, technical, infrastructure, maintenance, phasing, and institutional requirements.

This confirmation process is particularly important where ASEM may be considering modifications to the preliminary recommendations, design criteria, system concepts, operational relationships, utility arrangements, departmental layouts, construction phasing, or other Project requirements that could materially affect the final design or construction documents.

The Design-Build Entity shall not assume that all preliminary recommendations remain unchanged solely because they are included in the Bridging Documents. At the beginning of the Design-Build design phase, and at each required design review milestone, the Design-Build Entity shall identify and document:

a. Narrative recommendations that have been confirmed by ASEM.
b. Narrative recommendations that require additional evaluation or clarification.
c. Owner-requested modifications or refinements.
d. Proposed Design-Build Entity alternatives or improvements.
e. Potential effects on cost, schedule, phasing, permitting, utility capacity, maintainability, hospital operations, resiliency, and future expansion.
f. Decisions required from ASEM to allow the design to proceed in a timely and coordinated manner.

ASEM's review, consultation, confirmation, comments, or acceptance of design concepts shall not relieve the Design-Build Entity or its Architect and Engineers of Record from responsibility for the completeness, accuracy, code compliance, technical adequacy, coordination, constructability, safety, performance, and professional standard of care applicable to the final design and construction documents.

2. ELECTRICAL SERVICE AND POWER-DISTRIBUTION CONCEPTS

The electrical narrative recommendations—including the proposed primary electrical point of connection, connection location, utility-service voltage, routing of primary and secondary electrical feeders to the Hospital Building, building substation configuration, transformer capacities and voltages, normal-power distribution, emergency-power distribution, and proposed emergency-generator-bank concept—shall be verified and confirmed by the Design-Build Entity in consultation with ASEM and the applicable utility and regulatory authorities.

The Design-Build Entity shall confirm, at a minimum:

a. The final location, ownership, configuration, capacity, voltage, and technical requirements of the primary electrical point of connection.
b. The availability, adequacy, reliability, and routing of the proposed electrical service from the utility or ASEM campus infrastructure to the Hospital Building.
c. The proposed exterior 38 kV substation concept and its coordination with the existing ASEM electrical infrastructure.
d. The required primary and secondary distribution voltages.
e. The capacity, arrangement, redundancy, protection, metering, and physical location of transformers, switchgear, substations, feeders, distribution equipment, and associated electrical rooms.
f. The proposed normal, essential, emergency, life-safety, critical, and equipment branch distribution systems required for a Level I Trauma Hospital.
g. The proposed emergency-generator-bank concept, including generator quantity and capacity, redundancy, paralleling, fuel-storage requirements, day tanks, main storage tanks, controls, ventilation, exhaust, acoustical treatment, access, maintenance clearances, load management, testing, and future expansion.
h. Required coordination with hospital equipment, elevators, mechanical systems, medical systems, information technology systems, fire-protection systems, security systems, and other critical loads.
i. Required short-circuit, coordination, arc-flash, reliability, resiliency, and load studies.
j. The effect of any Owner-directed modification on the electrical-system configuration, Project cost, construction phasing, site requirements, and continuity of existing ASEM campus operations.

No electrical service concept shall be advanced to final design without verification of the actual available utility and campus conditions, written coordination with the applicable authorities, and confirmation by ASEM of the Owner's operational and resiliency requirements.

3. MECHANICAL COOLING AND AIR-CONDITIONING CONCEPTS

The mechanical narratives describing the proposed central chilled-water system, water-cooled chillers, cooling towers, pumping arrangements, air-handling units, ventilation systems, exhaust systems, controls, redundancy, zoning, and environmental-control concepts establish the preliminary basis of design and minimum performance intent for the Project.

The Design-Build Entity shall review and confirm these concepts with ASEM before final system selection and shall evaluate:

a. The proposed central chilled-water plant capacity and configuration.
b. The recommended three-chiller concept, including operating capacity, standby capacity, redundancy, sequencing, and future expansion.
c. The proposed cooling-tower capacity, configuration, location, screening, structural support, access, maintenance, acoustical impact, plume management, water treatment, and hurricane protection.

d. The chilled-water distribution system, pumping configuration, piping routes, equipment-room arrangements, and interconnection with any existing ASEM campus systems.
e. The air-handling-unit concept for operating rooms, trauma and emergency areas, isolation rooms, critical-care spaces, inpatient areas, diagnostic and treatment departments, support areas, and other hospital functions.
f. Required pressure relationships, filtration levels, temperature and humidity control, ventilation rates, outside-air requirements, infection-control criteria, energy recovery, redundancy, and emergency operation.
g. The required mechanical-system response to loss of utility power, equipment failure, extreme weather events, and other emergency conditions.
h. Coordination with architectural ceiling spaces, structural systems, vertical shafts, equipment access, replacement pathways, electrical loads, plumbing systems, fire protection, medical gases, controls, and building-envelope performance.
i. Requirements for building automation, monitoring, alarms, energy management, testing, balancing, commissioning, and Owner training.
j. Any ASEM-directed change in plant configuration, equipment type, redundancy criteria, capacity, location, or operational philosophy.

Any modification to the recommended mechanical concepts shall demonstrate equal or superior reliability, energy performance, environmental control, infection-control capability, maintainability, durability, resiliency, and life-cycle value.

4. PROGRAMMATIC SPACES, FUNCTIONAL RELATIONSHIPS, AND LAYOUTS

The architectural narratives and Advanced Architectural Design Development Drawings establish the proposed departmental organization, programmatic spaces, room distributions, circulation relationships, adjacencies, functional flows, and preliminary layouts for the Hospital.

These concepts reflect the programmatic information and operational direction available during preparation of the Bridging Documents. The Design-Build Entity shall validate the program with ASEM and the designated hospital users before advancing the final design.

The validation process shall include, as applicable:

a. Departmental scope, room quantities, room sizes, and functional requirements.
b. Patient, staff, public, visitor, service, material, waste, equipment, emergency, and secure circulation.
c. Clinical adjacencies and departmental relationships.
d. Trauma, emergency, surgical, imaging, critical-care, inpatient, support, administrative, and utility functions.
e. Clean and soiled material flows.
f. Infection-prevention and isolation requirements.
g. Patient privacy, staff observation, security, and operational control.
h. Accessibility and universal-design requirements.
i. Equipment, furnishings, casework, medical-gas, power, data, and utility requirements.
j. Future adaptability, expansion, surge capacity, and changes in healthcare delivery.

k. Departmental phasing and temporary operational arrangements required during construction or early occupancy.
l. Coordination with the basement electromechanical and utility areas and the phased turnover of the Basement and First Level contemplated in the Bridging Documents.

The Design-Build Entity shall not materially alter established programmatic relationships, departmental distributions, critical adjacencies, circulation systems, or room functions without first documenting the proposed change and obtaining ASEM's review and written authorization.

5. EXTERIOR ARCHITECTURAL EXPRESSION AND PROJECT IMAGE

The exterior architectural expression, massing, proportions, façade organization, building envelope, material character, fenestration, entrances, canopies, architectural features, and overall institutional image shown or described in the Bridging Documents represent an important component of the Owner's design intent.

The Design-Build Entity shall preserve and further develop the established architectural character while resolving all required technical, structural, environmental, code, energy, hurricane-resistance, water-infiltration, maintenance, durability, constructability, and life-cycle considerations.

Any proposed modification to the exterior design shall be submitted to ASEM for review and shall demonstrate that it:

a. Maintains or enhances the intended institutional identity of the Puerto Rico Trauma Hospital.
b. Is compatible with the existing Puerto Rico Medical Center and adjacent ASEM facilities.
c. Preserves the principal massing, proportions, architectural hierarchy, and visual character established in the Bridging Documents.
d. Provides a durable, maintainable, code-compliant, weather-resistant, and hurricane-resistant building envelope.
e. Integrates exterior materials, glazing systems, louvers, canopies, rooftop elements, mechanical equipment, the heliport, and service components into a coherent architectural composition.
f. Does not diminish the quality, functionality, performance, or public presence of the Project solely for reasons of cost reduction or construction convenience.

Cost-saving proposals or value-engineering recommendations affecting the exterior architectural expression shall be subject to ASEM's prior review and written acceptance.

6. CONNECTIONS TO THE EXISTING ASEM CENTRAL SERVICES BUILDING

The proposed physical, operational, architectural, structural, and utility connections between the new Trauma Hospital and the existing adjacent ASEM Central Services Building are essential Project considerations.

The Design-Build Entity shall verify existing conditions and coordinate with ASEM to confirm the location, elevation, configuration, function, security, accessibility, and operational requirements of each proposed connection.

The final design shall address:

a. Pedestrian, patient, staff, service, equipment, and emergency movement between buildings.
b. Required horizontal and vertical circulation.
c. Fire and smoke separations.
d. Structural independence or integration, including seismic and differential-movement considerations.
e. Weather protection and enclosure continuity.
f. Accessibility and floor-elevation transitions.
g. Security and access control.
h. Infection-control requirements.
i. Utility, communications, fire-alarm, security, mechanical, electrical, plumbing, and other systems interconnections.
j. Temporary protections and continuity of operations during construction.
k. Required modifications to the existing ASEM Central Services Building.
l. Shutdowns, interruptions, tie-ins, testing, and commissioning procedures.
m. Owner-approved phasing and timing of all work affecting the existing facility.

No work affecting an occupied ASEM facility, campus utility, access route, circulation system, or existing operation shall proceed without prior coordination, written authorization, and an approved interruption or phasing plan.

7. CIVIL, SITE, AND CAMPUS-INFRASTRUCTURE CONCEPTS

The civil narratives and preliminary site drawings establish recommended concepts for site access, grading, drainage, utilities, roadways, emergency access, ambulance circulation, pedestrian movement, demolition, excavation, landscaping, and connections to the existing ASEM campus infrastructure.

The Design-Build Entity shall verify these concepts through complete field investigations, certified surveys, utility investigations, geotechnical studies, drainage analyses, traffic and circulation evaluations, and coordination with ASEM and the applicable authorities.

The Design-Build Entity shall be responsible for confirming:

a. Existing property, topographic, utility, pavement, structure, and site conditions.
b. The location, capacity, condition, and ownership of utilities serving the Project.
c. Utilities that shall remain operational and protected during construction.
d. Required relocations, new services, tie-ins, shutdowns, and temporary services.
e. Final grading, drainage, stormwater management, erosion-control, and flood-protection requirements.
f. Ambulance, emergency, service, fire-department, public, and staff access.
g. Required off-site and campus-wide improvements.

h. Protection of adjacent hospitals, institutions, roadways, plazas, utilities, access routes, and ongoing medical operations.
i. The sequencing of deep excavation and basement construction within the constrained campus site.
j. Any Owner-directed changes to site access, circulation, utility routing, phasing, or campus planning.

8. STRUCTURAL-SYSTEM CONCEPTS

The structural narratives establish preliminary recommendations concerning the principal structural system, foundation approach, lateral-force-resisting system, loading criteria, vibration control, equipment support, building-envelope support, rooftop equipment, and heliport-related structural considerations.

The Design-Build Entity's Structural Engineer of Record shall independently verify all structural assumptions and shall develop a complete structural design based on final architectural, civil, mechanical, electrical, equipment, geotechnical, seismic, wind, hurricane, flood, and operational requirements.

The final structural design shall account for:

a. Site-specific geotechnical and subsurface conditions.
b. Deep-excavation and basement-retention requirements.
c. Puerto Rico seismic, wind, hurricane, and applicable risk-category requirements.
d. Hospital operational continuity and post-event performance expectations.
e. Medical, mechanical, electrical, generator, transformer, cooling-tower, water-storage, façade, elevator, and heliport loads.
f. Vibration-sensitive clinical and diagnostic equipment.
g. Structural interfaces with the existing ASEM Central Services Building.
h. Future modifications, expansion, and equipment replacement where required by the Owner.
i. Construction sequencing, temporary support, underpinning, monitoring, and protection of adjacent structures.
j. Coordination with all penetrations, sleeves, openings, embedded items, and building systems.

9. HEALTHCARE, LIFE-SAFETY, AND SPECIAL-SYSTEM REQUIREMENTS

The Design-Build Entity shall supplement the discipline narratives to address all systems and services required for a complete Level I Trauma Hospital, whether or not each requirement is fully described in the Bridging Documents.

These requirements shall include, as applicable:

a. Fire protection, fire alarm, smoke control, and life-safety systems.
b. Plumbing, domestic water, sanitary, storm, and specialty drainage systems.
c. Medical-gas, vacuum, and associated alarm and monitoring systems.

d. Information technology, telecommunications, nurse call, public address, intercommunications, security, access control, surveillance, and emergency communications.
e. Clinical equipment coordination.
f. Vertical transportation.
g. Building automation and integrated controls.
h. Emergency management, resiliency, and disaster-response requirements.
i. Testing, balancing, commissioning, certification, validation, and Owner training.
j. Regulatory and accreditation requirements applicable to healthcare facilities.

10. CHANGES, ALTERNATIVES, AND DEVIATIONS

The Design-Build Entity may propose refinements, alternatives, innovations, or modifications to the narrative recommendations where such changes are consistent with the Design-Build Agreement and provide demonstrable benefit to the Project.

Each proposed deviation shall be submitted to ASEM with sufficient technical documentation to identify:

a. The original narrative recommendation.
b. The proposed alternative.
c. The reason for the proposed change.
d. Effects on program, operations, performance, reliability, safety, maintainability, durability, energy consumption, life-cycle cost, schedule, and construction cost.
e. Effects on other disciplines and Contract Documents.
f. Required regulatory or utility approvals.
g. Any effect on the exterior architectural expression or Owner-approved design intent.
h. Any effect on future expansion, redundancy, resiliency, or emergency operation.

No material deviation from the Owner's program, established design intent, critical systems, functional relationships, campus connections, utility concepts, or operational requirements shall be incorporated into the final design without ASEM's prior written acceptance.

11. COORDINATION AND FINAL RESPONSIBILITY

The Design-Build Entity shall coordinate the final narratives, calculations, drawings, specifications, equipment selections, models, schedules, reports, and construction requirements among all disciplines and shall resolve all conflicts, gaps, inconsistencies, and interfaces before issuance of the final construction documents.

The absence of a particular detail, system component, design requirement, service, calculation, or coordination item from the Bridging Narratives shall not be interpreted as excluding that item from the Project or relieving the Design-Build Entity from providing a complete, safe, code-compliant, fully operational, durable, maintainable, and properly coordinated facility.

The final design and construction documents shall meet or exceed the programmatic, functional, performance, quality, architectural, technical, resiliency, and operational

requirements established by the Bridging Documents, the accepted Design-Build proposal, ASEM's confirmed requirements, the final Design-Build Agreement, applicable laws and regulations, governing codes and standards, healthcare requirements, utility requirements, authorities having jurisdiction, and accepted professional and construction-industry practices.

The Design-Build Entity and its Architect and Engineers of Record shall retain full professional and contractual responsibility for the final design, engineering, multidisciplinary coordination, permitting, constructability, code compliance, system performance, construction documents, and successful completion of the Project.

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APPENDICES

Appendix A – Advanced Architectural Design Development

Appendix B – Preliminary Technical Specification

1.0 BRIDGING DOCUMENTS INTRODUCTION

This Final Report forms part of the Bridging Documents prepared for the New Puerto Rico Trauma Hospital at the Puerto Rico Medical Center. The purpose of the Bridging Documents is to establish the project's suggested design intent, technical direction, performance requirements, and baseline criteria for use in the procurement of a Design-Build Entity through a Request for Proposals process.

The Bridging Documents will be used by the Owner during the Request for Proposals procurement process to select the Design-Build Entity responsible for completing the design development, preparing the final construction documents, and constructing the New Puerto Rico Trauma Hospital. They are intended to provide a coordinated framework that communicates the Owner's expectations for the project while allowing the Design-Build Entity to complete the final design, engineering coordination, permitting, construction documents, and construction execution in accordance with applicable codes, regulations, healthcare standards, and project requirements.

The Bridging Documents include the Final Report, the Advanced Architectural Design Development Documents, and the Preliminary Technical Specifications. Together, these documents define the intended scope, programmatic organization, architectural and engineering objectives, resilience and operational performance goals, suggested probable construction cost, and suggested project itinerary. They are not intended to serve as final construction documents, but rather as the basis for the Design-Build proposal, validation, development, and final implementation of the project.

The Final Report includes the Existing and Proposed Project Lot Placement, Architectural, Structural, Mechanical, and Electrical Design Narratives. These components summarize the principal design assumptions and requirements that shall guide the Design-Build Entity in advancing the project while preserving the essential design intent, functional relationships, operational objectives, and performance expectations established for the New Puerto Rico Trauma Hospital.

During the procurement process, the Owner may request clarifications, revisions, changes, or deviations to the Final Report and related Bridging Documents as may be required to address procurement objectives, project requirements, funding considerations, regulatory comments, or other Owner-directed determinations prior to final selection and implementation.

2.0 EXISTING GENERAL PROJECT LOCATION

2.1 GENERAL PROJECT LOCATION PLAN



LEGEND:

- Proposed off-site aerial electrical line to point of service connection.
- Main electrical service line under existing paved roadways & parkings.
- Main sanitary, water & water storm sewer lines to point of connection under existing paved roadways & parkings.
- Proposed P.R. Trauma Hospital Project Lots

A P.R. Medical Services Administration (ASEM)

- **A1**- Main Medical Services Building
- **A2**- Main Food Preparation Services Building
- **A3** - Main Service & Supply Building
- **A4** - Main Laundry & Linen Services Building
- **A5** - Main Steam Plant Building
- **A6** - Abigail Robles Administration Building
- **A7** - External Services Clinics Building
- **A8** - Casa Salud Administration Building
- **A9** - Blood Bank Services Building
- **A10** - Medical Services Building
- **A11** - Human Resources & Property Building
- **A12** - Central Multi-Story Parking Building
- **A13** - Food Concessions Building

B P.R. Medical Science Campus

C P.R. Cardiovascular Hospital

D University District Hospital (UDH)

E University Pediatric Hospital (HOPU)

F UPR Comprehensive Cancer Center

G Oncological Hospital Dr. Isaac Gonzalez

H P.R. Industrial Hospital

I Forensic Psychiatry Hospital

J Latin American Transmissible Diseases Center (CLET)

K ASSMCA Alcoholism Center

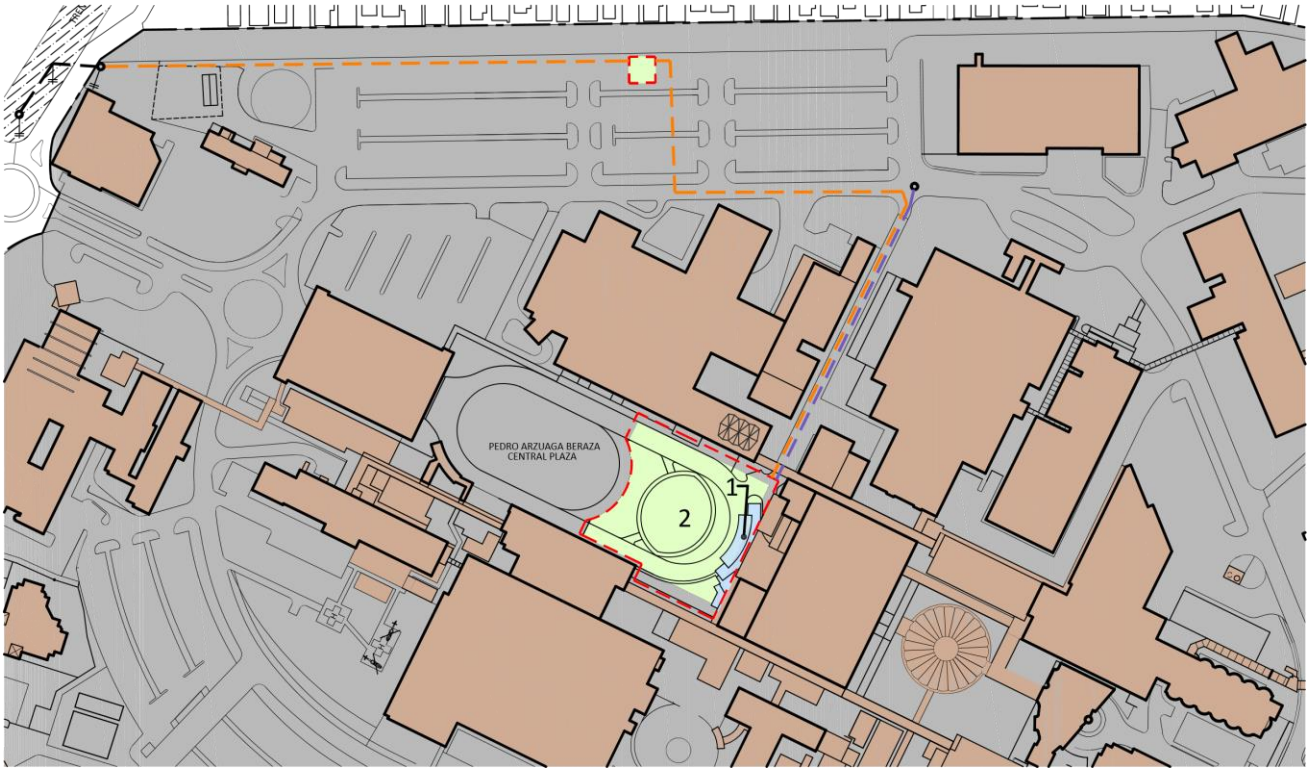
L American Red Cross - Puerto Rico

M San Juan Municipal Hospital

N Vocational Rehabilitation Building

O Aeromed Puerto Rico Services

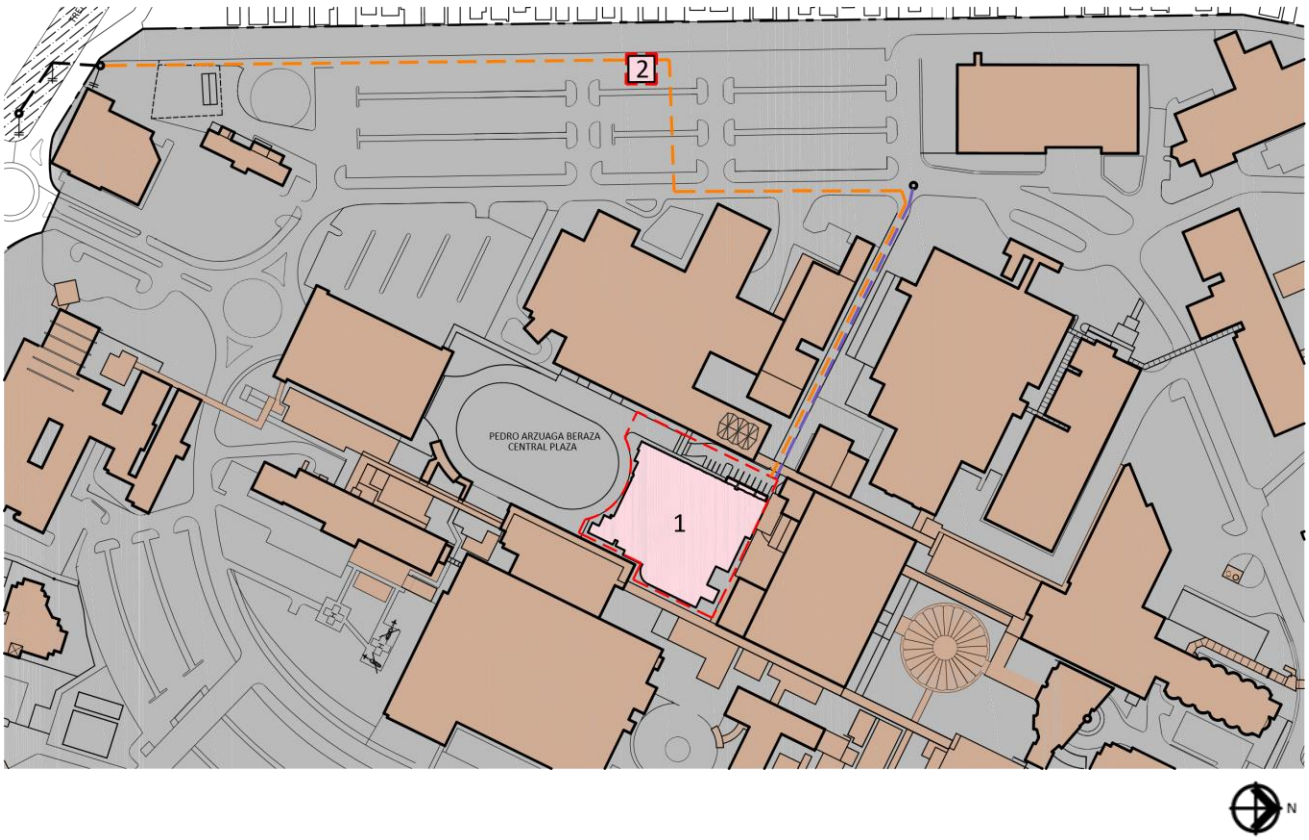
2.2 PROPOSED PROJECT DEMOLITION SCOPE



LEGEND:

- Proposed off-site aerial electrical line to point of service connection.
- Main electrical service line under existing paved roadways & parkings.
- Main sanitary, water & water storm sewer lines to point of connection under existing paved roadways & parkings.
- Proposed P.R. Trauma Hospital Project Lots
- Existing Structures to Remain
- Parking & Plaza Surfaces to be Demolished
- Existing Structures to be Demolished
- **1** Emergency Waiting Area
- **2** Central Plaza Construction Site

2.3 PROPOSED PROJECT FOOTPRINTS



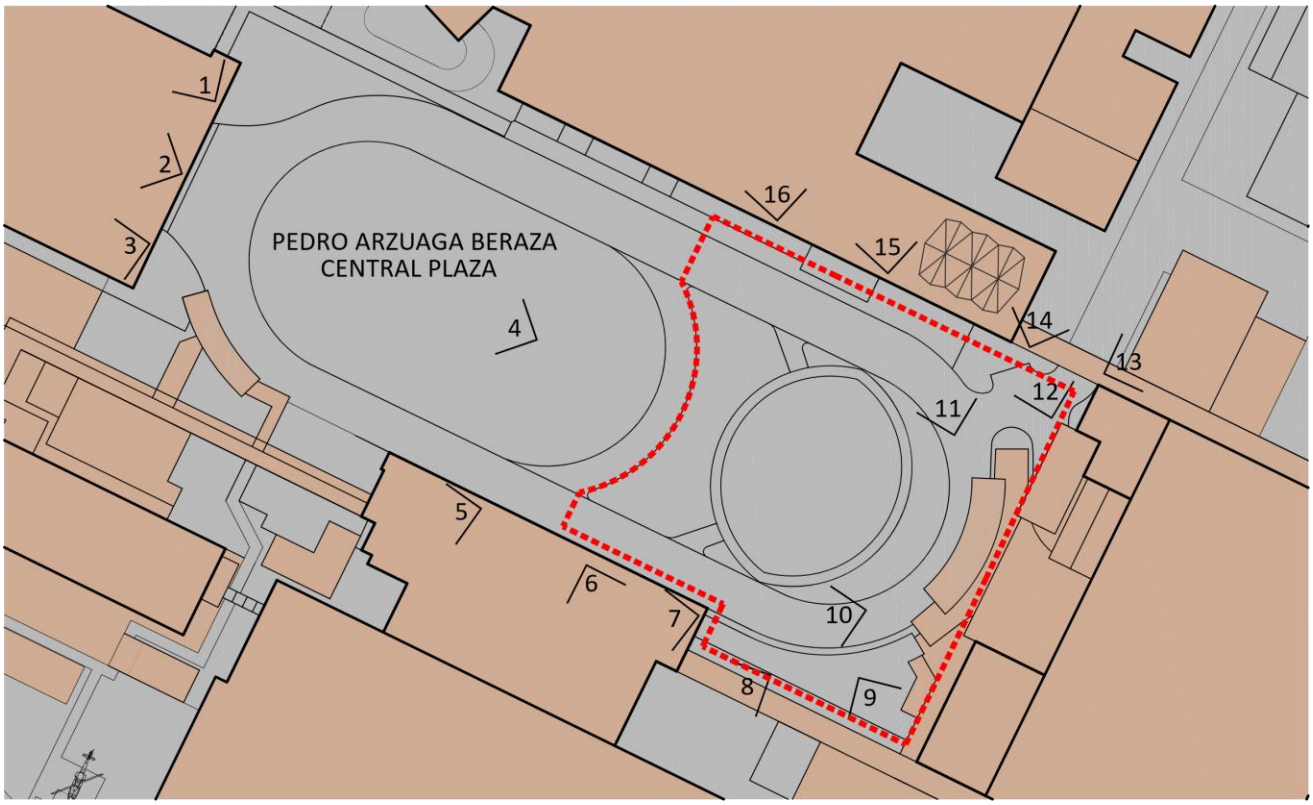
LEGEND:

- Proposed off-site aerial electrical line to point of service connection.
- Main electrical service line under existing paved roadways & parkings.
- Main sanitary, water & water storm sewer lines to point of connection under existing paved roadways & parkings.
- Proposed P.R. Trauma Hospital Project Lots
- Existing Structures to Remain
- Existing Roadways, Walkways, Parkings, & Planting
- Proposed New Structures
- **1** P.R. Trauma Hospital Structure
- **2** Electrical Service Substation

3.0 EXISTING CONDITION PROJECT LOT IMAGES

The existing condition project lot images are provided to document the general context of the project site, the existing lot conditions, and the surrounding campus environment. These images illustrate the relationship of the proposed project area to adjacent buildings, site circulation, access points, open areas, and existing infrastructure within the Medical Center. They are intended to support the understanding of the existing conditions that shall be considered by the Design-Build Entity during the development, coordination, and completion of the final design.

3.1 EXISTING CONDITON IMAGES



LEGEND:

Proposed P.R. Trauma Hospital Project Lots

1 Images

IMAGES:














IMAGE 7


IMAGE 8


IMAGE 9


IMAGE 10


IMAGE 11


IMAGE 12


IMAGE 13


IMAGE 14


IMAGE 15


IMAGE 16

4.0 PROPOSED PROJECT VIEWS

The proposed project views are provided as visual instruments of work to support the understanding and interpretation of the Architectural Advanced Design Documents and the design intent established in the Bridging Documents. These three-dimensional views illustrate the intended architectural character, building massing, façade expression, spatial relationships, and general design direction of the New Puerto Rico Trauma Hospital. They are not intended to define final construction details, means and methods, or fully resolved technical solutions. The Design-Build Entity shall use these views as interpretative representations of the proposed design concept and shall further develop, coordinate, and complete the final design in accordance with the Bridging Documents, applicable requirements, and the Owner's final approval, while preserving the essential architectural intent of the project.

4.1 EXTERIOR VIEWS



VIEW 1



VIEW 2



VIEW 3



VIEW 4



VIEW 5



VIEW 6



VIEW 7



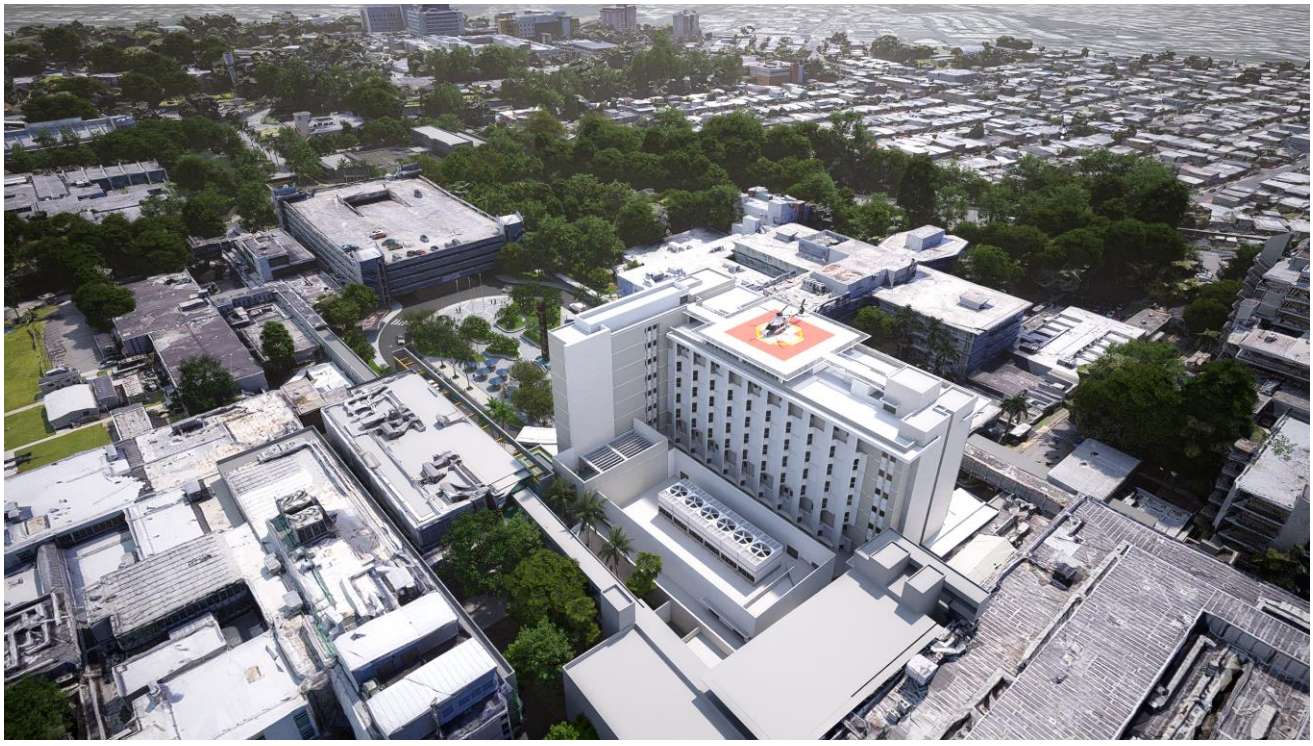
VIEW 8



VIEW 9



VIEW 10



VIEW 11



VIEW 12



VIEW 13



VIEW 14

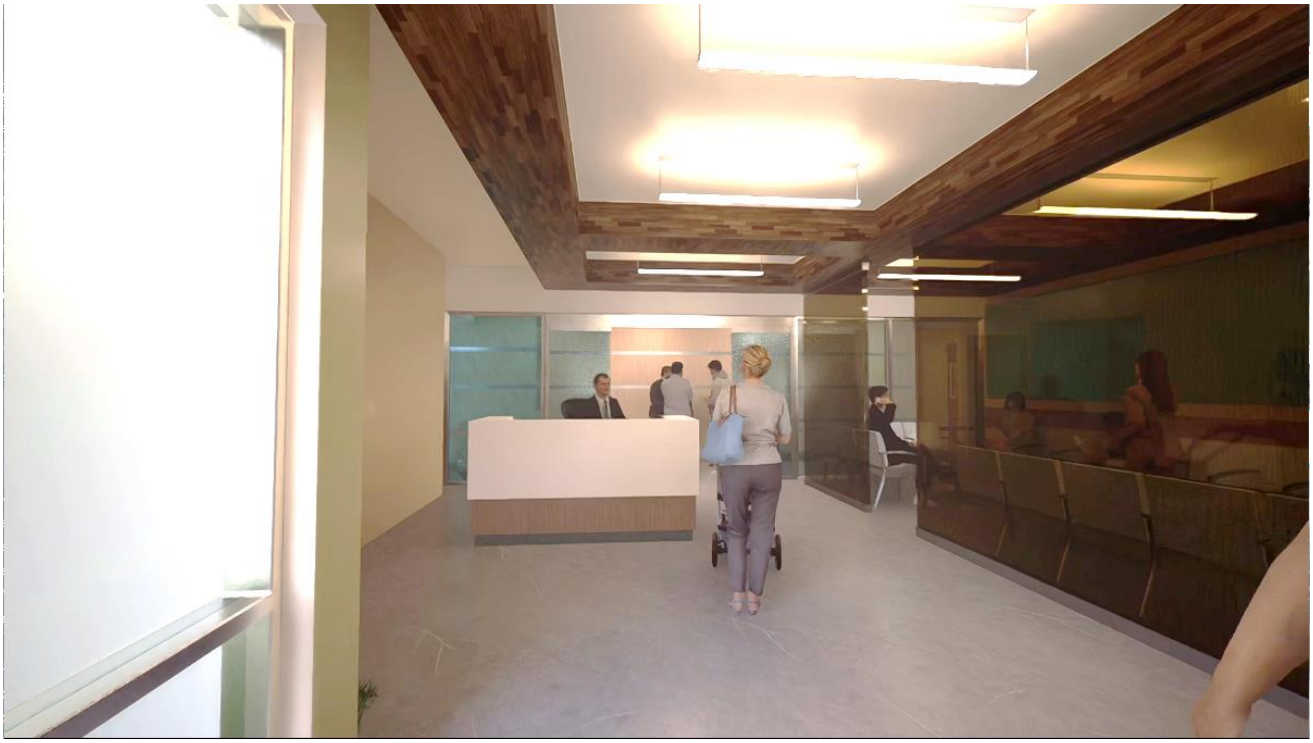


VIEW 15



VIEW 16

4.2 INTERIOR VIEWS



INTERIOR VIEW 1



INTERIOR VIEW 2



INTERIOR VIEW 3



INTERIOR VIEW 4

5.0 ARCHITECTURAL DESIGN NARRATIVE

5.1 INTRODUCTION SUMMARY

5.1.1 Purpose of This Narrative

This Architectural Design Intent Narrative forms part of the Design-Build Bridging Documents for the Puerto Rico Trauma Hospital project. It establishes the Owner's design intent, minimum project requirements, planning principles, performance objectives, and compliance expectations for the final development of the facility. The Narrative shall be used by the Design-Build Entity as a controlling reference for final design, interdisciplinary coordination, permitting, construction documentation, and construction of the project.

5.1.2 Project Mission and Scope

The Puerto Rico Trauma Hospital shall be developed as a new tertiary-care healthcare facility dedicated to advanced trauma, emergency, critical care, surgical, rehabilitation, diagnostic, inpatient, administrative, educational, and disaster-response services. The project shall strengthen the trauma care capacity of the Puerto Rico Medical Center and shall support the long-term healthcare mission of ASEM.

5.1.3 Campus Integration and Clinical Planning

The new Trauma Hospital shall function as an integrated extension of the existing ASEM Central Services Building and the broader Puerto Rico Medical Center campus. The Design-Build Entity shall preserve the required relationship between both buildings, including physical interconnection, operational continuity, coordinated circulation, shared services, existing utility access, and uninterrupted healthcare operations during design, permitting, phasing, construction, and final occupancy. The hospital shall maintain clear departmental relationships among emergency services, trauma stabilization, surgical services, imaging, critical care, inpatient care, rehabilitation, and support services to reduce travel distances and support timely clinical intervention.

5.1.4 Resilience and Vertical Circulation

Resilience shall be a fundamental requirement of the project. The hospital shall be planned, designed, and constructed to support continuous healthcare operations, patient safety, emergency response, disaster preparedness, and post-event recovery during hurricanes, earthquakes, utility disruptions, mass-casualty incidents, public health emergencies, and other major events.

The seismic isolation strategy, resilient building systems, emergency operations areas, ADA-compliant ramp system, protected vertical circulation, and building support infrastructure shall be coordinated as part of the hospital's overall continuity-of-operations strategy. Vertical circulation systems shall support safe patient movement, staff operations, emergency response, stretcher transport, service access, and evacuation needs during normal operations and post-event conditions.

The ADA-compliant ramp system shall be maintained as a significant planning and operational element of the project. It shall support accessible circulation, patient and staff movement, emergency response, and functional connectivity between hospital levels, including coordination with heliport-related patient transfer routes where applicable.

5.1.5 Continuous Ramp Accessibility and Vertical Circulation

The Advanced Architectural Design Development for the Puerto Rico Trauma Hospital incorporates a continuous system of ramps as an essential component of the Project's vertical circulation, accessibility, operational resiliency, and emergency-response strategy. The design includes a continuous interior ramp system extending from the Basement Level through the Ninth Level, providing ramp access to each principal occupied floor of the Hospital, together with a continuous exterior ramp system extending from the Ninth Level to the rooftop Heliport Touchdown and Liftoff Area (TLOF).

The Design-Build Entity shall maintain, preserve, and fully incorporate these ramp assemblies as integral elements of the final Project design and shall not eliminate, interrupt, substantially reduce, or otherwise modify their intended continuous connectivity, accessibility, or operational function without the prior review and written acceptance of ASEM. During final design development, the Design-Build Entity, through its Architect and Engineers of Record, shall verify, coordinate, refine, and document the complete ramp systems and all associated architectural, structural, life-safety, drainage, lighting, weather-protection, guardrail, handrail, and other required components.

All ramps shall be designed and constructed to provide a fully accessible continuous route in accordance with the applicable ADA accessibility requirements, Puerto Rico Building Code requirements, applicable life-safety provisions, healthcare design criteria, and all other governing codes and standards. Compliance shall include, without limitation, maximum permitted running and cross slopes, required intermediate and floor-level landings, landing dimensions, clear widths, maneuvering clearances, handrails, guards, edge protection, surface characteristics, slip resistance, headroom, transitions, door clearances, signage, illumination, and all other features necessary to achieve safe, continuous, and unobstructed accessible circulation.

The intent of the continuous ramp systems is to provide an independent means of vertical circulation throughout the Hospital that may be utilized by patients, including patients with mobility limitations or requiring assisted movement, healthcare personnel, visitors, emergency responders, rescue personnel, and other authorized users without dependence upon the building elevators or stairs. The ramp systems shall therefore be developed as an integral component of the Hospital's accessibility, operational continuity, emergency preparedness, patient movement, rescue, and evacuation strategy, to the extent permitted and required by the applicable codes, approved life-safety design, and ASEM's operational and emergency-management requirements.

The Design-Build Entity shall coordinate the final ramp design with all required means-of-egress, accessible-means-of-egress, fire and life-safety, smoke-control, compartmentation, emergency-power, security, and emergency-response provisions of the Hospital so that the

continuous ramp systems remain functional, safe, accessible, and capable of supporting the intended movement of building occupants and emergency personnel under both normal operating conditions and emergency conditions.

5.1.6 Heliport Operations

The rooftop heliport shall be treated as a critical operational component of the Trauma Hospital and not solely as an occasional emergency-use feature. The Design-Build Entity shall coordinate the proposed new rooftop heliport with the continued use of the existing ASEM Central Services Building helipad during planning, design, construction, transition, activation, and operational coordination.

The Design-Build Entity shall be responsible for all required FAA notices, determinations, approvals, authorizations, permits, filings, and related coordination required for the proposed rooftop heliport and for any required coordination associated with the existing helipad. This coordination shall include the Owner, FAA, helicopter operators, emergency medical transport stakeholders, and all applicable Authorities Having Jurisdiction.

As required by the Owner, the new rooftop heliport shall be designed to support helicopter operations up to and including the Sikorsky S-92 (Including the military VH-92A Patriot version) presidential helicopter, or the controlling aircraft criteria identified by the Owner, FAA, and applicable authorities. The Touchdown and Liftoff (TLOF) Area shall be not less than 69'-0" x 69'-0", as shown in these Bridging Documents, and shall be coordinated with the final controlling aircraft requirements. The Final Approach and Takeoff (FATO) Area shall be 100'-0" x 100'-0", or as otherwise required by FAA criteria and applicable approvals.

The heliport infrastructure, including the structural deck and supporting systems, shall be constructed of reinforced concrete to provide durability, resilience, and the structural capacity required for the controlling aircraft and operational demands.

The heliport design shall include all required structural capacity, landing area configuration, lighting, markings, safety provisions, access control, fire/life safety coordination, drainage, aviation-related signage, and protected patient transfer routes necessary to support safe and reliable rooftop heliport operations. The Design-Build Entity shall develop and provide a comprehensive rooftop heliport technical specification under CSI Division 34, including Section 34 73 73 – Rooftop Heliports, together with all other related and applicable CSI divisions and sections necessary to fully define, coordinate, furnish, install, test, and commission the heliport and its associated structural, architectural, electrical, mechanical, plumbing, fire protection, communications, security, and specialty systems.

5.1.7 Design-Build Responsibility

The Design-Build Entity shall adhere to the Architectural Design Narrative, Structural Design Narrative, Mechanical Design Narrative, Electrical Design Narrative, Advanced Architectural Design Development documents, and all other Bridging Documents. These documents collectively establish the Owner's requirements for clinical planning, structural resilience, seismic isolation, building systems performance, infrastructure, operational continuity, maintainability, architectural character, and regulatory compliance.

This Narrative shall not be interpreted as a general description only. Requirements stated herein shall be treated as minimum Owner requirements unless specifically modified by the Owner in writing. The Design-Build Entity shall be responsible for providing a complete, coordinated, code-compliant, permit-ready, constructible, and operationally effective final design that faithfully advances the Owner's vision for the Puerto Rico Trauma Hospital.

5.2 PROJECT SUMMARY

5.2.1 Project Overview

The Puerto Rico Trauma Hospital shall be developed as a new tertiary-care healthcare facility dedicated to the delivery of advanced trauma, emergency, critical care, surgical, rehabilitation, and related specialized medical services. The project shall strengthen and expand the trauma care capabilities of the Puerto Rico Medical Center through a dedicated hospital facility designed to support the present and future healthcare needs of Puerto Rico.

The proposed facility shall consist of an approximately 215,880-square-foot hospital distributed over ten levels, with an interstitial seismic isolation level and a rooftop helipad. The hospital shall have a capacity of 110 patient beds and the capability to expand operations during emergency conditions to accommodate a surge capacity of approximately 182 total beds. The hospital shall provide a comprehensive range of trauma-related services, including emergency care, surgical services, critical care, diagnostic imaging, inpatient nursing care, rehabilitation services, medical education, administrative functions, and disaster response support services.

This Architectural Design Intent Narrative forms part of the Bridging Documents prepared for the Design-Build procurement of the project and establishes the Owner's vision, minimum design requirements, performance requirements, and expectations for the final development of the Puerto Rico Trauma Hospital. The Design-Build Entity shall implement the design intent described herein and shall develop the final design, construction documents, specifications, coordination documents, permit documents, and constructed work in a manner consistent with the Owner's approved program, the Advanced Architectural Design Development documents, the Bridging Documents, and all applicable codes, regulations, standards, and authority requirements.

The Design-Build Entity shall not interpret this Narrative as a general description only. Requirements stated in this Narrative, the Advanced Architectural Design Development Documents, program summary, and related Bridging Documents shall be treated as minimum Owner requirements unless specifically modified by the Owner in writing. The Design-Build Entity shall be responsible for confirming all requirements with the Owner and for providing a complete, coordinated, code-compliant, permit-ready, and constructible final design.

Resilience shall be a fundamental design requirement for the Puerto Rico Trauma Hospital. The facility shall be planned, designed, and constructed to support continuous hospital operations, patient safety, emergency response, and post-event recovery during hurricanes,

earthquakes, utility disruptions, mass-casualty incidents, and other major emergency conditions. As part of the hospital's resilient vertical circulation strategy, the Design-Build Entity shall maintain and fully coordinate the ADA-compliant ramp system shown in the Advanced Architectural Design Development documents. The ramp shall serve daily operational use and shall also support emergency patient movement through the hospital when elevators or other vertical transportation systems are limited, interrupted, or being controlled for emergency operations. The ramp shall provide an accessible, safe, and dignified means to move patients, staff, visitors, equipment, and emergency response personnel between levels, while complementing all code-required stairs, elevators, areas of refuge, life-safety systems, and emergency egress requirements.

The project shall recognize the heliport as a critical operational component of the Puerto Rico Trauma Hospital and not solely as an occasional emergency-use feature. Helicopter access shall support the day-to-day mission of a Level I trauma facility, including time-sensitive trauma response, interfacility transfers, specialized patient transport, disaster response, and continuity of emergency medical operations. The Design-Build Entity shall preserve and enhance the functional role of helicopter access as an integral part of the hospital's clinical operations, patient transfer strategy, and emergency preparedness mission.

The new heliport shall be designed to accommodate the arrival and operation of the Sikorsky S-92 (Including the military VH-92A Patriot version) presidential helicopter, or the controlling aircraft criteria identified by the Owner and applicable federal authorities. The helipad shall be designed with sufficient capacity to accommodate, at a minimum, the operational, dimensional, structural, clearance, safety, and load requirements required for the presidential helicopter. The Design-Build Entity shall ensure that the heliport design supports the safe landing, takeoff, approach, departure, patient transfer, and ground operations of the required aircraft type in coordination with applicable federal authorities, ASEM, emergency medical transport stakeholders, and all authorities having jurisdiction.

The Design-Build Entity shall coordinate the proposed new heliport with the continued use of the existing helipad located at the ASEM Central Services Building. The existing helipad shall remain operational to the extent required by the Owner and applicable authorities during design, permitting, phasing, and construction, unless an alternate temporary operational plan is reviewed and accepted by ASEM and all authorities having jurisdiction. The final design shall provide safe, compliant, and coordinated helicopter access, including patient transfer routes, operational clearances, approach and departure considerations, security, lighting, signage, structural requirements, fire/life-safety coordination, and integration with the hospital's emergency and critical care functions.

5.2.2 Design Intent

The design intent for the Puerto Rico Trauma Hospital shall be implemented by the Design-Build Entity in accordance with the principles of clinical excellence, patient-centered care, operational efficiency, resiliency, flexibility, and long-term sustainability.

The final design shall provide safe, functional, durable, and adaptable healthcare environments that respond to the specialized requirements of trauma care while maintaining a

high standard of quality, dignity, and comfort for patients, visitors, and healthcare professionals. The Design-Build Entity shall develop the project in a manner that supports efficient medical operations, enhances patient outcomes, promotes staff effectiveness, and accommodates future advancements in healthcare delivery and technology.

The Advanced Architectural Design Development documents prepared as part of the Bridging Documents establish the clinical planning framework, architectural organization, building form, and overall design direction for the project. These elements shall guide the Design-Build Entity in the final development of the facility and shall not be substantially modified without Owner review and written acceptance.

5.2.3 Owner Objectives

The Owner's primary objective, to be implemented by the Design-Build Entity, is to develop a state-of-the-art trauma hospital capable of providing advanced trauma and critical care services while supporting the long-term mission of the Puerto Rico Medical Services Administration (ASEM) and the healthcare objectives of the Puerto Rico Medical Center.

The Design-Build Entity shall preserve and advance the clinical, functional, operational, and architectural vision established during the planning and design process. Through the Bridging Documents, the Owner has defined the fundamental requirements, planning principles, and design criteria necessary to ensure continuity between the approved design concept and the completed facility.

The Design-Build Entity shall implement the following Owner objectives:

- Establish a modern healthcare facility dedicated to trauma and critical care services.
- Preserve the approved clinical planning concepts, functional organization, and architectural design vision developed during the project's planning and design phases.
- Support efficient healthcare delivery through evidence-based planning and operationally effective design solutions.
- Provide a facility capable of adapting to future healthcare demands, technological advancements, and changing operational requirements.
- Create safe, accessible, durable, and healing environments that support patients, visitors, and healthcare professionals.
- Maintain the approved hospital capacity of 110 proposed beds and surge capacity for approximately 182 total beds.
- Provide a resilient trauma facility capable of supporting disaster preparedness, operational continuity, and post-event recovery.
- Ensure compliance with all applicable healthcare, life-safety, accessibility, aviation, environmental, and regulatory requirements.

These objectives shall form the basis for the design criteria and performance requirements established throughout the Bridging Documents.

5.2.4 Design-Build Expectations

The Bridging Documents establish the Owner's Project Requirements and the architectural, functional, operational, and technical framework within which the Design-Build Entity shall develop the final design and construction documents for the project.

The Design-Build Entity shall preserve the fundamental planning concepts, clinical relationships, functional organization, operational objectives, patient care capacity, and architectural design intent established by the Bridging Documents. The purpose of these documents is to maintain continuity between the vision developed during the planning and design process and the facility ultimately delivered to the Owner.

Design-Build flexibility shall be used primarily to facilitate engineering development, constructability improvements, interdisciplinary coordination, permitting, system integration, life-cycle performance, and the preparation of complete construction documents. Such flexibility shall not be interpreted as authorization to significantly modify the intent of the Advanced Architectural Design Development documents or the design concepts that form the basis of the project.

The Design-Build Entity shall prepare and furnish a complete, coordinated, permit-ready, and construction-ready set of documents for all Project disciplines, systems, and components, as required for permitting, procurement, construction, testing, commissioning, occupancy, and Project closeout. The construction documents shall include all architectural and engineering plans, specifications, calculations, schedules, details, diagrams, technical data, delegated-design documents, coordination documents, permit submissions, and other information necessary to fully define and execute the Work and to deliver a complete, suitable, functional, code-compliant, and effective facility for its intended healthcare use. The Bridging Documents shall not be construed as a substitute for the development, detailing, verification, interdisciplinary coordination, or documentation required of the Design-Build Entity's final construction documents.

The Design-Build Entity shall assume that ASEM will require an independent third-party peer review of the construction-related documents prepared by the Design-Build Entity and its Architect and Engineer(s) of Record. As directed by ASEM, the Design-Build Entity shall procure and coordinate qualified independent peer-review professionals acceptable to the Owner; submit the applicable drawings, specifications, calculations, reports, studies, and technical documentation; participate in review meetings; respond to comments; incorporate accepted comments; and revise and resubmit documents as required until review items are satisfactorily resolved. The Design-Build Entity shall incorporate the peer-review process into its design schedule and document-control procedures. Such review shall constitute an additional quality-assurance measure and shall not relieve, transfer, or diminish the responsibility of the Design-Build Entity or its licensed Architect and Engineer(s) of Record for the completeness, accuracy, interdisciplinary coordination, code compliance, permitting, constructability, and final content of the construction documents.

The Design-Build Entity shall deliver a completed facility that faithfully advances the vision, objectives, and design intent established by the Owner while meeting the performance, quality, regulatory, permitting, operational, and construction requirements of the project.

5.3 SITE AND CAMPUS DESIGN INTENT

5.3.1 Existing Campus Context

The project site is located within the Puerto Rico Medical Center campus and occupies a mainly rectangular-shaped lot of land of approximately 6,860 square meters located immediately adjacent to the existing ASEM Central Services Building. The site is generally bounded by the ASEM Central Services Building to the north, the Pedro Arzuaga Beraza Plaza to the south, the Oncological Hospital to the east, and the San Juan Municipal Hospital to the west.

The Design-Build Entity shall develop the new Trauma Hospital as an integrated component of the established Medical Center infrastructure while maintaining close proximity to existing healthcare facilities, utilities, vehicular and pedestrian circulation systems, and institutional support services. The final site design shall respond to the physical constraints of the surrounding development, existing campus operations, and the requirement to maintain continuity of healthcare services throughout design, permitting, phasing, and construction activities.

The Design-Build Entity shall verify existing utilities, grades, access conditions, adjacent operations, underground and overhead constraints, existing helipad operations, and construction phasing limitations. The final design shall avoid disruption to critical healthcare operations except as specifically reviewed and accepted by ASEM and all applicable authorities having jurisdiction.

5.3.2 Site Organization and Access

The Design-Build Entity shall maintain the fundamental site organization established by the Advanced Architectural Design Development documents. The site shall be organized to maximize the efficient use of the available development area while supporting the operational requirements of a high-acuity healthcare facility. Building placement, vehicular and pedestrian circulation systems, service areas, and access points shall establish clear relationships between public, emergency, staff, service, and operational functions. The new building shall also respect the separation distances required by Puerto Rico regulations to comply with setback requirements relative to surrounding buildings on the site.

The Design-Build Entity shall preserve the required physical separation between the new Trauma Hospital and the existing ASEM Central Services Building to maintain access to existing utilities, service areas, maintenance zones, building systems, and operational infrastructure. This separation shall support the continued operation, inspection, repair, and maintenance of existing ASEM systems during design, permitting, phasing, construction, and future hospital operations. At the same time, the final design shall provide the required functional

interconnection between both buildings to support integrated hospital operations, coordinated circulation, shared services, and continuity between the new Trauma Hospital and the existing ASEM Central Services Building.

The access points of the Trauma Hospital shall maintain the planning intent established in the Bridging Documents. To the north, the Design-Build Entity shall provide the interconnection and integration between the ASEM Central Services Building and the Trauma Hospital. To the south, the Design-Build Entity shall provide a drop-off canopy serving the Trauma Hospital visitor and administrative staff main entrance to the right, and the ASEM Emergency walk-in initial services to the left. To the east, the Design-Build Entity shall coordinate the ASEM Central Services Building visitor main entrance and service and maintenance access. To the west, the Design-Build Entity shall provide ambulance arrival, secure patient drop-off, and controlled access to the enclosed ambulance parking yard and service access areas.

The ambulance entrance and enclosed ambulance parking yard shall be treated as critical security and emergency-response components of the project. The Design-Build Entity shall provide a controlled ambulance arrival sequence that allows emergency vehicles to enter a protected area, transfer patients safely, and exit or stage without creating conflicts with public, visitor, staff, or service circulation. The enclosed ambulance yard shall include appropriate perimeter protection, controlled security gates, access control, visibility, lighting, communication systems, and coordination with ASEM security operations to protect patients, emergency medical personnel, staff, visitors, and surrounding hospital occupants during high-risk patient arrivals or other security-sensitive events.

The Design-Build Entity shall provide efficient vehicular and pedestrian circulation while minimizing conflicts between patient, visitor, emergency, service, and staff traffic. Emergency vehicle access, patient arrival sequences, secure ambulance operations, service operations, accessible routes, pedestrian safety, and construction phasing shall be coordinated with ASEM operations and all applicable codes.

The final site organization shall support operational efficiency, functional flexibility, long-term adaptability, emergency response, service reliability, security, maintainability, and compatibility with surrounding campus facilities and infrastructure.

5.3.3 Campus Integration

The Design-Build Entity shall physically and operationally integrate the new facility with the existing ASEM Central Services Building and the broader Medical Center campus. The proposed trauma hospital shall be developed to facilitate direct connectivity, coordinated circulation, and efficient interaction with adjacent institutional facilities.

The final site design shall support the use of shared infrastructure, promote continuity between existing and new operations, and reinforce the established campus development pattern. The Design-Build Entity shall preserve the fundamental relationships established between the proposed facility, the ASEM Central Services Building, the existing helipad, the proposed new heliport, and the surrounding Medical Center environment.

5.4 BUILDING PLANNING DESIGN INTENT

5.4.1 Building Organization

The Design-Build Entity shall organize the building around a clear hierarchy of clinical, inpatient, administrative, and support functions distributed vertically to promote operational efficiency and functional clarity. Departments with similar operational requirements shall remain grouped while maintaining direct relationships between services that require frequent interaction.

Lower levels shall accommodate the most intensive treatment and diagnostic activities, while upper levels shall be dedicated primarily to inpatient care and administrative functions. Building support services, utility infrastructure, operational departments, and disaster accommodations shall be located in areas that support efficient facility operation without compromising clinical activities. The resulting organization shall establish a clear framework for patient care delivery, staff operations, and hospital support services.

5.4.2 Functional Stacking

The Design-Build Entity shall maintain the vertical arrangement of departments established in the Bridging Documents. The Trauma Hospital shall be organized over ten levels, with an interstitial seismic isolation level and a rooftop helipad. Functional stacking shall support the operational sequence of hospital services, the intensity of care provided within each functional area, and the required relationships between emergency, diagnostic, surgical, critical care, inpatient, rehabilitation, administrative, disaster response, and support functions.

The basement level shall contain major utility systems, storage, operational support departments, educational facilities, nursing administration, cafeteria services, and emergency disaster accommodations. The ground level shall accommodate emergency, surgical, imaging, stabilization, observation, and critical care services together with principal public access functions. An interstitial seismic isolation level shall separate the ground floor from the occupied levels above.

The second and third levels shall contain specialized clinical and support functions, including intensive care, rehabilitation services, medical staff facilities, operational departments, and visitor amenities. Rehabilitation services and related clinical support functions shall also support continuity of care for outpatient services, as required by the approved program and operational requirements. Levels four through seven shall be dedicated to inpatient nursing units organized into consistent nursing wings with associated support spaces. Administrative departments shall occupy the eighth level, while the uppermost occupied level shall accommodate disaster operations, building systems, and heliport support functions.

The final stacking shall support hospital operations, efficient access to shared services and resources, continuity of inpatient and outpatient care, and clear clinical relationships between emergency, trauma stabilization, surgical services, intensive care, imaging, inpatient care, rehabilitation, and support functions.

5.4.3 Departmental Relationships

The Design-Build Entity shall maintain direct operational relationships among departments that routinely share patients, staff, equipment, or support services. Clinical departments requiring frequent interaction shall be positioned to minimize travel distances and simplify operational coordination.

Critical treatment functions shall remain grouped to facilitate efficient patient transfers, rapid clinical intervention, and staff communication. Inpatient nursing units shall be organized around centralized support functions to improve operational efficiency and provide consistent care environments throughout the patient tower. Rehabilitation services, medical staff functions, administrative departments, and operational support areas shall be positioned to support the overall workflow of the facility while maintaining appropriate separation from acute-care activities.

The Design-Build Entity shall provide efficient distribution of supplies, equipment, environmental services, and operational resources throughout the building. Any proposed modification affecting major departmental relationships shall be submitted for Owner review and written acceptance prior to incorporation into the final design.

5.4.4 Circulation Strategy

The Design-Build Entity shall provide a circulation system with distinct movement patterns for patients, visitors, staff, supplies, equipment, and service functions. Circulation shall reduce operational conflicts, simplify wayfinding, protect patient privacy, support infection prevention, and improve daily hospital operations.

Public circulation shall be concentrated around primary arrival, registration, waiting, and visitor support areas. Clinical circulation shall support movement between treatment, diagnostic, inpatient, critical care, surgical, and rehabilitation functions. Staff circulation shall facilitate access to work areas, support departments, educational facilities, and operational spaces.

Service circulation shall support materials management, food service, environmental services, equipment movement, waste handling, and building operations. Vertical transportation systems shall be distributed to accommodate the differing requirements of public access, patient transport, staff operations, service activities, emergency transport, and heliport patient transfer functions.

The Design-Build Entity shall maintain and coordinate the ADA-compliant ramp system established in the Advanced Architectural Design Development documents as part of the hospital's vertical circulation and resilience strategy. The ramp shall extend from the basement level to the ninth level and shall support movement of patients, staff, visitors, equipment, and service functions between floors. The ramp shall also serve as an important emergency circulation component when elevators are limited, interrupted, dedicated to emergency operations, or otherwise unavailable during a major event.

At the ninth level, the ramp system shall be coordinated with the heliport support functions and patient transfer routes associated with rooftop helicopter operations. The final design shall allow patients arriving by helicopter to be moved safely, efficiently, and with dignity from the heliport support level to the appropriate clinical destination within the hospital. The ramp system shall also serve as an emergency route to support patient, staff, and operational movement during emergency conditions.

5.5 DEPARTMENTAL DESIGN INTENT

5.5.1 Emergency Department

The Design-Build Entity shall recognize that the principal Emergency Department is located within the existing ASEM Central Services Building and that the new Trauma Hospital shall provide emergency access and initial emergency service functions that integrate with the existing ASEM Emergency Department. The final design shall maintain the physical and operational interconnection between both buildings through coordinated corridors and circulation routes to support continuous emergency services, patient movement, staff coordination, and access to diagnostic, treatment, surgical, critical care, and support functions.

Within the new Trauma Hospital, the Design-Build Entity shall provide the ASEM Emergency Department Entrance, including public waiting, registration, triage, fast track services, and required support areas. These functions shall serve as the primary public interface for emergency care and complement the Emergency Department services located within the ASEM Central Services Building. The design shall support efficient arrival, intake, assessment, and appropriate transfer or continuation of care through the interconnected emergency services network. The design shall accommodate both ambulance arrivals and walk-in patients, with clearly defined and separate access points and circulation paths for each. Dedicated triage areas shall be provided for ambulance arrivals and for walk-in patients to ensure efficient patient sorting, prioritization, and flow based on acuity.

The final design shall maintain clear operational relationships between the ASEM Emergency Department Entrance, trauma stabilization, observation, imaging, surgical services, critical care functions, vertical transportation, and the existing Emergency Department functions within the ASEM Central Services Building. Patient movement shall occur through coordinated and controlled circulation routes with minimal travel distance between critical treatment areas to support timely clinical intervention and continuity of care.

The emergency department entrance shall include dedicated areas for reception, registration, waiting, triage, fast track services, ambulance operations, trauma stabilization, observation, and required support functions, as established in the Advanced Architectural Design Development documents. The Design-Build Entity shall maintain the functional relationships that support efficient emergency and trauma care operations and shall verify all room sizes, clearances, accessibility, infection-control requirements, medical gases, utilities, visibility,

security, staff support requirements, and code compliance in accordance with applicable healthcare standards and codes.

5.5.2 Surgical Services

The Design-Build Entity shall provide a Surgical Services Department that functions as the primary operative platform supporting trauma care activities within the hospital. The department shall include five operating rooms together with the required preoperative, postoperative, clinical support, and staff support functions.

The final design shall support efficient patient movement through the perioperative process while maintaining direct operational relationships with the Emergency Department, Trauma Intensive Care Units, imaging services, inpatient care units, vertical transportation, and sterile processing services supported by ASEM's main Sterile Processing Department.

Surgical support areas shall remain organized to facilitate efficient clinical operations, staff workflow, sterile supply movement, soiled material handling, equipment movement, and patient care activities. The Design-Build Entity shall preserve the departmental organization and functional relationships established within the surgical platform while developing the final detailed design in compliance with applicable healthcare codes and standards.

5.5.3 Critical Care

The Design-Build Entity shall provide Critical Care services that support intensive monitoring and treatment for patients requiring the highest level of clinical care following trauma, surgery, or other acute medical conditions. Critical Care shall include dedicated intensive care units organized as private patient rooms with designated isolation capacity.

The final design shall establish nursing-centered patient care environments that support continuous observation, rapid clinical response, infection prevention, patient dignity, family participation, and efficient access to treatment resources. Critical Care units shall maintain close operational relationships with Surgical Services, Emergency Department functions, imaging services, inpatient nursing units, and vertical transportation.

The Design-Build Entity shall preserve the organization of patient care spaces, nursing support functions, clean and soiled support, medication areas, equipment storage, clinical support rooms, and staff support areas necessary for intensive care operations.

5.5.4 Inpatient Units

The Design-Build Entity shall provide inpatient nursing units that support progressive levels of patient recovery and care following trauma treatment. The proposed program shall include telemetry, rehabilitation, intermediate care, and related inpatient services organized within dedicated nursing units located on the upper clinical floors of the hospital.

The final design shall provide private patient accommodations with designated isolation capacity while supporting efficient nursing operations, patient monitoring, accessibility, infection control, patient dignity, and family support. Patient rooms shall be organized within nursing unit configurations that promote operational efficiency, staff accessibility, supply distribution, environmental services, and appropriate patient support services.

The Design-Build Entity shall maintain the established nursing unit organization, patient room strategy, and departmental support functions that form the basis of inpatient care delivery. Any proposed change affecting proposed bed count, surge capacity, patient room configuration, isolation capacity, or nursing unit functionality shall require Owner review and written acceptance.

5.5.5 Diagnostic and Treatment Services

The Design-Build Entity shall provide Diagnostic and Treatment Services necessary to support emergency, surgical, critical care, inpatient, outpatient, and rehabilitation operations. These services shall include imaging, rehabilitation, minor procedures, and related treatment functions required for a tertiary trauma facility.

The final design shall maintain close functional integration between diagnostic services and the primary patient care departments to facilitate timely access to clinical information, treatment resources, and patient support services. Rehabilitation services shall support both inpatient and outpatient patient populations as part of the recovery continuum.

The Design-Build Entity shall maintain the operational relationships between diagnostic, treatment, and patient care functions established by the Advanced Architectural Design Development documents.

5.5.6 Support Services

The Design-Build Entity shall provide Support Services that form the operational infrastructure necessary for continuous hospital operations. These functions shall include materials management, storage, administrative support, educational facilities, food services, staff support areas, emergency management functions, and building operational support departments.

Support Services shall be organized to support clinical departments while minimizing interference with patient care activities. Administrative, educational, and operational support functions shall be distributed throughout the facility according to their relationship with the departments they serve.

The Design-Build Entity shall preserve the operational support framework established for the hospital and maintain the functional relationships required to support clinical, administrative, educational, service, and emergency preparedness activities throughout the facility.

5.6 ARCHITECTURAL CHARACTER AND INTERIOR ENVIRONMENT

5.6.1 Building Form and Massing

The Design-Build Entity shall maintain the architectural character of the Trauma Hospital as a vertically organized clinical tower rising above a highly specialized diagnostic and treatment podium. The building shall present a clear and efficient institutional form that reflects its role as Puerto Rico's principal trauma care facility.

Upper patient care floors shall remain organized in repetitive nursing unit configurations that provide operational consistency, facilitate future adaptability, and establish a recognizable architectural identity throughout the tower. The building massing shall culminate with the trauma heliport and associated emergency transport facilities, reinforcing the hospital's role as a regional destination for critical and emergency care.

5.6.2 Architectural Expression and Façade Design

The Design-Build Entity shall provide exterior architecture that conveys a contemporary healthcare image characterized by simplicity, permanence, and resilience. The façade composition shall emphasize the rhythm of patient room modules, vertical circulation elements, family coves, and major clinical components while maintaining a unified architectural appearance.

Family coves within patient bedrooms shall be maintained as an important patient-centered design feature. These areas shall provide natural illumination within the patient room environment and shall support family presence, patient comfort, and healing. The expression of the family coves shall be coordinated with the façade design, window rhythm, and volumetric massing so that they contribute to the architectural identity of the patient tower and reinforce the relationship between interior patient care environments and the exterior expression of the building.

Exterior terraces incorporated into patient, visitor, and staff areas shall serve as visible architectural features that contribute to occupant well-being and provide visual relief within the hospital environment. Architectural detailing shall prioritize durability, weather resistance, corrosion resistance, and ease of maintenance appropriate for the climatic conditions of Puerto Rico.

5.6.3 Building Envelope

The Design-Build Entity shall select and provide exterior envelope materials and systems in accordance with the Advanced Architectural Design Development documents, the Bridging Documents, and the Owner’s approved design intent. Exterior envelope materials and systems shall provide long-term performance, resistance to moisture and corrosion, durability, energy efficiency, maintainability, and compatibility with a healthcare environment. Material transitions, façade systems, glazing, openings, exterior wall assemblies, architectural accents, and related envelope components shall be coordinated to create a cohesive institutional appearance while supporting the performance requirements of a critical healthcare facility.

The final design shall maintain the intent of a durable, resilient, and maintainable building envelope capable of supporting continuous hospital operations and minimizing maintenance requirements over the life of the facility. The Design-Build Entity shall verify hurricane resistance, wind-borne debris protection, seismic performance, water infiltration performance, air infiltration control, thermal performance, corrosion resistance, maintainability, and integration with structural, mechanical, electrical, fire protection, and life-safety systems.

All exterior envelope systems shall comply with applicable federal, Commonwealth of Puerto Rico, and local building codes, including all requirements related to hurricane design, wind loads, wind-borne debris regions, seismic design, flood or stormwater exposure where applicable, fire/life-safety performance, energy conservation, accessibility, healthcare occupancy, and all authority having jurisdiction requirements. The Design-Build Entity shall be responsible for final envelope engineering, detailing, testing, certification, product selection, permitting, and code compliance. Exterior envelope selections and systems that affect the approved architectural appearance, design intent, performance criteria, or life-cycle maintainability shall be coordinated with and submitted to the Owner for review in accordance with the Design-Build review process.

5.6.4 Public Spaces

The Design-Build Entity shall provide public areas that create a welcoming and easily understandable environment for patients, families, visitors, and community users. The main entrance lobby, waiting areas, auditorium, visitor support functions, meditation space, and administrative areas shall incorporate open and visually connected spaces that promote comfort and orientation.

Interior finishes within public areas shall utilize high-quality healthcare-grade materials, including terrazzo, ceramic tile, architectural ceiling systems, and durable wall protection elements that support appearance, infection prevention, cleanability, and long-term maintainability. Exterior terraces associated with public functions shall enhance the user experience by providing access to daylight and outdoor environments, subject to safety, security, infection-control, and operational requirements.

5.6.5 Clinical Spaces

The Design-Build Entity shall provide clinical environments characterized by simplicity, durability, maintainability, infection prevention, patient safety, and patient-centered design. Clinical spaces shall support efficient care delivery, staff visibility, patient privacy, accessibility, and the operational requirements of each department.

The extensive use of private patient rooms throughout the intensive care, telemetry, intermediate care, and rehabilitation units shall establish a consistent healing environment that promotes privacy, infection control, family participation in care, and patient dignity. Clinical planning shall support safe patient movement, clear staff access, equipment accommodation, required clearances, and coordination with medical gases, utilities, technology, and infection-control requirements.

5.6.6 Interior Finishes

The Design-Build Entity shall provide interior finish systems in accordance with the Advanced Architectural Design Development documents and Bridging Documents, appropriate for a high-acuity healthcare facility and consistent with the established finish intent. Interior finishes shall support infection prevention, cleaning efficiency, durability, accessibility, patient safety, long-term maintainability, and a consistent architectural character throughout the hospital.

Interior finish systems shall utilize healthcare-specific materials appropriate to the operational requirements of each department, including seamless resilient flooring, epoxy terrazzo, clean-room ceiling systems, washable wall surfaces, impact-resistant wall protection, and moisture-resistant gypsum board assemblies where required. Finish selections shall be coordinated with infection-control requirements, environmental services operations, life-safety requirements, accessibility standards, maintenance protocols, and the Owner's approved design intent.

5.6.7 Wayfinding

The Design-Build Entity shall maintain clear wayfinding based on the building's vertical organization, straightforward floor layouts, and repetitive public-space planning. Public destinations, patient care units, administrative functions, and support services shall be readily identifiable through architectural features, finish transitions, lighting, signage, spatial organization, and consistent visual cues throughout the hospital.

The ramp system shall be maintained as a significant architectural and wayfinding element within the public and visitor circulation strategy. Because the ramp extends through the hospital levels and is associated with visitor waiting areas and public spaces, it shall provide a consistent and recognizable spatial reference that assists users in understanding the building organization. The repetitive relationship between the ramp, waiting areas, public circulation, and vertical movement shall reinforce orientation, improve intuitive navigation, and support movement between levels.

The repetitive organization of inpatient nursing units, the logical arrangement of public circulation paths, and the consistent placement of public waiting areas shall facilitate intuitive navigation throughout the facility while supporting efficient movement of patients, visitors, staff, emergency personnel, and service operations. Final signage and wayfinding systems shall be coordinated with the Owner, accessibility requirements, language requirements, infection-control requirements, security, and life-safety criteria.

5.7 RESILIENCE AND PERFORMANCE REQUIREMENTS

5.7.1 Life Safety

The Trauma Hospital shall be designed as a critical healthcare facility that protects patients, staff, visitors, and emergency responders during both normal and emergency operations. The Design-Build Entity shall provide life-safety planning that includes protected vertical circulation, clearly defined egress routes, smoke and fire compartmentation, fire protection systems, fire alarm systems, emergency power coordination, and continuous access to critical patient care areas in accordance with applicable codes and healthcare standards.

The organization of the Emergency Department, Trauma Stabilization Unit, Operating Rooms, Imaging Services, Intensive Care Units, inpatient nursing units, and rooftop heliport shall support rapid patient movement while maintaining appropriate levels of safety, security, infection control, and operational control. The physical integration of the new hospital with the

existing ASEM Central Services Building shall support safe and efficient circulation between both facilities without compromising required fire/life-safety separations.

5.7.2 Disaster Preparedness

The Design-Build Entity shall provide a Trauma Hospital capable of supporting ASEM's role as Puerto Rico's primary trauma and emergency care institution during hurricanes, earthquakes, mass casualty incidents, public health emergencies, and other emergency events. The facility shall maintain essential trauma, surgical, imaging, critical care, inpatient, disaster management, and heliport operations during emergency conditions to the extent required by the Owner and applicable regulations.

The project shall include dedicated disaster-response functions, including emergency disaster accommodations, emergency management support spaces, and a Disaster Control and Monitoring Operations Center. The rooftop heliport and dedicated elevator connection shall provide direct access for aeromedical transport and emergency response operations.

The facility shall support emergency surge operations through a planned capacity of 110 proposed beds with the capability to accommodate an additional 72 surge beds when required, for a total potential capacity of approximately 182 beds. The Design-Build Entity shall verify all operational, life-safety, MEP, medical gas, staffing support, storage, infection-control, and licensing implications associated with surge operations.

5.7.3 Structural Resilience

Structural resilience shall be a fundamental design requirement of the Puerto Rico Trauma Hospital and an integral component of the overall architectural, operational, and life-safety concept of the facility. As a critical healthcare institution intended to provide essential trauma, emergency, surgical, intensive-care, diagnostic, support, and disaster-response services for Puerto Rico, the Hospital shall be designed and constructed not only to protect occupants during major seismic and wind events, but also to enhance the facility’s ability to remain safely occupiable, functional, and operational following such events.

Accordingly, the project establishes Immediate Occupancy / Continued Operational Performance as a principal resilience objective. This objective extends beyond the conventional code-level life-safety goal of preventing collapse and allowing safe evacuation. The design intent is to limit structural, architectural, nonstructural, equipment, utility, and building-system damage to the extent reasonably achievable so that the Hospital may remain safely occupied and may continue, or rapidly restore, its essential healthcare functions following a significant seismic event, subject to required post-event inspection, evaluation, and emergency operational protocols.

A fundamental component of this resilience strategy is the incorporation of a dedicated interstitial seismic-isolation level between the First and Second Levels of the Hospital. Architecturally, this interstitial space establishes a distinct separation plane between the Basement and First Level portions of the facility, which are directly associated with the ground and supporting site conditions, and the principal upper Hospital structure extending from the Second Level through the Ninth Level and the rooftop heliport.

Within this interstitial level, the structural isolation system shall create the seismic separation necessary for the upper Hospital structure to respond to earthquake-induced ground movement in a substantially controlled manner. The purpose of this strategy is to reduce the transmission of damaging seismic forces into the occupied upper portions of the Hospital and thereby contribute to the protection of critical clinical environments, circulation systems, architectural components, essential utilities, medical equipment, and other systems required for continued healthcare operations.

The interstitial isolation level shall therefore be understood not merely as a structural feature, but as an essential component of the Hospital's overall resilience and operational-continuity strategy. Its design and coordination shall recognize that the continued functionality of a critical healthcare facility depends on the collective performance of the building structure together with its architectural systems, partitions, ceilings, façades, vertical and horizontal circulation, mechanical and electrical services, plumbing and fire-protection systems, medical gases, communications, emergency systems, equipment, and other nonstructural components.

All building systems, services, utilities, architectural assemblies, and other components that interface with or cross the seismic-isolation plane shall be fully coordinated with the isolation strategy so that their configuration and installation do not compromise the intended movement, separation, resilience, or post-event functionality of the building. Particular attention shall be given to systems serving critical patient-care areas, emergency operations, life-safety functions, utility distribution, communications, medical equipment, and other services necessary for the Hospital to remain functional following a major seismic event.

The resilience strategy shall also support the continued availability, or prompt restoration, of the Hospital's principal operational functions, including emergency and trauma services, intensive-care services, surgical services, major utility systems, emergency power and support systems, disaster-response operations, and rooftop heliport functions. The design of the building and its systems shall recognize the importance of maintaining appropriate access, circulation, patient movement, staff operations, emergency-response capabilities, and logistical support during post-event conditions.

The Design-Build Entity shall preserve, further develop, coordinate, engineer, document, and construct the seismic-isolation and resilience concepts established by the Advanced Architectural Design Development and the Bridging Documents. The seismic isolation plane and the associated Immediate Occupancy / Continued Operational Performance objectives constitute fundamental elements of the Owner's design intent and shall not be eliminated, materially reduced, relocated, substituted, or otherwise modified without prior review and written acceptance by ASEM and coordination with the appropriate design professionals and Authorities Having Jurisdiction.

During development of the final design and Construction Documents, the Design-Build Entity, through its Architect and Engineers of Record, shall provide the complete multidisciplinary coordination necessary to translate this resilience objective into an integrated and constructible facility. Structural, architectural, mechanical, electrical, plumbing, fire-

protection, medical-gas, communications, equipment, and other building systems shall be developed collectively so that the performance of one discipline does not compromise the required performance of another or the intended post-event functionality of the Hospital as a whole.

The final design shall comply with all applicable codes and regulatory requirements while maintaining the higher project-specific resilience objectives established by the Bridging Documents. Compliance with minimum code requirements alone shall not be interpreted as authorization to diminish the seismic-isolation strategy, the Immediate Occupancy / Continued Operational Performance objective, or other resilience provisions specifically established for the Puerto Rico Trauma Hospital.

REFERENCE NOTE: For additional technical information regarding the structural resilience strategy, seismic-isolation system, design criteria, structural performance requirements, and related engineering considerations, refer to the Structural Design Narrative section of this Bridging Documents Report.

5.7.4 Sustainability Objectives

The Design-Build Entity shall promote long-term durability, efficient use of resources, and reduced operational impacts throughout the facility lifecycle. Sustainable design strategies shall focus on resilient building systems, durable healthcare materials, efficient energy and water use, reduced maintenance requirements, and reliable operation appropriate for a critical healthcare facility.

Site development shall incorporate environmental stewardship measures associated with the project, including responsible demolition practices, environmental mitigation activities, stormwater coordination, and implementation of required tree replacement and reforestation measures. Design decisions shall balance sustainability objectives with the reliability and performance requirements expected of a Level I Trauma Center.

5.7.5 Operational Continuity

The Trauma Hospital shall be planned and designed to maintain continuous operation during utility disruptions, natural disasters, maintenance activities, emergency events, and future facility modifications. The facility shall function as an integrated extension of the existing ASEM Central Services Building, expanding the trauma care capabilities of the Puerto Rico Medical Center while maintaining coordinated operations between both facilities.

Critical infrastructure shall support uninterrupted operation of trauma stabilization services, surgical services, imaging, intensive care, telemetry, rehabilitation, intermediate care, inpatient nursing units, disaster response functions, and aeromedical transport functions. Major electromechanical systems, emergency management facilities, operational support services, and utility infrastructure shall be organized to support reliability, maintainability, redundancy, and future adaptability.

The Design-Build Entity shall preserve these resilience and operational objectives while developing the final engineering, systems coordination, phasing, permitting, and construction solutions necessary for the long-term operation of the facility.

5.8 DESIGN COMPLIANCE REQUIREMENTS

5.8.1 Design Elements to Be Preserved

The Design-Build Entity shall preserve the spatial relationships, vertical distribution, major departmental organization, and fundamental planning intent established in the Advanced Architectural Design Development documents and the Bridging Documents, unless as specifically reviewed and accepted in writing by the Owner. The proposed Trauma Hospital shall remain integrated with the existing ASEM Central Services Building and shall continue to function as an extension of the Medical Center trauma services network.

The Design-Build Entity shall adhere to the Architectural Design Narrative, Structural Design Narrative, Mechanical Design Narrative, and Electrical Design Narrative included in the Bridging Documents. These narratives establish Owner requirements for structural resilience, seismic isolation, building systems performance, infrastructure, operational continuity, maintainability, and coordination with the Advanced Architectural Design Development documents. The Design-Build Entity shall coordinate the final architectural, structural, mechanical, electrical, plumbing, fire protection, medical gas, technology, and specialty systems design with these narratives and with the Owner throughout the Design-Build process.

The following design elements shall be preserved as essential Owner requirements:

- The clinical program, departmental organization, and functional relationships established by the Bridging Documents.
- The building location within the Puerto Rico Medical Center campus and its physical connection to the ASEM Central Services Building.
- The approved hospital capacity of 110 proposed beds with surge capacity for approximately 182 total beds.
- The ten-story hospital configuration, including basement services, clinical floors, administrative functions, disaster operations facilities, and rooftop heliport.
- The trauma-focused clinical model, including Emergency Department services, trauma stabilization, surgical services, intensive care, intermediate care, telemetry care, rehabilitation services, and disaster preparedness functions.
- The dedicated trauma heliport and associated emergency transport infrastructure, together with continued coordination of the existing ASEM Central Services Building helipad.
- The seismic isolation strategy incorporated between the first and second levels as part of the building resilience approach.
- The architectural character, material quality standards, patient-centered environment, and operational objectives established in the Bridging Documents.

- The required separation and coordination of public, patient, staff, emergency, service, clean, soiled, and restricted circulation flows.
- The structural resilience requirements, seismic isolation strategy, heliport structural loading requirements, mechanical and electrical system performance requirements, infrastructure coordination, and operational continuity requirements established in the Structural Design Narrative, Mechanical Design Narrative, and Electrical Design Narrative.

The Design-Build Entity shall submit any proposed change affecting these elements for Owner review and written acceptance prior to incorporation into the final design.

5.8.2 Allowable Design-Build Modifications

Allowable Design-Build modifications shall be limited to modifications required or proposed to improve constructability, operational efficiency, system performance, maintainability, sustainability, code compliance, permitting, life-cycle value, or interdisciplinary coordination, provided that the approved design intent and Owner requirements are preserved.

Allowable modifications may include the following and are subject to Owner review:

- Structural system optimization, provided such optimization is consistent with the Structural Design Narrative, approved resilience objectives, seismic isolation strategy, heliport loading requirements, applicable codes, and Owner requirements.
- Mechanical, electrical, plumbing, fire protection, medical gas, communications, security, and technology system development, provided such changes are consistent with the Mechanical Design Narrative, Electrical Design Narrative, Advanced Architectural Design Development documents, Bridging Documents, and Owner requirements, and are intended as enhancements or improvements and not as a fundamental alteration of the established design intent.
- Equipment selection and coordination consistent with the approved clinical program and operational requirements.
- Material substitutions of equal or superior quality, durability, cleanability, infection-control performance, and life-cycle value.
- Detailed space refinements required for code compliance, healthcare licensing, interdisciplinary coordination, accessibility, or equipment coordination.
- Building envelope, energy performance, sustainability, and resilience enhancements that maintain the established architectural character and performance requirements.

No modification shall reduce the approved clinical capacity, alter major departmental relationships, diminish resilience objectives, compromise operational continuity, adversely affect patient care functions, compromise heliport or helipad operations, reduce the architectural quality established by the Bridging Documents, or conflict with the Structural Design Narrative, Mechanical Design Narrative, or Electrical Design Narrative. However, the Owner has the right to reject any proposed modification that does not preserve the design intent or minimum project requirements.

5.9 PROJECT COMPLIANCE REQUIREMENTS

5.9.1 Applicable Codes and Standards

The Design-Build Entity shall be responsible for demonstrating full compliance with all, but not limited to, applicable federal, Commonwealth of Puerto Rico, local, industry, healthcare, aviation, environmental, accessibility, fire/life-safety, building code, and permitting requirements. The Design-Build Entity shall comply with all the latest legally applicable adopted codes and standards at the time of permit submission and shall comply with any more stringent requirement imposed by authorities having jurisdiction.

Compliance verification with Owner (ASEM) shall include, at a minimum:

- Design compliance matrices.
- Code analysis reports.
- Regulatory compliance documentation.
- Quality control and interdisciplinary coordination reviews.
- Agency approvals, permits, certifications, endorsements, determinations, and required clearances.
- Documentation of all approved design deviations.
- Written confirmation of compliance with preserved Owner requirements established in the Bridging Documents.

The final design and construction documents shall comply with all applicable requirements, including but not limited to the following, as applicable to the Project:

5.9.1.1 Federal Requirements

- Americans with Disabilities Act (ADA).
- 2010 ADA Standards for Accessible Design.
- Occupational Safety and Health Administration (OSHA) requirements.
- HIPAA requirements affecting healthcare facility planning, privacy, security, and operations.
- Federal Emergency Management Agency (FEMA) guidance and requirements applicable to critical facilities and federally funded work.
- Applicable Centers for Medicare & Medicaid Services (CMS) requirements.
- 24 CFR Part 58 Environmental Review Procedures.
- Applicable environmental requirements under NEPA and related federal regulations.
- FAA requirements applicable to the existing ASEM Central Services Building helipad and the proposed rooftop trauma heliport. FAA heliport design and notice requirements, including FAA AC 150/5390-2D and FAA Form 7480-1 / Part 157 notice coordination.

5.9.1.2 Building Codes and Life Safety Standards

- Puerto Rico Building Code and the referenced International Building Code (IBC), as legally adopted and applicable.
- International Existing Building Code (IEBC), where applicable.

- International Fire Code (IFC).
- International Mechanical Code (IMC).
- International Plumbing Code (IPC).
- International Fuel Gas Code (IFGC), where applicable.
- International Energy Conservation Code (IECC).
- NFPA 101 Life Safety Code.
- NFPA 99 Health Care Facilities Code.
- NFPA 70 National Electrical Code.
- NFPA 110 Emergency and Standby Power Systems.
- NFPA 13 Automatic Sprinkler Systems.
- NFPA 14 Standpipe Systems.
- NFPA 20 Fire Pumps.
- NFPA 72 Fire Alarm and Signaling Systems.
- NFPA 241 Safeguarding Construction, Alteration, and Demolition Operations.

5.9.1.3 Healthcare Planning and Design Standards

- FGI Guidelines for Design and Construction of Hospitals, as applicable to the Project and as required by the Owner and authorities having jurisdiction.
- Applicable Joint Commission standards.
- Applicable CMS Conditions of Participation.
- Applicable Puerto Rico Department of Health licensing requirements.
- Evidence-based healthcare design principles where applicable to patient safety, infection prevention, clinical workflow, and staff effectiveness.

5.9.1.4 Puerto Rico Requirements

- Puerto Rico Building Code, latest legally adopted edition applicable to the Project.
- Puerto Rico Fire Code and Puerto Rico Fire Marshal requirements.
- Puerto Rico Joint Permits Regulation (Reglamento Conjunto 2023).
- OGPe permitting requirements.
- Puerto Rico Department of Health licensing and healthcare facility requirements.
- Puerto Rico environmental agency requirements and successor agency requirements, as applicable.
- Puerto Rico Medical Emergency and Disaster Management requirements, as applicable.
- Puerto Rico Ports Authority, aviation, utility, municipal, and other agency requirements applicable to the Project.
- Puerto Rico Department of Transportation and Public Works - Uniform General Conditions for Public Works Contracts in Puerto Rico

The Design-Build Entity shall be solely responsible for verifying all applicable codes, regulations, standards, agency requirements, permits, certifications, inspections, endorsements, clearances, determinations, approvals, and authorizations necessary for the final design, construction, occupancy, licensing, and operation of the Puerto Rico Trauma Hospital.

5.9.2 24 CFR Part 58 Environmental Review and Section 106 Compliance

ASEM, as the proposing project entity and the party responsible for administration of the Project's environmental compliance process, shall retain responsibility for directing, coordinating, completing, maintaining, and, as applicable, obtaining the required environmental determinations, findings, consultations, clearances, and related documentation under 24 CFR Part 58. This responsibility includes the Project's Environmental Assessment Determination and Compliance Findings and the Section 106 National Historic Preservation Act (NHPA) Effect Determination, together with associated consultation and compliance documentation. Nothing in the Bridging Documents shall be construed as transferring ASEM's responsibility for making, approving, or certifying such environmental determinations to the Design-Build Entity.

The Design-Build Entity, including its Architect and Engineer(s) of Record, contractors, subcontractors, consultants, and delegated-design participants, shall fully comply, cooperate, and coordinate with ASEM and its authorized environmental, historic-preservation, archaeological, regulatory, and technical representatives in the continued implementation of the Project's 24 CFR Part 58 environmental requirements. The Design-Build Entity shall promptly provide the drawings, technical descriptions, calculations, studies, schedules, construction sequencing, site-disturbance limits, demolition information, excavation limits, utility work, temporary construction activities, access and staging plans, equipment and crane information, and other Project data reasonably requested by ASEM to support, confirm, update, or document environmental compliance.

The Design-Build Entity shall review and incorporate into the final design, construction documents, specifications, procurement packages, construction schedule, subcontracts, means and methods, and field operations all applicable mitigation measures, avoidance or minimization commitments, monitoring requirements, environmental conditions, archaeological and cultural-resource protection measures, agency consultation requirements, permit conditions, and other commitments established by ASEM through the Environmental Assessment, Environmental Review Record, Section 106 process, agency consultations, environmental determinations, or subsequent written instructions. Such requirements shall be treated as mandatory Project requirements unless ASEM provides written direction otherwise.

The Design-Build Entity shall not implement any material change in Project scope, building configuration, site limits, demolition, excavation, utility work, temporary construction, access, staging, construction sequencing, equipment location, or means and methods that could affect the basis of an environmental determination or consultation without first notifying ASEM and providing sufficient information for ASEM to determine whether additional environmental review, reevaluation, consultation, documentation, mitigation, or agency coordination is required. The Design-Build Entity shall not assume that an existing environmental determination remains applicable to a materially revised condition without ASEM's written direction.

The Design-Build Entity shall comply with all environmental-review sequencing requirements, construction hold points, notices, restrictions, conditions precedent, and written directions

established by ASEM to preserve compliance with 24 CFR Part 58 and related federal environmental authorities. No activity identified by ASEM as subject to a pending environmental review requirement, consultation, clearance, mitigation prerequisite, or other environmental condition shall proceed until ASEM provides written authorization to proceed.

For Section 106 NHPA compliance, the Design-Build Entity shall implement all avoidance, protection, monitoring, documentation, and discovery procedures established by ASEM. If archaeological materials, human remains, previously unidentified cultural resources, or conditions potentially affecting historic properties are encountered during demolition, excavation, or construction, the Design-Build Entity shall immediately stop work within the affected area, protect the discovery from further disturbance, notify ASEM, and proceed only in accordance with ASEM's instructions and the applicable approved consultation or discovery protocol. The Design-Build Entity shall not independently make or modify any Section 106 effect determination on behalf of ASEM.

The Design-Build Entity shall maintain complete records demonstrating its implementation of applicable environmental requirements, mitigation measures, monitoring activities, communications, field observations, corrective actions, and required closeout documentation, and provide such records to ASEM when requested for inclusion in or support of the Project's Environmental Review Record and other compliance files.

ASEM's responsibility for the 24 CFR Part 58 environmental review and the identified environmental and Section 106 determinations shall not relieve the Design-Build Entity of its independent responsibility for compliance with environmental laws, permits, construction practices, pollution-prevention requirements, waste-management requirements, protection measures, and other regulatory obligations applicable to its final design and construction work. The Design-Build Entity shall remain responsible for executing the Project in a manner consistent with all environmental requirements and conditions communicated or approved by ASEM.

5.9.3 Puerto Rico Government Agency Recommendations, Endorsements, Approvals, and Permitting Responsibilities

In addition to the federal compliance obligations identified elsewhere in the Bridging Documents, the Design-Build Entity shall be responsible for identifying, preparing, coordinating, filing, pursuing, obtaining, maintaining, renewing, amending, closing out, and providing to ASEM all recommendations, endorsements, consultations, determinations, approvals, permits, certificates, inspections, clearances, authorizations, and related regulatory documentation required by the Government of Puerto Rico, applicable municipalities, public corporations, utilities, and other authorities having jurisdiction for the final design, construction, commissioning, occupancy, and lawful use of the Puerto Rico Trauma Hospital. Such responsibility shall include all submissions, supporting studies, drawings, calculations, certifications, professional seals, application forms, responses to agency comments, meetings, inspections, fees, resubmissions, permit modifications, and follow-up actions required to obtain and maintain the applicable approvals through

completion of the Project, except for fees or actions expressly assigned otherwise in the final Design-Build Agreement.

5.9.3.1 Agency Recommendations, Endorsements, Consultations, and Preconstruction Approvals.

The Design-Build Entity shall request and obtain all recommendations, endorsements, consultations, clearances, determinations, and approvals required before or in support of construction permitting. Agencies and entities shall include, without limitation and as applicable to the Project, the Puerto Rico Office of Permit Management (OGPe) and/or the applicable Autonomous Municipality, the Puerto Rico Department of Health, the Puerto Rico Department of Natural and Environmental Resources (DNER) and other environmental authorities, the Institute of Puerto Rican Culture and applicable historic-preservation authorities, the Puerto Rico Fire Bureau, LUMA Energy, the Puerto Rico Aqueduct and Sewer Authority (AAA), telecommunications service providers and regulatory authorities, transportation and roadway authorities, the Puerto Rico Ports Authority and aviation authorities where applicable, and any other Commonwealth, municipal, public utility, public corporation, or authority having jurisdiction. The Design-Build Entity shall incorporate all conditions, restrictions, technical requirements, mitigation measures, agency comments, and approval criteria resulting from such processes into the final design and construction documents and the execution of the Work.

5.9.3.2 Building Construction and Related Permits.

The Design-Build Entity shall request, obtain, and maintain in full force all permits and authorizations required to commence, prosecute, and complete construction of the Project. This responsibility shall include, without limitation and as applicable, the applicable consolidated or individual construction permits, demolition permits, excavation and earthwork permits, grading and site-development permits, environmental permits, utility permits and service authorizations, electrical and plumbing permits, fire-protection reviews and approvals, roadway or access permits, temporary construction permits, certificates and inspections, and all other construction-related permits required by OGPe, an Autonomous Municipality, the Puerto Rico Department of Health, the Puerto Rico Department of Natural and Environmental Resources (DNER), other environmental authorities, historic-preservation authorities, LUMA Energy, AAA, the Puerto Rico Fire Bureau, telecommunications entities, and other authorities having jurisdiction. No portion of the Work shall commence before the Design-Build Entity has obtained the permits, endorsements, approvals, and authorizations legally required for that portion of the Work and has furnished current copies to ASEM.

5.9.3.3 Use, Occupancy, and Final Project Approvals

As a condition of Project closeout and prior to occupancy or use of the completed facilities, the Design-Build Entity shall request, coordinate, obtain, and deliver to ASEM all building use, occupancy, final acceptance, operational-readiness, and related permits, certificates, endorsements, inspections, and approvals required for the lawful use of the completed Project. These shall include, without limitation and as applicable, the applicable Use Permit and/or Unified Permit, final construction and occupancy approvals, Puerto Rico Department of

Health facility and physical-plant approvals and inspections, fire and life-safety approvals, environmental closeout approvals and authorizations from the Puerto Rico Department of Natural and Environmental Resources (DNER) and other applicable environmental authorities, historic-preservation closeout requirements, utility acceptance and permanent-service authorizations from LUMA Energy and AAA, telecommunications service approvals, and any other final certifications or authorizations required by the applicable governmental agencies, utilities, municipalities, or authorities having jurisdiction. Where a license, permit, certification, filing, or authorization is legally required to be issued to, executed by, or maintained in the name of ASEM or the ultimate healthcare operator, the Design-Build Entity shall timely prepare and coordinate all required technical documentation, certifications, inspections, and supporting information and shall fully assist ASEM in obtaining such approval.

5.9.3.4 Permitting Matrix, Schedule, and Regulatory Coordination.

The Design-Build Entity shall develop and maintain a comprehensive permitting and agency-approval matrix identifying each required recommendation, endorsement, consultation, permit, approval, inspection, certificate, responsible agency, responsible Design-Build team member, required predecessor action, anticipated submission date, agency review period, expiration or renewal date, conditions of approval, and final status. The permitting schedule shall be fully integrated into the Project design and construction schedule and shall provide sufficient time for agency review, comments, revisions, resubmissions, inspections, testing, and final approvals. The Design-Build Entity shall proactively coordinate with the applicable agencies and shall not rely upon agency review periods or incomplete submissions as a basis for proceeding with unpermitted Work.

5.9.3.5 Design Revisions and Permit Modifications.

Any change, substitution, value-engineering proposal, delegated-design item, means-and-methods decision, field condition, or other revision that affects an agency recommendation, endorsement, approval, permit, or previously accepted submission shall be promptly evaluated by the Design-Build Entity. The Design-Build Entity shall prepare and obtain all required amended submissions, permit revisions, supplemental endorsements, reapprovals, and agency confirmations before implementing the affected Work.

5.9.3.6 Documentation and Closeout.

The Design-Build Entity shall maintain a complete and current regulatory record for the Project and shall provide ASEM with copies of all applications, transmittals, agency correspondence, meeting records, comments, responses, permits, approvals, endorsements, inspection reports, certificates, notices, renewals, amendments, and final closeout documents. Required final permits, certificates, approvals, and agency acceptances applicable to the completed Work shall constitute part of the Project closeout documentation and shall be obtained before Substantial Completion, Final Completion, occupancy, or operation, as applicable to the particular approval and as required by the final Design-Build Agreement.

5.9.3.7 Owner Participation and Preservation of ASEM Environmental Responsibilities.

ASEM shall provide Owner signatures, authorizations, property information, or other Owner-specific participation only where legally required or otherwise established by the final Design-Build Agreement. Such participation shall not relieve the Design-Build Entity from responsibility for preparing complete and timely submissions, managing the permitting process, responding to agency requirements, and obtaining the approvals assigned to the Design-Build Entity. Nothing in this subsection shall transfer to the Design-Build Entity ASEM's separate responsibility for the federal environmental review process, Environmental Assessment Determination and Compliance Findings, or Section 106 NHPA Effect Determination under 24 CFR Part 58; however, the Design-Build Entity remains responsible for obtaining and complying with all Puerto Rico and local environmental permits, construction approvals, mitigation requirements, and agency conditions applicable to its final design and construction activities.

5.9.4 Project Investigations, Studies, Surveys, Testing, and Technical Reports

5.9.4.1 General Responsibility.

The Design-Build Entity shall be responsible for identifying, commissioning, contracting, coordinating, performing, updating, and obtaining all investigations, surveys, field explorations, testing, analyses, engineering evaluations, technical studies, calculations, and reports necessary to verify existing conditions; establish final design criteria; prepare complete, coordinated, and code-compliant construction documents; obtain required permits and approvals; develop safe and appropriate construction means and methods; and construct, test, commission, and complete the Puerto Rico Trauma Hospital. Unless expressly assigned otherwise in the final Design-Build Agreement, such services shall be included within the Design-Build Entity's scope and shall be performed at its cost by qualified, appropriately licensed or certified professionals having demonstrated experience in the applicable specialty.

5.9.4.2 Minimum Required Investigations.

The Design-Build Entity shall determine the full extent and frequency of investigations required by the final design, applicable codes, authorities having jurisdiction, site conditions, construction methods, and good professional practice. The required scope shall include, without limitation and as applicable, the following categories, together with any supplemental studies necessary to address conditions identified during design or construction.

5.9.4.3 Geotechnical, Subsoil, and Foundation Studies.

Perform a project-specific geotechnical investigation, including sufficient borings, sampling, laboratory testing, field testing, groundwater observations, and engineering analysis to establish subsurface stratigraphy and engineering properties and to support the final design of foundations, slabs, retaining systems, excavation, earthwork, fill, pavements, underground structures, and related work. The geotechnical report shall address, as applicable, allowable bearing capacities, settlement, lateral earth pressures, excavation stability, temporary and permanent support-of-excavation considerations, soil improvement, compaction and fill requirements, corrosivity or other soil characteristics affecting materials, and recommendations required for safe design and construction.

5.9.4.4 Groundwater, Water-Table, Excavation, and Dewatering Studies.

Investigate and document groundwater and water-table conditions affecting the basement, foundations, underground utilities, excavation, waterproofing, buoyancy resistance, and construction operations. The Design-Build Entity shall develop, through qualified professionals, the required groundwater-control and dewatering analyses and reports, including anticipated pumping requirements, temporary and permanent groundwater-control measures, discharge locations and treatment requirements, applicable permits, monitoring requirements, and evaluation of potential effects on adjacent buildings, utilities, pavements, foundations, and other facilities. Seasonal or variable groundwater conditions shall be considered where relevant to the Project.

5.9.4.5 Hydrologic, Hydraulic, Stormwater, and Drainage Studies.

Perform all hydrologic and hydraulic studies required to establish the final site drainage and stormwater-management design. Such analyses shall address, as applicable, existing and proposed drainage patterns, design rainfall, runoff, storm-sewer and conveyance capacity, inlet and piping sizing, detention or retention requirements, overflow and emergency drainage paths, erosion and sediment-control criteria, flood conditions, downstream impacts, and the capacity and acceptability of proposed points of discharge. The final design shall incorporate all recommendations, mitigation measures, agency criteria, and permitting requirements resulting from these studies.

5.9.4.6 Seismic, Geologic, and Geohazard Evaluations.

Perform the evaluations required to establish project-specific seismic and geologic design criteria and to confirm the suitability of the site and subsurface conditions for the proposed hospital. As applicable, the studies shall address site classification, seismic design parameters, liquefaction potential, differential settlement, slope or excavation stability, soil-structure interaction, ground-improvement needs, and other geologic or seismic hazards affecting the final structural, architectural, civil, and utility design. Findings shall be coordinated with the Architect and Engineer(s) of Record and incorporated into the final construction documents.

5.9.4.7 Existing-Conditions, Survey, and Utility Investigations.

Obtain and maintain the certified boundary, topographic, elevation, control, and existing-conditions surveys required for final design and construction. The Design-Build Entity shall independently verify the horizontal and vertical location, size, depth, invert elevation, material, condition, capacity, ownership, operational status, and disposition of existing utilities and infrastructure that may affect the Work. Verification methods shall include record research, field survey, utility locating, test pits, potholing, subsurface utility engineering, ground-penetrating radar, CCTV inspection, flow testing, or other appropriate methods where required. The Design-Build Entity shall not rely solely upon approximate utility information, existing drawings, or information contained in the Bridging Documents when field verification is necessary for final design or construction.

5.9.4.8 Utility Capacity and Points-of-Connection Studies.

Coordinate with ASEM and the applicable utility and service providers to verify and document the location, elevation, configuration, available capacity, pressure, voltage, fault-current or other service characteristics, metering requirements, connection requirements, and approved points of connection for all required permanent and temporary services. This responsibility shall include, as applicable, potable and fire-protection water, sanitary sewer, storm drainage, electrical service, emergency or alternate power interfaces, telecommunications and data, fuel systems, medical or specialty utility interfaces, and other Project services. The Design-Build Entity shall obtain the technical confirmations, capacity evaluations, service studies, utility-company requirements, and written coordination necessary to support the final design and permitting, including coordination with LUMA Energy, the Puerto Rico Aqueduct and Sewer Authority (AAA), telecommunications providers, ASEM utility personnel, and other service entities having jurisdiction.

5.9.4.9 Adjacent-Structure and Construction-Impact Studies.

Where excavation, dewatering, demolition, vibration-producing work, crane operations, temporary works, utility interruptions, or other construction activities could affect adjacent ASEM facilities, hospitals, roadways, utilities, or structures, the Design-Build Entity shall perform the preconstruction surveys, structural evaluations, support-of-excavation analyses, underpinning studies, settlement or movement analyses, vibration assessments, monitoring plans, and other construction-impact studies necessary to protect existing facilities and maintain their required operations. Monitoring thresholds, instrumentation, reporting, corrective-action procedures, and emergency response requirements shall be established when appropriate to the identified risk.

5.9.4.10 Additional Discipline-Specific Studies and Reports.

The Design-Build Entity shall obtain any other studies, tests, surveys, evaluations, and reports reasonably required for a complete final design and lawful construction of the Project, including, as applicable, environmental or hazardous-material investigations related to construction activities, traffic and access studies, pavement evaluations, fire-flow and water-supply testing, utility load and capacity studies, electrical short-circuit, coordination and arc-flash studies, acoustical and vibration studies, building-envelope or waterproofing evaluations, constructability investigations, demolition and material-characterization studies, temporary-works engineering, crane and heavy-lift studies, and any other specialized technical analysis required by the Project conditions, the Owner, the applicable codes, the permitting agencies, or authorities having jurisdiction.

5.9.4.11 Coordination, Reliance, and Incorporation into the Work.

All investigations and technical reports shall be coordinated among the Design-Build Entity's Architect and Engineer(s) of Record, specialty consultants, contractors, subcontractors, delegated-design professionals, and affected agencies and utility providers. Findings and recommendations shall be reconciled across disciplines and incorporated into the final calculations, construction documents, specifications, permitting submissions, construction sequencing, temporary works, means and methods, quality-control procedures, and field

execution. Conflicts, discrepancies, or material differences between field-verified conditions and the Bridging Documents shall be promptly brought to ASEM's attention and shall be resolved through the Design-Build Entity's final design and coordination process before the affected Work proceeds.

5.9.4.12 Owner-Provided Information and Bridging Documents.

Any existing studies, surveys, reports, drawings, utility information, geotechnical data, environmental information, or other reference material furnished by ASEM or included in the Bridging Documents is provided for purpose and subject to the limitations stated in the applicable Bridging Documents. Unless expressly stated otherwise in the final Design-Build Agreement, the availability of such information shall not relieve the Design-Build Entity from determining whether additional investigation, verification, testing, analysis, or updated reports are required for its final design, permitting, construction documents, construction means and methods, or completed Work.

5.9.4.13 Environmental Review Coordination.

If any investigation, field exploration, testing program, study finding, proposed mitigation measure, or resulting design or construction change could affect the basis of ASEM's Environmental Assessment Determination and Compliance Findings, Section 106 NHPA Effect Determination, Environmental Review Record, or other requirement administered by ASEM under 24 CFR Part 58, the Design-Build Entity shall promptly provide the relevant information to ASEM and shall comply with ASEM's written direction before undertaking the affected activity. Nothing in this subsection transfers ASEM's federal environmental-review determination responsibilities to the Design-Build Entity; however, the Design-Build Entity remains responsible for commissioning and performing the technical investigations required for its design and construction responsibilities and for complying with the environmental conditions applicable to such activities.

5.9.4.14 Study Schedule, Deliverables, and Record Documents.

The Design-Build Entity shall identify required studies and investigations early enough to avoid delays to design, permitting, procurement, and construction and shall integrate them into the Project schedule. Final reports and supporting data shall be signed and sealed or certified when required by law or professional practice and shall be submitted to ASEM as part of the applicable design, permitting, construction, and closeout documentation. Where field conditions or construction observations demonstrate that an earlier investigation is incomplete or no longer representative, the Design-Build Entity shall perform the supplemental investigation and update the affected design and construction documents accordingly.

5.9.5 FAA Heliport Notices, Determinations, Permits, and Approvals

The Design-Build Entity shall be responsible for identifying, preparing, filing, coordinating, obtaining, and maintaining all required FAA notices, determinations, approvals, authorizations, permits, and related documentation applicable to both the existing ASEM Central Services Building helipad and the proposed new hospital heliport. This responsibility shall include, without limitation, all FAA airspace reviews, heliport design reviews, construction or alteration

notices, activation or modification filings, deactivation or temporary operational filings if applicable, and coordination required under applicable FAA regulations, advisory circulars, forms, and procedures.

The proposed new hospital heliport shall be designed, as required by the Owner, to support the safe operation of helicopters with operational and design requirements up to and including the Sikorsky S-92 (Including the military VH-92A Patriot version) presidential helicopter, or the controlling design aircraft criteria identified by the Owner, FAA, and applicable authorities. This helicopter capacity requirement shall be treated as an Owner requirement and shall be incorporated into the final heliport design, structural design, permitting documents, FAA coordination, and construction documents. The Design-Build Entity shall verify and provide the required dimensional criteria, structural capacity, load capacity, approach and departure clearances, safety areas, rotor clearances, operational clearances, lighting, marking, signage, fire/life-safety coordination, and patient transfer requirements necessary to accommodate the required aircraft criteria.

The Design-Build Entity shall verify the regulatory status, operational status, approach and departure surfaces, obstruction conditions, lighting, marking, signage, safety areas, dimensional criteria, structural criteria, aircraft design criteria, and operational requirements of the existing helipad and the proposed new heliport. No condition created by the final design or construction activities shall compromise the safe and compliant use of the existing helipad or the future operation of the new heliport.

The Design-Build Entity shall coordinate all heliport-related submissions with ASEM, helicopter operators, emergency medical transport stakeholders, the FAA, OGPe, the Puerto Rico Ports Authority or other applicable aviation authorities, and all authorities having jurisdiction, as required. The Design-Build Entity shall incorporate all FAA determinations, conditions, recommendations, clearances, operational restrictions, obstruction mitigation requirements, and authority comments into the final design and construction documents.

The Design-Build Entity shall not commence any construction, alteration, temporary obstruction, rooftop equipment installation, crane operation, or related construction activity that could affect the existing helipad, the proposed new heliport, approach/departure paths, or navigable airspace without obtaining all required FAA submissions, reviews, determinations, approvals, authorizations, and Owner acceptance. The Design-Build Entity shall maintain documentation of all heliport-related coordination and shall provide copies to the Owner as part of each applicable design and permitting submission.

5.9.6 ASEM Puerto Rico Medical Center Operational Emergency and Disaster Management Response Program Requirements

5.9.6.1 General Responsibility and Owner Coordination.

During the Design-Build process for the final development, design, permitting, procurement, construction, testing, commissioning, and turnover of the Puerto Rico Trauma Hospital, the Design-Build Entity shall affirmatively request from ASEM all additional Owner operational, continuity-of-operations, emergency-preparedness, disaster-response, resilience,

redundancy, recovery, and related requirements that ASEM determines are necessary for integration of the Project with the Puerto Rico Medical Center Operational Emergency and Disaster Management Response Program. Such requirements shall address, as applicable, hurricanes, earthquakes, pandemics, extended utility or infrastructure outages, and other emergency or disaster conditions defined or recognized by applicable governmental authorities or identified by ASEM for operational planning purposes.

5.9.6.2 Relationship to Codes, Regulations, and Bridging Documents.

The Design-Build Entity shall recognize that requirements established by ASEM for its Operational Emergency and Disaster Management Response Program may be in addition to, and more stringent than, the minimum provisions required by applicable building codes, healthcare regulations, licensing requirements, emergency-management regulations, standards, and design guidelines, and may also be in addition to the systems, capacities, services, provisions, and features represented or contemplated in the Advanced Architectural Design Development and other Bridging Documents. Compliance with the applicable codes, regulations, guidelines, or Bridging Documents alone shall not relieve the Design-Build Entity from the obligation to obtain, coordinate, and implement ASEM's Project-specific emergency and disaster response requirements. The Design-Build Entity shall not independently establish or modify ASEM operational policy, but shall obtain ASEM's direction and translate such direction into coordinated design and construction requirements.

5.9.6.3 Formal Request, Confirmation, and Requirements Matrix.

At the earliest appropriate stage of the Design-Build process, and sufficiently in advance of finalizing system capacities, equipment selections, space allocations, procurement packages, or construction activities that could be affected, the Design-Build Entity shall submit a formal written request to ASEM identifying the emergency and disaster response criteria, provisions, services, features, operational scenarios, and infrastructure requirements requiring Owner confirmation. The Design-Build Entity shall participate in workshops, coordination meetings, technical reviews, and operational-planning discussions requested by ASEM and shall maintain a current requirements matrix identifying each ASEM-directed requirement, the affected discipline, system, space, or Project component, the proposed design response, required supporting calculations or studies, submittal status, ASEM comments or acceptance, and applicable testing, commissioning, or turnover requirement. These requirements shall be reconfirmed with ASEM at appropriate design milestones and before procurement or construction makes an affected element impracticable to modify.

5.9.6.4 Scope of ASEM-Directed Emergency and Disaster Response Provisions.

Without limiting ASEM's authority to identify the requirements applicable to the Project, the Design-Build Entity shall coordinate and incorporate, as directed by ASEM, additional provisions affecting any component of the building, site, infrastructure, or hospital systems. These may include, without limitation, emergency and service access; ambulance, staff, patient, supply, and logistics circulation; protected or controlled access points; staging and temporary operating areas; architectural and structural resilience or protection measures; emergency electrical generation and distribution; fuel storage, fuel-transfer, refueling, load-

management, temporary-power, quick-connect, and uninterruptible-power provisions; mechanical-system redundancy, emergency ventilation, isolation, cooling, and environmental-control provisions; potable-water and fire-protection storage and distribution; sanitary and stormwater systems; temporary and redundant utility connections; medical-gas systems; telecommunications, data, radio, public-address, security, fire-alarm, and emergency communication systems; emergency command, operational support, storage, and surge-support provisions; and any other building, equipment, utility, access, site, or infrastructure feature ASEM determines is required for the Puerto Rico Medical Center emergency and disaster response program.

5.9.6.5 Design Integration and Interdisciplinary Coordination.

The Design-Build Entity, through its Architect and Engineer(s) of Record and all applicable specialty consultants, contractors, subcontractors, equipment vendors, and delegated-design professionals, shall fully integrate the ASEM-directed emergency and disaster response requirements into the final architectural, structural, civil, mechanical, electrical, plumbing, fire-protection, medical-gas, telecommunications, security, site, utility, and specialty-system designs. Required capacities, redundancies, spatial provisions, equipment, controls, interfaces, connection points, access requirements, details, specifications, schedules, and operational sequences shall be reflected consistently in the final construction documents and procurement packages. Any conflict between an ASEM-directed requirement and the Bridging Documents, applicable code, final design criteria, or another Project requirement shall be promptly brought to ASEM's attention and resolved through a documented, code-compliant interdisciplinary coordination process before the affected work is finalized or constructed.

5.9.6.6 Construction-Period Emergency Operations and Continuity.

The Design-Build Entity shall plan and execute construction so that Project activities do not unnecessarily impair the existing Puerto Rico Medical Center's ability to implement its emergency and disaster response procedures. Construction staging, temporary barriers, site access, road or ambulance-route modifications, shutdowns, utility interruptions, crane operations, temporary facilities, deliveries, demolition, excavation, and other activities that could affect emergency access, life-safety systems, critical utilities, communications, or the operation of adjacent ASEM facilities shall be coordinated in advance with ASEM. When an emergency or disaster condition is declared or activated during construction, the Design-Build Entity shall comply with applicable governmental requirements and ASEM instructions affecting access, site control, work sequencing, shutdowns, temporary services, protection measures, personnel coordination, or suspension and resumption of affected construction activities.

5.9.6.7 Testing, Commissioning, Training, and Turnover.

All systems, services, equipment, interfaces, and special provisions incorporated in response to ASEM's Operational Emergency and Disaster Management Response Program shall be inspected, tested, demonstrated, commissioned, and documented as applicable to verify the intended emergency operating capability. The Design-Build Entity shall coordinate integrated testing of affected systems and operational sequences and shall provide ASEM, as required,

with final as-built documentation, operating and maintenance information, emergency operating sequences, system-control narratives, testing and commissioning records, training, and other turnover materials necessary for ASEM to understand, operate, maintain, and activate the completed provisions as part of its emergency and disaster management program.

5.9.6.8 Continuing Coordination and Contract Administration.

The Design-Build Entity shall maintain continuing coordination with ASEM throughout final design and construction to identify revisions or additions to the Project-specific emergency and disaster response requirements. The Design-Build Entity shall not assume that the absence of a specific emergency-management feature from the Bridging Documents means that no additional ASEM requirement applies. Any ASEM direction that modifies established contractual scope, price, or schedule shall be identified and administered in accordance with the final Design-Build Agreement; however, the Design-Build Entity's obligation to timely request, identify, coordinate, document, and evaluate the applicable ASEM requirements shall remain part of its Design-Build responsibilities. No substitution, value-engineering proposal, design modification, or construction change shall reduce or eliminate an ASEM-directed emergency or disaster response capability without ASEM's prior written acceptance.

5.10 SPACE PROGRAM SUMMARY

5.10.1 Summary Introduction

The following Space Program Summary establishes the approved programmatic basis for the development of the Bridging Documents for the Puerto Rico Trauma Hospital and shall serve as the minimum Owner requirement. The Design-Build Entity is responsible for verifying and confirming all programmatic elements, including departmental areas, proposed bed counts, surge capacity, room quantities, operational needs, and regulatory requirements—with ASEM during final design development.

The proposed Puerto Rico Trauma Hospital comprises approximately 215,880 gross square feet distributed across ten levels and a rooftop helipad. The facility is planned with a proposed capacity of 110 beds and surge capacity for an additional 72 beds, for a total potential capacity of 182 beds. It is designed as a dedicated Level I Trauma Hospital and will be functionally integrated with the existing ASEM Central Services Building.

This Program Summary defines the required clinical departments, major functional components, patient care units, support services, and operational functions to be incorporated into the Project. The Design-Build Entity shall use this approved framework as the basis for design and shall incorporate any necessary refinements to meet operational, regulatory, and licensing requirements. No reduction, elimination, relocation, or material modification of the approved programmatic requirements, departmental functions, proposed bed capacities, or emergency surge capacity shall be made without prior written approval from ASEM.

5.10.2 Space Program per Level

Basement Level – 36,780 SF

Electro-Mechanical Area

- Main electromechanical utility services
- Central building support systems

Administrative and Operational Support

- Nursing Department – Educational / Training area
- Facilities Manager
- Physical Plant
- ASEM Emergency Disaster Control Center Sleeping Quarters

Support Services

- Main general storage
- Cafeteria services
- Staff support area
- MD's support area
- Patient Transport
- General Respiratory Therapy

First Level – 41,050 SF

Trauma Hospital Main Entrance

- Main Lobby
- Entrance and reception
- Visitor's support and waiting areas

ASEM Emergency Department Entrance

- Public entrance and reception
- Registration
- Support and waiting areas
- 2 Triage services
- Fast track patient care and support areas
- Emergency Department support functions
- Concession retail space

ASEM Central Services Building Visitor's Entrance

- Main Lobby
- Entrance and reception
- Visitor's support and waiting areas

Ambulance Entrance and Closed Parking Yard

- Ambulance Entrance
- 7 Ambulance patient drop-off

- 4 Ambulance Triage
- Decontamination
- Security Control
- Communications and Control Center
- Ambulance exit and Service Parking

Trauma Stabilization and Observation Unit

- 8 Stabilization cubicles
- 8 Observation cubicles
- 1 isolation room
- Support areas

Trauma Surgical Services

- 5 Operating Rooms
- Pre-operative services
- Post-anesthesia recovery services
- Support areas

Imaging Services

- Computed Tomography (CT)
- Diagnostic Radiology (X-Ray)
- Support areas

Trauma Intensive Care Unit

- 10 private ICU rooms
- Support areas

ASEM Surveillance Headquarters

- P.R. Police office
- Correction Department office
- Supervisor's office
- Support areas
- Security and CCTV Control Room

Administrative Support

- General Supervisor
- Main Cashier and Supervisor's office
- Support areas

Interstitial Isolation Level – 19,165 SF

Seismic Protection System

- Dedicated seismic isolation level located between the First and Second Floors.
- Provides earthquake protection and operational resilience for the hospital structure.

Second Level – 20,850 SF

Trauma Intensive Care Unit

- 18 private ICU rooms
- 2 Isolation rooms
- Support areas
- Minor Procedure room
- Staff and faculty support areas

Community Support

- 120-seat educational and multipurpose Auditorium

Visitor's Support Areas

- Waiting area
- Exterior Terrace
- Non-denominational Meditation space
- Visitor support services

ASEM Central Services Building Inter-Connection

- Enclosed corridor connector between Trauma Hospital and ASEM Central Services Building

Third Level – 17,650 SF

Visitor's Support Areas

- Waiting area
- Visitor support services

Rehabilitation Department

- Physical Therapy Gym
- Occupational Therapy
- Inpatient rehabilitation services
- Outpatient rehabilitation services
- Electrotherapy
- Support areas

Medical Faculty

- Medical faculty offices

Operational Support Services

- Pre-admissions
- Infection Control
- Institutional Programs
- Medical Record Release
- Support areas
- On-Call Doctor's Area

Patient Wellness

- Private exterior therapeutic patient wellness terrace

Fourth Level – 18,350 SF

Visitor's Support Areas

- Waiting area
- Visitor support services

Trauma Telemetry Nursing Unit

- 18 private patient rooms (Surge Capacity + 18)
- 2 isolation rooms
- Support areas
- Minor Procedure room
- Staff and faculty support areas

Fifth Level – 18,350 SF

Visitor's Support Areas

- Waiting area
- Visitor support services

Trauma Rehabilitation and Intermediate Care Unit

- 18 private patient rooms (Surge Capacity + 18)
- 2 isolation rooms
- Support areas
- Minor Procedure room
- Staff and faculty support areas

Sixth Level – 18,350 SF

Visitor's Support Areas

- Waiting area
- Visitor support services

Trauma Intermediate Care Unit

- 18 private patient rooms (Surge Capacity + 18)
- 2 isolation rooms
- Support areas
- Minor Procedure room
- Staff and faculty support areas

Seventh Level – 18,350 SF

Visitor's Support Areas
- Waiting area
- Visitor support services

Trauma Intermediate Care Unit
- 18 private patient rooms (Surge Capacity + 18)
- 2 isolation rooms
- Support areas
- Minor Procedure room
- Staff and faculty support areas

Eighth Level – 17,650 SF

Visitor's Support Areas
- Waiting area
- Visitor support services

Trauma Hospital Administration
- Trauma Hospital Executive Department
- Trauma Hospital Administrative Department
- Support areas

ASEM Administration
- ASEM Executive Department
- ASEM Administrative Offices
- ASEM Medical Services Offices
- Support areas

Ninth Level – 9,050 SF

Emergency Operations
- Disaster Control Center
- Monitoring Operations Center
- Support areas
- Visitors waiting

Building Infrastructure
- Electro-mechanical Service area
- Storage areas
- Service room

Heliport Support
- Dedicated heliport elevator core
- Access ramp to the service holding terrace and heliport landing pad.

Roof Level – Helipad - 450 SF

Trauma Heliport and Support Areas

- Dedicated heliport elevator core
- Access ramp to Heliport landing pad
- Service patient holding terrace
- Heliport landing pad

5.10.3 Proposed Bed Capacity and Emergency Surge Bed Program Summary

Level / Unit	Standard Patient Rooms / Beds	Isolation Rooms / Beds	Total Proposed Beds	Additional Surge Beds	Total Beds During Surge
First Level – Trauma ICU	10	0	10	0	10
Second Level – Trauma ICU	18	2	20	0	20
Fourth Level – Trauma Telemetry	18	2	20	18	38
Fifth Level – Rehabilitation / Intermediate Care	18	2	20	18	38
Sixth Level – Intermediate Care	18	2	20	18	38
Seventh Level – Intermediate Care	18	2	20	18	38
Total	**100**	**10**	**110**	**72**	**182**

On Levels 4 through 7, the 18 standard patient rooms on each floor shall be planned and constructed by the Design-Build Entity to accommodate one additional bed per room during emergency surge operations, providing an additional 18 surge beds per floor and 72 total additional surge beds, for a double-bed patient room including all required utilities. The Design-Build Entity shall ensure that these rooms are designed and built to support surge capacity and are fully compliant with all applicable codes, standards, regulatory requirements, and the current FGI Guidelines for Design and Construction of Hospitals.

6.0 STRUCTURAL DESIGN NARRATIVE

6.1 INTRODUCTION AND PURPOSE

This Bridging Document establishes the Structural Engineering performance requirements, design criteria, and minimum system standards that the Design-Build (D&B) Contractor must incorporate into the design and construction of the Puerto Rico Trauma Hospital located at Centro Médico, San Juan, Puerto Rico. The structural systems shall be designed to the performance objectives, load criteria, and detailing requirements described herein, consistent with the facility's classification as a Risk Category IV essential facility. The Owner's desired seismic performance for this facility is Maximum Capacity Immediate Occupancy (MC-IO): the building shall retain its full operational capacity, including surge capacity of 182 beds with immediate post-earthquake occupancy following the Maximum Considered Earthquake (MCER) event, without the need for evacuation, significant repair, or de-rated/partial operation. Precisely stated per ASCE 41 terminology, the governing performance objective is Immediate Occupancy Structural Performance Level (S-1, ASCE 41 Section 2.3.1.1) paired with the BSE-2N seismic hazard level, where BSE-2N is equivalent to the Risk-Targeted Maximum Considered Earthquake (MCER) per ASCE 7. This pairing is an Owner-elected performance objective that exceeds the standard codified hospital performance objective, it is not baseline code-minimum practice and shall be clearly identified as such in all design submittals. Where ASCE 7 Chapter 17 code-minimum provisions, ASCE 41 Immediate Occupancy acceptance criteria, and any other applicable standard produce differing demand or acceptance results, the strictest (most restrictive) requirement shall govern. MC-IO shall be verified using the supplemental methodology described in Section 6.3.3.

** REQUIRED: Maximum Capacity Immediate Occupancy (MC-IO) — defined as Immediate Occupancy Structural Performance Level (S-1) at the BSE-2N (MCER) seismic hazard level per ASCE 41 — is the governing performance objective for this facility and applies building-wide — to the seismic isolation system, the substructure and superstructure lateral force-resisting systems, the heliport, and all patient-care and mission-critical spaces identified in Section 6.2.3 — not solely to the isolation system or the Level 9 Disaster Control and Monitoring Operations Center. This objective is confirmed by the Owner to exceed the standard codified hospital performance objective and governs in lieu of it. Wherever ASCE 7 Chapter 17, ASCE 41, or any other applicable standard would otherwise produce a less restrictive result, the strictest applicable performance level and acceptance criteria shall govern. The Design-Build Entity's structural Engineer of Record shall confirm the MC-IO verification methodology and acceptance criteria (Section 6.3.3) with the Owner at Schematic Design phase, subject to independent peer review per Section 6.8.4.*

This document bridges the Owner's programmatic requirements — as established in the Advance Architectural Design Development Document — with the Design-Build Entity's structural design responsibility. The Contractor shall use this document, together with all referenced codes and standards, as the Basis of Design (BOD) for the following structural systems:

- Seismic site hazard characterization, deep excavation, shoring, dewatering, and underpinning/protection of three adjacent occupied hospital buildings, based on and coordinated with the Owner-furnished geotechnical investigation (Section 6.4.1)
- Foundation system
- Seismic isolation system at the isolation plane — isolator units, diaphragms above and below the isolators, perimeter moat/seismic gap, and flexible connections for all rigid elements crossing the isolation interface
- Substructure gravity and lateral force-resisting system (Basement and First/Ground Level, through the isolation plane, fixed-base design)
- Superstructure gravity and lateral force-resisting system (Second Level through Roof/Heliport, isolated design per ASCE 7 Chapter 17)
- Heliport structural support system, including FAA-compliant structural design loads and rooftop
- Structural interface and separation/connection details with the existing ASEM Central Services Building
- Temporary shoring and structural considerations for demolition of the partially constructed Central Plaza portion and the existing ASEM Emergency Department expansion
- Special inspections, structural materials testing, and mandatory independent peer review of the seismic isolation system

The Design-Build Entity shall engage licensed Professional Engineers (PE) for all structural systems. The Engineer of Record responsible for the structural design shall be a Professional Engineer licensed to practice in the Commonwealth of Puerto Rico and an active member in good standing of the Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR). All design documents and drawings shall be signed and sealed by the Puerto Rico-licensed PE.

** REQUIRED: An independent structural peer review of the seismic isolation system and the superstructure lateral force-resisting system, performed by a qualified peer reviewer with demonstrated seismic isolation experience and retained directly by the Owner, is mandatory per ASCE 7 Section 17.2.6. The Design-Build Entity shall fully cooperate with the peer review process and incorporate all peer reviewer comments.*

6.2 PROJECT OVERVIEW

6.2.1 Facility Description

The Puerto Rico Trauma Hospital is a new 215,880 square foot, ten-story acute care trauma facility to be constructed on the campus of the Puerto Rico Medical Center (Centro Médico) in San Juan, Puerto Rico. The facility will be structurally integrated with the existing ASEM Central Services Building. The building is organized into a fixed-base substructure (Basement and First/Ground Level) and a seismically isolated superstructure (Second Level through the Roof), separated by a seismic isolation plane occupying a discrete structural zone approximately 3'-6" deep between the First and Second Levels.

6.2.2 Critical Areas Driving Structural Design

The Maximum Capacity Immediate Occupancy (MC-IO) performance objective established in Section 1 applies to all patient-care and mission-critical spaces identified below, in addition to the seismic isolation system, the lateral force-resisting systems (Section 6.8), and the heliport (Section 6.10). Structural design and MC-IO verification for these spaces shall specifically address continued post-MCER functionality at full surge capacity, not solely code-minimum life-safety performance.

- 5 Trauma Operating Rooms (Ground Level) — elevated floor dead load from lead-lined shielding partitions, heavy ceiling-mounted surgical booms and equipment, and stringent floor vibration criteria
- Imaging Department — CT Scanner and X-Ray (Ground Level) — thickened slabs and reinforced walls to support radiation shielding (poured lead or lead-lined gypsum), plus low-vibration floor framing
- Trauma ICU wings (multiple levels) — long-span, column-free bays required for flexible bed layout and future reconfiguration
- 120-seat educational and multipurpose auditorium (Level 2) — long-span roof/floor framing and assembly occupancy live loads
- Exterior roof terrace and garden (Level 2) — planter/soil dead load, waterproofing substrate slope, and guardrail anchorage loads
- Heliport (Roof Level) — FAA-compliant structural design loads, crash/emergency landing load provisions, and a dedicated structural core independent of typical floor framing
- Seismic Isolation Plane (between First and Second Levels) — a discrete ≈3'-6" deep structural zone housing the isolator bearings and an added layer of transfer girders; requires a continuous rigid diaphragm above
- Disaster Control and Monitoring Operations Center (Level 9) — enhanced anchorage requirements for critical non-structural components and equipment consistent with Risk Category IV post-event functionality; the required post-event performance level for this space and its critical systems is Maximum Capacity Immediate Occupancy (MC-IO), per the building-wide objective stated in Section 6.1 and Section 6.7.1

** REQUIRED: The Disaster Control and Monitoring Operations Center (Level 9) and its critical non-structural components, equipment, and anchorage shall be designed for Maximum Capacity Immediate Occupancy (MC-IO) performance following the Maximum Considered Earthquake (MCER) event, per Section 6.1. The Design-Build Entity's structural Engineer of Record shall determine component seismic design forces per ASCE 7 Chapter 13 using a component importance factor Ip = 1.5, coordinated with the reduced floor accelerations applicable to the isolated superstructure (Section 6.8.2), and shall identify the specific critical systems (power, communications, monitoring/control equipment) covered by this requirement in coordination with the Owner and the companion Electrical Bridging Document.*

- Emergency Generator Plant and diesel storage (Basement) — heavy equipment foundations, and structural separation/fire-rated construction coordination with the generator and paralleling switchgear rooms
- Deep basement excavation (~30 feet) directly adjacent to three continuously operating hospital buildings — the ASEM Central Services Building, the Oncological Hospital, and the San Juan Municipal Hospital

6.3 APPLICABLE CODES AND STANDARDS

The Design-Build Entity's design shall comply as a minimum with the following codes, standards, and guidelines. Where conflicts exist, the most stringent requirement shall govern. The Contractor is responsible for determining any additional codes adopted locally in Puerto Rico at the time of permit application.

6.3.1 Federal and Local Codes

- Puerto Rico Building Code (PRBC) — incorporates by reference the 2018 International Building Code (IBC) with corresponding Puerto Rico amendments, and the 2018 International Existing Building Code (IEBC) where applicable to the ASEM Central Services Building interface, latest editions adopted in Puerto Rico
- Americans with Disabilities Act (ADA) — 2010 ADA Standards for Accessible Design (structural coordination for ramps, platform lifts, and accessible route framing)
- FAA Advisory Circular AC 150/5390-2D — Heliport Design (or latest FAA-adopted edition at time of permit; structural loading and clearance requirements for the rooftop heliport)

6.3.2 ACI / AISC / Concrete and Steel Standards

- ASCE 7 — Minimum Design Loads and Associated Criteria for Buildings and Other Structures (latest edition adopted in Puerto Rico), including Chapter 17 (Seismic Design Requirements for Seismically Isolated Structures) and Chapters 26–31 (Wind Loads)
- ACI 318 — Building Code Requirements for Structural Concrete, including Chapter 18 (Earthquake-Resistant Structures)

- ACI 350 / ACI 372 — as applicable to below-grade water-retaining or containment structures (fuel spill containment basins, cisterns)
- AISC 341 — Seismic Provisions for Structural Steel Buildings, retained for reference only in the event any minor, non-primary steel element requires seismic force-resisting detailing (Section 6.11.2)
- AISC 358 — Prequalified Connections for Special and Intermediate Steel Moment Frames
- ACI 355.2 / ACI 355.4 — Qualification of post-installed and cast-in anchors for isolator-to-concrete connections
- ASCE 41 — Seismic Evaluation and Retrofit of Existing Buildings, referenced for interface analysis with the existing ASEM Central Services Building

6.3.3 Seismic Isolation Standards

- ASCE 7 Chapter 17 — Seismic Design Requirements for Seismically Isolated Structures — governs isolation system design, minimum lateral displacements, and superstructure/substructure force reduction factors
- ASCE 7 Section 17.8 — Design, Manufacturing, and Testing Requirements for isolator prototype and production testing
- ASCE 7 Section 11.4.8 / 17.3 — Site-Specific Ground Motion Procedures, mandatory for Risk Category IV isolated structures on this site
- ASCE 41 — Seismic Evaluation and Retrofit of Existing Buildings, referenced here for its structural performance level definitions and associated deformation- and force-based acceptance criteria; the governing performance objective for this project is Immediate Occupancy Structural Performance Level (S-1, ASCE 41 Section 2.3.1.1) paired with the BSE-2N seismic hazard level (equivalent to MCER per ASCE 7), used as the supplemental verification basis for the Maximum Capacity Immediate Occupancy (MC-IO) performance objective established in Section 6.1, since compliance with ASCE 7 Chapter 17 force-based provisions alone does not constitute demonstrated MC-IO performance. Note that ASCE 41's BSE-1N hazard level (two-thirds of BSE-2N) is numerically analogous to, but not the same defined term as, the ASCE 7 Chapter 17 Design Basis Earthquake (DBE) used elsewhere in this document (Section 6.7.1); where a distinction matters, the BSE-2N (MCER)-paired Immediate Occupancy criteria of this Section govern per the strictest-governs principle of Section 6.1

** REQUIRED: The Design-Build Entity's Structural Engineer of Record shall perform nonlinear response history analysis (NLRHA) of the isolated structure per ASCE 7 Chapter 16/17 procedures and evaluate the results against ASCE 41 Immediate Occupancy structural performance acceptance criteria, covering drift, isolator displacement, component deformation, and floor acceleration demands, to demonstrate the Maximum Capacity Immediate Occupancy objective of Section 6.1 at MCER. Results shall be submitted to the Owner and the independent peer reviewer for acceptance prior to Design Development completion.*

6.3.4 Healthcare Facility Guidelines

- Facility Guidelines Institute (FGI) Guidelines for Design and Construction of Hospitals
- Joint Commission Environment of Care standards
- FAA Advisory Circular AC 150/5390-2

6.4 GEOTECHNICAL INVESTIGATION AND SITE CONDITIONS

6.4.1 Subsurface Conditions

The project site is located within the Centro Médico campus in San Juan, given the approximately 30-foot basement excavation required across the majority of the building footprint, the Owner will provide comprehensive geotechnical investigation, including a sufficient number of borings distributed across the site (and extended below the anticipated foundation bearing elevation), in-situ testing, laboratory testing, and groundwater monitoring wells, to characterize the following at a minimum:

- Soil stratigraphy, strength, and compressibility parameters for foundation design
- Groundwater elevation and seasonal fluctuation, for dewatering and buoyancy/uplift design
- Liquefaction potential of saturated cohesionless strata under design seismic loading
- Soil and groundwater corrosivity/aggressivity, for concrete mix design and reinforcement protection
- Lateral earth pressure parameters (at-rest, active, passive) for basement wall and shoring design, including surcharge effects from adjacent structures and construction equipment

** PROVIDED: A site-specific geotechnical investigation and report, addressing liquefaction potential, bearing capacity, groundwater control recommendations, and foundation recommendations for the Advance Design Concept provided in this Document.*

6.4.2 Seismic Site Hazard

Given the combination of Risk Category IV occupancy, a seismically isolated structural system, and a site class anticipated to be Site Class D or softer pending geotechnical confirmation, a site-specific Maximum Considered Earthquake (MCER) ground motion hazard analysis is required per ASCE 7 Sections 11.4.8 and 17.3, rather than reliance on the general code response spectrum alone.

- Site Class: to be confirmed by the geotechnical investigation; preliminarily assumed as Site Class D for planning purposes
- Seismic Design Category: anticipated to be Category D or higher; to be confirmed following the site-specific hazard analysis

- Site-specific response spectra (MCER and design-level/DBE) shall be developed for both the isolation system design (Chapter 17 procedures) and, if triggered by site class, the general structural design; preliminary site-specific spectral parameters developed for the isolation system concept design (Section 6.7.1) indicate a short-period spectral plateau
- Ground motion time histories shall be developed and scaled per ASCE 7 Chapter 16/17 procedures if response-history analysis is used for the isolated structure, which is expected given the Risk Category IV classification and the isolation system

** REQUIRED: The Design-Build Entity's structural Engineer of Record shall confirm, and if necessary refine, the preliminary site-specific seismic hazard parameters referenced above through an independent site-specific study at Schematic Design phase.*

6.5 EXCAVATION, SHORING, AND ADJACENT STRUCTURES

6.5.1 Excavation

The project will require an approximately 30-foot deep excavation across the entirety of the approximately 40,000 square foot proposed building footprint to accommodate the Basement Level and the structural foundation system. The excavation depth and site constraints — bounded by the ASEM Central Services Building to the north, the Pedro Arzuaga Beraza Plaza to the south, the Oncological Hospital to the east, and the San Juan Municipal Hospital to the west — require a fully shored excavation with no sloped/open-cut perimeter.

6.5.2 Shoring and Dewatering

- Shoring System: a continuous perimeter shoring wall — secant pile wall, soldier pile and lagging, or diaphragm (slurry) wall as selected by the Design-Build Entity — designed for the full excavation depth, adjacent structure surcharge, hydrostatic pressure, and construction live loads
- Lateral Support: tieback anchors (where permitted by adjacent property/easement constraints) or internal cross-lot bracing/rakers, designed to limit wall deflection to values compatible with the settlement tolerance of adjacent occupied hospital structures
- Dewatering: given the anticipated shallow groundwater table in the coastal alluvial soils, a dewatering system (wellpoints or deep wells with sump collection) shall be designed to lower the water table below excavation subgrade during construction, with discharge permitting per local environmental agencies; dewatering-induced settlement of adjacent structures shall be evaluated and mitigated
- Permanent Waterproofing: the below-grade basement structure shall be provided with a continuous waterproofing membrane system and detailed for hydrostatic pressure and buoyancy resistance at the design groundwater elevation

6.5.3 Adjacent Structures Protection and Monitoring

The ASEM Central Services Building, the Oncological Hospital, and the San Juan Municipal Hospital are occupied, operating hospital facilities that must remain in continuous service throughout construction. The Design-Build Entity shall implement a comprehensive instrumentation and monitoring program prior to, during, and after excavation and foundation construction.

** REQUIRED: A structural engineer licensed in Puerto Rico shall certify the adequacy of the shoring and monitoring program, and the monitoring program shall be reviewed and accepted by the Owner prior to the start of excavation.*

6.6 FOUNDATION SYSTEM

6.6.1 Foundation Type and Design Basis

The foundation system shall be designed by the Design-Build Entity based on the Owner-furnished, site-specific geotechnical investigation for this Advance Design Concept of the Proposed Trauma Hospital (Section 6.4.1) and shall accommodate both the substructure gravity/lateral loads and the concentrated column reactions delivered by the seismic isolators at the isolation plane, which are typically higher and more concentrated than conventional column loads due to the isolator bearing arrangement. The Design-Build Entity may rely on the Owner-furnished geotechnical report for foundation design purposes; the Design-Build Entity's Structural Engineer of Record shall review the report for adequacy and, where foundation-critical parameters (bearing capacity, liquefaction potential, or differential settlement tolerance at isolator support locations) warrant additional confirmation, may recommend supplemental exploration to the Owner. Any subsurface conditions encountered during construction that materially differ from those indicated in the Owner-furnished report shall be promptly reported to the Owner.

6.6.2 Basement Walls and Waterproofing

- Basement perimeter walls: reinforced cast-in-place concrete, shall be designed for at-rest or active lateral earth pressure (as applicable to the permanent condition), hydrostatic pressure, and surcharge loads from the adjacent structures, roadways, and construction equipment
- Basement walls also act as below-grade shear walls contributing to the substructure lateral force-resisting system described in Section 6.8.1
- Waterproofing: continuous membrane waterproofing system on the exterior face of all below-grade walls and beneath the mat foundation, with detailing at all construction joints, penetrations, and the shoring wall interface (where the shoring wall is incorporated as permanent construction)
- Spill Containment Coordination: the Basement Generator Room diesel day tanks and the bulk diesel storage tank require dedicated spill containment basins per NFPA 30/37/110;

the structural slab and containment curbs at these areas shall be designed liquid-tight and coordinated with the mechanical/electrical scope

6.7 SEISMIC ISOLATION SYSTEM

A seismic isolation plane is provided between the First (Ground) Level and the Second Level of the building. This isolation plane occupies a structural zone approximately 3'-6" (42 inches) deep, accommodating the isolator units and an added layer of transfer beams. This isolation plane serves as the facility's primary earthquake protection system, designed to reduce seismic damage and provide continued post-earthquake functionality for this Risk Category IV Trauma Facility.

6.7.1 Isolation System Basis of Design

- The building is divided into a fixed-base substructure and a seismically isolated superstructure, separated by the isolation interface
- Design basis per ASCE 7 Chapter 17: the isolation system and structural elements below the isolation interface shall be designed for MCER-level forces, while the isolated superstructure above is designed for substantially reduced forces reflecting the added period shift and damping provided by the isolators
- Performance Objective: Maximum Capacity Immediate Occupancy (MC-IO) — Immediate Occupancy Structural Performance Level (S-1) at the BSE-2N (MCER) seismic hazard level per ASCE 41 Section 2.3.1.1, per Section 6.1 — the isolation system and the isolated superstructure it supports shall enable the facility to retain full operational capacity, including surge capacity (182 beds), with immediate post-earthquake occupancy, consistent with the facility's function as a post-disaster trauma treatment and Disaster Control and Monitoring Operations Center; verification methodology per Section 6.3.3
- Site-Specific Ground Motion: a site-specific MCER/DBE spectral analysis shall be developed for this project's isolation system design
- Isolator Layout: isolator units are located atop selected column and wall lines, not necessarily every column, as determined by the gravity and lateral load distribution; a continuous rigid floor diaphragm at the top of the isolation zone unifies all wings and blocks of the hospital's articulated floor plan into a single, continuous seismically isolated superstructure

** REQUIRED: The Design-Build Entity's Structural Engineer of Record shall confirm and finalize the site-specific MCER/DBE ground motion hazard analysis (or perform an independent site-specific analysis per ASCE 7 Sections 11.4.8 and 17.3) at Schematic Design phase.*

6.7.2 Isolator Units — Minimum Performance Criteria

The isolation system shall be specified on a performance basis, so that isolator units from any qualified manufacturer meeting the minimum criteria below may be proposed, subject to the acceptance of the structural Engineer of Record and the independent peer reviewer.

- Design Displacements: each isolator shall be sized for the Design Displacement (DD) and Maximum Displacement (DM) per ASCE 7 Section 17.5, including additional torsional displacement demand due to any eccentricity between the center of mass and center of rigidity of the isolation system
- Prototype Testing: per ASCE 7 Section 17.8, a minimum of two full-scale prototype units of each isolator type and size shall be tested for compliance, including cyclic testing at MCER displacement; the effects of aging, wear, temperature, and scragging shall be incorporated into the isolator property modification factors used in design
- Production Quality Control Testing: 100% of production isolator units shall undergo quality control testing at a minimum vertical test load consistent with the average seismic weight per isolator with a minimum of three full displacement cycles per unit, confirming that friction/stiffness and damping properties fall within the upper-bound and lower-bound property envelope established by prototype testing
- A perimeter seismic movement gap shall be provided around the entire isolated superstructure at all levels above the isolation plane, consistent with the project's design-basis maximum displacement demand plus the code-required clearance margin per ASCE 7 Section 17.5.3.7
- Seismic joint covers (floor, wall, and ceiling) capable of accommodating the full design displacement in all horizontal directions shall be provided , stair and elevator penetrations of the isolation plane, and the corridor connector to the existing ASEM Central Services Building
- Corridor Connector Interface: since the existing ASEM Central Services Building is not seismically isolated, the Level 2 corridor connector between the isolated Trauma Hospital superstructure and the fixed ASEM building shall incorporate a sliding/flexible structural connection (seismic separation joint) sized for the full isolator displacement demand, so that no rigid connection exists across the isolation boundary

** REQUIRED: Final seismic gap dimensions at all locations shall be confirmed by the Design-Build Entity's Structural Engineer of Record based on the final site-specific maximum displacement calculation.*

- All rigid structural, architectural, and MEP elements crossing the isolation interface — stairs, elevator shafts, mechanical/electrical/plumbing risers, and any structural bracing — shall include flexible connections, sliding joints, or sufficient slack/loop capacity to accommodate the full design displacement demand in all horizontal directions without damage

- Elevator shafts penetrating the isolation plane shall include a structural sliding seismic joint at the shaft walls within the isolation zone, coordinated with the elevator manufacturer's rail and guide clearances
- Coordination with MEP disciplines is required for conduit, cable tray, piping, and duct loop/flexible connection details within the isolation zone; this coordination corresponds to the flexible connection requirements

6.8 LATERAL FORCE-RESISTING SYSTEM

6.8.1 Below Isolation Plane

- The Basement and Ground (First) Level, through the base of the isolation plane, form an essentially rigid, fixed-base substructure supporting the isolation system
- Lateral System: reinforced concrete special moment frames and reinforced concrete special shear walls, acting together as a dual system, sized for minimal drift, designed for MCER-level (essentially elastic) forces per ASCE 7 Chapter 17 requirements — the substructure is not permitted to rely on the isolation system's period shift or damping benefit; essentially elastic substructure response is a necessary but not sufficient condition for the Maximum Capacity Immediate Occupancy (MC-IO) objective of Section 1, which shall be confirmed.
- Below-grade basement walls act as additional shear walls, engaging passive soil resistance where applicable

6.8.2 Above Isolation Plane

- Levels 2 through 9 and the Roof/Heliport form the seismically isolated superstructure, designed for the reduced force levels permitted by ASCE 7 Chapter 17 for isolated structures
- Lateral System: reinforced concrete special moment frames and reinforced concrete special shear walls, acting together as a dual system per ACI 318 Chapter 18 and ASCE 7 Table 12.2-1, consistent with the proposed structural system — the superstructure shall be concrete throughout, matching the substructure system of Section 6.8.1; the selected configuration and layout of moment frame bays and shear wall lines is subject to peer review acceptance; the selected system's drift and component demands shall be evaluated against ASCE 41 Immediate Occupancy acceptance criteria per Section 6.3.3 in support of the Maximum Capacity Immediate Occupancy (MC-IO) objective of Section 6.1, which may govern over the Chapter 17 code-minimum drift limits noted below
- Drift Limits: superstructure story drift shall be limited per ASCE 7 Chapter 17 provisions for isolated structures, which are generally more permissive than fixed-base equivalents due to the reduced superstructure demand, but shall still be checked against isolator displacement compatibility and moat clearance at every level; where the Chapter 17 drift limit is less restrictive than the ASCE 41 Immediate Occupancy drift limit applicable under the Maximum Capacity Immediate Occupancy (MC-IO) objective of Section 6.1, the more restrictive limit shall govern

- Redundancy: the superstructure lateral system shall meet the redundancy factor and height limitations applicable to isolated structures per ASCE 7 Chapter 17 and the Seismic Design Category determined in Section 6.4.2

6.8.3 Wind Design Criteria

- Basic Wind Speed: 180 mph, 3-second gust, Risk Category IV, per ASCE 7 Chapters 26–30 and the Puerto Rico Building Code; Exposure Category to be confirmed by site-specific terrain survey
- Components and Cladding: wind pressures for exterior wall systems, parapets, rooftop equipment screens, and the heliport structure shall be determined per ASCE 7 Chapter 30
- Occupant Comfort: given the 10-story height and the dynamic characteristics of the isolated superstructure, wind-induced building acceleration at upper occupied floors shall be evaluated against recognized occupant comfort criteria
- Isolator Behavior Under Wind: the isolation system shall provide sufficient initial stiffness such that the superstructure does not displace under service-level wind loads, per ASCE 7 Section 17.2.4.4; the Design-Build Entity shall confirm wind-restraint adequacy of the selected isolator type or provide a supplemental wind-restraint mechanism as needed

Wind Parameter	Value / Basis
Basic Wind Speed, V	180 mph, 3-second gust (Category 5 hurricane region)
Risk Category	IV
Exposure Category	C (to be confirmed by site-specific terrain survey; D if governed by proximity to open coastal exposure)
Directionality Factor, Kd	0.85, typical for buildings and other structures per ASCE 7
Topographic Factor, Kzt	1.0 assumed; to be confirmed no topographic speed-up condition applies per ASCE 7 Section 26.8
Ground Elevation Factor, Ke	1.0, typical at project elevation
Enclosure Classification	Enclosed, except where specific openings (e.g., mechanical louvers) require partially enclosed classification per ASCE 7 Section 26.2

6.8.4 Seismic Design Criteria

- Risk Category IV, with the corresponding Importance Factor applied to the substructure design per ASCE 7 Chapter 11

- Site Class and Seismic Design Category per the site-specific investigation described in Section 6.4.2; anticipated Site Class D and Seismic Design Category D or higher, to be confirmed
- Site-specific MCER ground motion procedures required per ASCE 7 Sections 11.4.8 and 17.3 for both the isolation system design and the substructure/superstructure structural design

Seismic Parameter	Value / Basis
Risk Category	IV
Seismic Importance Factor, Ie	1.5, per ASCE 7 Table 1.5-2 for Risk Category IV
Mapped Spectral Accelerations, Ss / S1	To be obtained from the ASCE 7 / Puerto Rico Building Code seismic hazard maps for the project site (Centro Médico, San Juan) by the Design-Build Entity's Structural Engineer of Record
Site Class	D, anticipated; to be confirmed by the geotechnical investigation (Section 4.1)
Design Spectral Parameters, SDS / SD1	To be calculated once Ss, S1, and Site Class are confirmed; superseded for isolation system design by the site-specific MCER/DBE analysis of Section 7.1
Seismic Design Category	D or higher, anticipated; to be confirmed following the site-specific hazard analysis
Substructure Seismic Force-Resisting System (fixed-base, Section 8.1)	Special Reinforced Concrete Moment Frame and Special Reinforced Concrete Shear Wall Dual System; the moment frames shall be proportioned per ASCE 7 Section 12.2.5.1
Superstructure (Isolated) Design Basis (Section 8.2)	Per ASCE 7 Chapter 17 isolated-structure force reduction provisions, not the conventional R-factor approach used for the substructure; RI is derived from the same concrete special moment frame/special shear wall dual system base R value used for the substructure (Section 8.4), per ASCE 7 Section 17.5.4.2, and shall be confirmed by the Engineer of Record once the substructure R value is finalized
Analysis Procedure	Equivalent Lateral Force procedure permitted for the substructure where applicable per ASCE 7 Chapter 12; dynamic (response-spectrum or response-history) analysis required for the isolated superstructure per ASCE 7 Chapter 17

Table 1 below summarizes the principal structural design criteria referenced throughout this document.

Design Parameter	Criteria	Notes
Risk Category	IV	Essential facility — trauma hospital with post-disaster function
Basic Wind Speed	180 mph (3-second gust)	Category 5 hurricane region; Exposure Category C (confirm with site survey)
Seismic Design Category	D (anticipated)	To be confirmed by site-specific hazard analysis
Site Class	D (anticipated)	To be confirmed by geotechnical investigation
Live Load — Patient Rooms	40 psf	Per IBC Table 1607.1
Live Load — Operating Rooms	60 psf	Plus superimposed equipment loads per manufacturer data
Live Load — Corridors above 1st Floor	80 psf	Per IBC Table 1607.1
Live Load — Assembly / Auditorium	100 psf	Level 2, 120-seat auditorium
Live Load — Mechanical / Electrical Rooms	150 psf minimum	Confirm against actual equipment weights
Live Load — Roof (general)	20 psf minimum	Plus heliport design loads per FAA AC 150/5390-2D (or latest FAA-adopted edition at time of permit)
Basement Excavation Depth	≈30 feet	Full building footprint, ≈40,000 SF
Groundwater Control	Dewatering + permanent waterproofing	Shallow water table expected

6.9 GRAVITY FRAMING SYSTEM

6.9.1 Floor Framing by Level

- Substructure (Basement and Ground Level, plus the isolation plane transfer girders): conventional reinforced concrete flat slab, or beam-and-slab framing, on concrete columns and shear walls, sized to collect and transfer isolator reaction loads down to the foundation
- Second Level Diaphragm (base of isolated superstructure): the Second Level floor framing directly above the isolation plane shall be designed as a continuous rigid diaphragm unifying all wings of the hospital's articulated plan (ICU wing, auditorium block, and ASEM corridor connector approach) into a single isolated structural unit, notwithstanding the building's non-rectangular footprint
- Superstructure (Levels 2 through 9): reinforced concrete flat plate or reinforced concrete beam-and-slab framing, consistent with the concrete moment frame/shear wall dual lateral system of Section 6.8.2; the Design-Build Entity's Structural Engineer of Record shall select the specific concrete floor system, coordinated with floor-to-floor height constraints and isolator vertical load efficiency
- Roof: reinforced concrete roof slab, consistent with the concrete superstructure of Section 6.9.1, equipment curbs and support framing shall be designed for equipment operating weight, seismic anchorage forces, and 180 mph design wind uplift. The heliport structure (Section 6.10) is reinforced concrete, consistent with the all-concrete primary structural system; minor, non-primary structural steel (equipment support racks, screen wall framing, ladders, and similar discrete rooftop platforms) is permitted, such elements are not part of the building's primary gravity or lateral force-resisting system
- Roof Terrace, Level 2: structural slab designed for planter/soil dead load, waterproofing system substrate, drainage slope, and guardrail/parapet anchorage loads in addition to standard roof live load

6.9.2 Vibration Criteria for Sensitive Equipment

- Imaging Suite (CT / X-Ray): floor vibration shall be limited to Vibration Criterion VC-C, or the specific imaging equipment manufacturer's requirement, whichever is more stringent
- Trauma Operating Rooms: floor stiffness shall be evaluated to limit vibration and deflection under surgical boom loads, equipment carts, and foot traffic, consistent with FGI Guidelines for surgical suites
- General Patient Care Floors: standard live load deflection limits (L/360) per IBC apply, with additional stiffness review at long-span bays

6.10 HELIPORT STRUCTURE

The Roof Level heliport shall be supported on a dedicated structural core independent of the typical roof framing, designed to accommodate FAA-compliant structural loading in addition to the seismic isolation, wind, and gravity criteria applicable to the remainder of the isolated

superstructure. Given the heliport's role in post-disaster patient transport and evacuation at full surge capacity, the heliport structure is included within the Maximum Capacity Immediate Occupancy (MC-IO) performance objective of Section 6.1 and shall remain operational immediately following the MCER event.

- Structural System: dedicated reinforced concrete elevated landing pad structure, consistent with the all-concrete primary structural system of Section 6.8; supported by the Level 9 heliport elevator core and access ramp framing described in the Advanced Design Documents.
- Design Loads: helicopter design loads (static and dynamic wheel/skid loads) per the applicable FAA Helicopter Design Group, superimposed live load, and emergency/crash landing load provisions per FAA Advisory Circular AC 150/5390-2D and IBC Section 1607.11, heliport structural design loads.
- Obstruction and Approach Surfaces: the structural design of the heliport core, elevator overrun, and any adjacent rooftop equipment shall respect the FAA-defined obstacle clearance surfaces per AC 150/5390-2D (or latest FAA-adopted edition at time of permit), coordinated with the electrical scope's obstruction lighting requirements
- Service Holding Terrace: structural slab and guardrail anchorage for the service holding terrace adjacent to the heliport landing pad, designed for pedestrian and light equipment live loads plus wind uplift

6.11 STRUCTURAL MATERIALS

6.11.1 Cast-in-Place Concrete

- Foundation system and below-grade walls: minimum f'c = 5,000 psi, normal weight concrete, low-permeability mix design for corrosion resistance and waterproofing compatibility
- Isolation Level structure (isolator pedestals and diaphragms): minimum f'c = 5,000 psi, detailed for the concentrated isolator bearing loads and anchorage per ACI 355.2/355.4
- Superstructure concrete elements (special moment frames and special shear walls, Section 6.8.2): minimum f'c = 4,000 psi as required by special shear wall/moment frame detailing per ACI 318 Chapter 18

6.11.2 Structural Steel

- Wide-flange shapes: ASTM A992, Fy = 50 ksi
- HSS bracing members: ASTM A500 Grade C, or ASTM A1085 where enhanced seismic ductility is required
- Seismic detailing per AISC 341 and prequalified connections per AISC 358 apply only in the event any minor, non-primary steel element (rooftop equipment platforms, screen wall framing, or similar) is designated as seismic-force-resisting; no structural steel is proposed for the primary structural system of this facility, including the heliport (Section 6.10), which is reinforced concrete throughout per Section 6.8

6.11.3 Reinforcing Steel

- Special seismic force-resisting elements (shear walls, moment frame regions, isolation level diaphragms): ASTM A706 Grade 60 weldable reinforcing steel for ductile detailing per ACI 318 Chapter 18
- General reinforcement (gravity-only elements): ASTM A615 Grade 60

6.11.4 Miscellaneous Steel Products and Masonry

In addition to the primary wide-flange and HSS members of Section 6.11.2, the following material specifications apply to miscellaneous steel products and, where used for infill or partition construction, masonry:

Product	Specification
Angles, Channels, Plates	ASTM A36
HSS — Rectangular	ASTM A500, Grade B (or Grade C where enhanced seismic ductility is required, per Section 11.2)
HSS — Round	ASTM A500, Grade B (Fy = 42 ksi)
Pipe	ASTM A53, Grade B
Threaded Rod	ASTM A36
Anchor Rods	ASTM F1554, Grade 36
High-Strength Bolts	ASTM A325 / F3125 Grade A325 (or A490 / F3125 Grade A490 where required by connection design)
Welding Electrodes	70 ksi minimum tensile strength (E70XX series), matching AWS D1.1/D1.8 seismic requirements for demand-critical welds
Masonry (infill / partition walls, where used)	f'm = 2,000 psi, normal weight concrete masonry units, reinforced per TMS 402/602 and the Puerto Rico Building Code

6.11.5 Corrosion Protection

- Below-grade reinforced concrete elements: epoxy-coated reinforcement or corrosion-inhibiting admixtures, combined with low-permeability mix design
- Exposed structural steel, rooftop equipment supports, exterior canopies, and others, hot-dip galvanized or high-performance coating system rated for a coastal/tropical exposure, consistent with the corrosion-resistance requirements noted for exterior electrical and mechanical equipment enclosures

6.12 DESIGN-BUILD ENTITY SCOPE AND KEY DESIGN CONSTRAINS

6.12.1 Items Fully in Design-Build Entity Scope

- Structural design by a Professional Engineer (PE) licensed in Puerto Rico and an active member of the Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR); all drawings and design documents signed and sealed by the Puerto Rico-licensed PE
- Site-specific seismic hazard analysis (ground motion procedures per ASCE 7 Sections 11.4.8 and 17.3), excavation, shoring, dewatering, and adjacent structures monitoring program described in Sections 6.4 and 6.5, based on and coordinated with the Owner-furnished geotechnical investigation described in Section 6.4.1
- Review, reliance upon, and structural incorporation of the Owner-furnished geotechnical investigation and report (Section 6.4.1); the Design-Build Entity's structural Engineer of Record shall review the Owner-furnished report for adequacy and applicability to the final foundation and shoring design, and shall promptly notify the Owner in writing of any observed or actual subsurface conditions materially differing from those indicated in the Owner-furnished report
- Complete foundation system and basement walls/waterproofing described in Section 6
- Complete seismic isolation system, including isolator units, prototype/production testing, isolation plane diaphragms, seismic gap, and all flexible connections for elements crossing the isolation interface described in Section 6.7
- Complete substructure and superstructure lateral and gravity framing systems described in Sections 8 and 9
- Heliport structural support system described in Section 6.10
- All permits, inspections, and regulatory approvals for structural systems (PRBC, PRDOH, FAA heliport review)
- Coordination and cooperation with the independent seismic isolation peer review process described in Section 6.1 and Section 6.8.4
- 6.12.2 Key Design Constraints
- Mandatory Maximum Capacity Immediate Occupancy (MC-IO) performance objective (Section 6.1) applying building-wide to the isolation system, substructure and superstructure lateral systems, heliport, and all patientcare and mission-critical spaces (Section 6.2.3) — verified via ASCE 41 acceptance criteria in addition to ASCE 7 Chapter 17 code-minimum compliance
- Mandatory site-specific MCER ground motion hazard analysis given the combination of Risk Category IV occupancy, seismic isolation, and anticipated Site Class D or softer conditions
- Mandatory independent structural peer review of the isolation system and superstructure lateral system per ASCE 7 Section 17.2.6 — Design-Build Entity shall not proceed to permit submission without incorporating peer review comments
- No rigid structural connection permitted across the isolation plane or between the isolated superstructure and the existing (non-isolated) ASEM Central Services Building — all such interfaces require flexible/sliding seismic joints sized for full MCER displacement

- The seismic isolation plane occupies approximately ≈3'-6" deep structural zone between the First and Second Levels;
- 30-foot deep excavation directly adjacent to three continuously operating hospital facilities requires a fully engineered shoring, dewatering, and monitoring program with documented threshold/action levels, established and accepted before excavation begins
- Hurricane/tropical environment: all exposed structural steel and exterior connections shall be designed for 180 mph wind speed per ASCE 7/PRBC and detailed with corrosion protection appropriate for Puerto Rico's climate; the reinforced concrete heliport structure (Section 6.10) shall likewise be designed for 180 mph wind speed and detailed with the corrosion-resistant concrete mix design and reinforcement protection
- Hazardous materials abatement (asbestos/lead) in the Central Plaza and ASEM Emergency Department expansion demolition areas must be completed and cleared prior to the start of structural demolition and new foundation work

6.13 STRUCTURAL DESIGN NARRATIVE ANNEXES

The following annex drawings are included for reference, illustrating the structural configuration of key systems described in this Bridging Document:

6.13.1 Annex 1 – Building Section Showing Substructure / Isolation Plane / Superstructure



Figure 1.1

- - - - - Seismic Isolation Plane

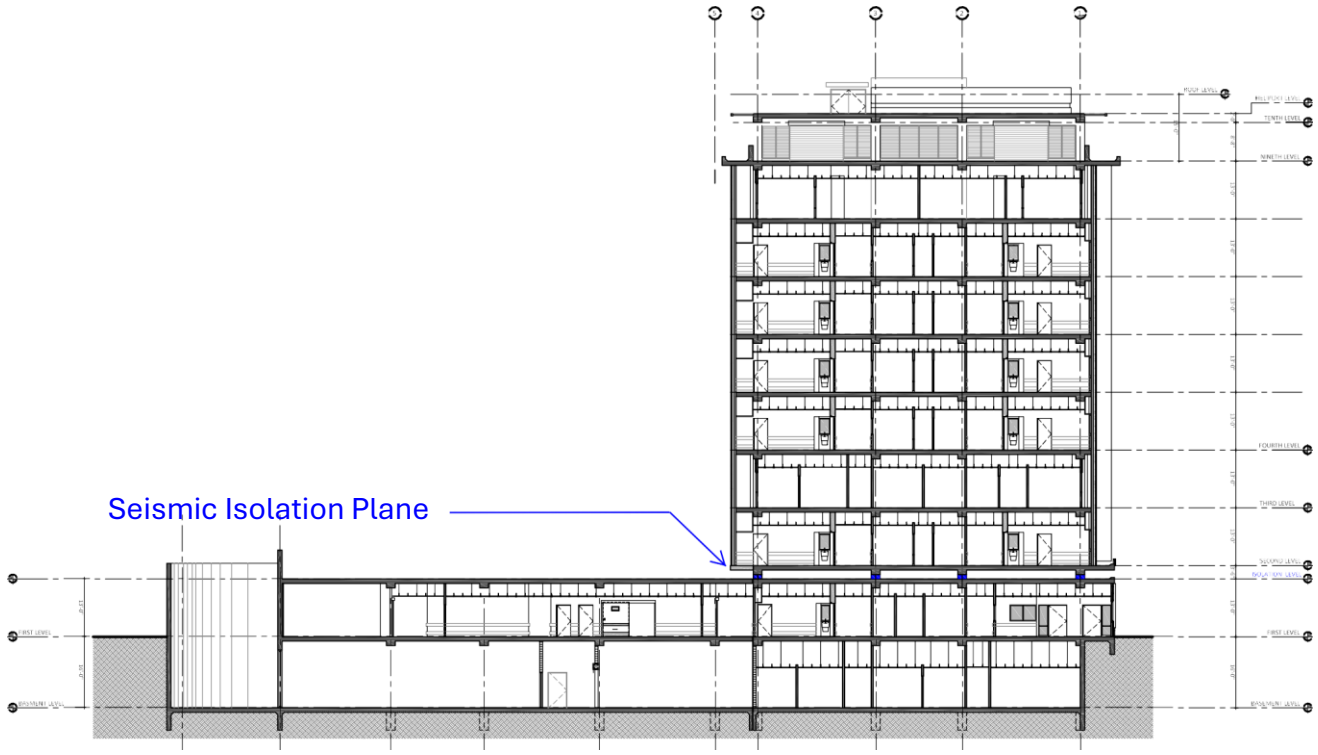


Figure 1.2

From level 2 and up the structure was raised 3'-6" to accommodate isolators and other level of floor beams.

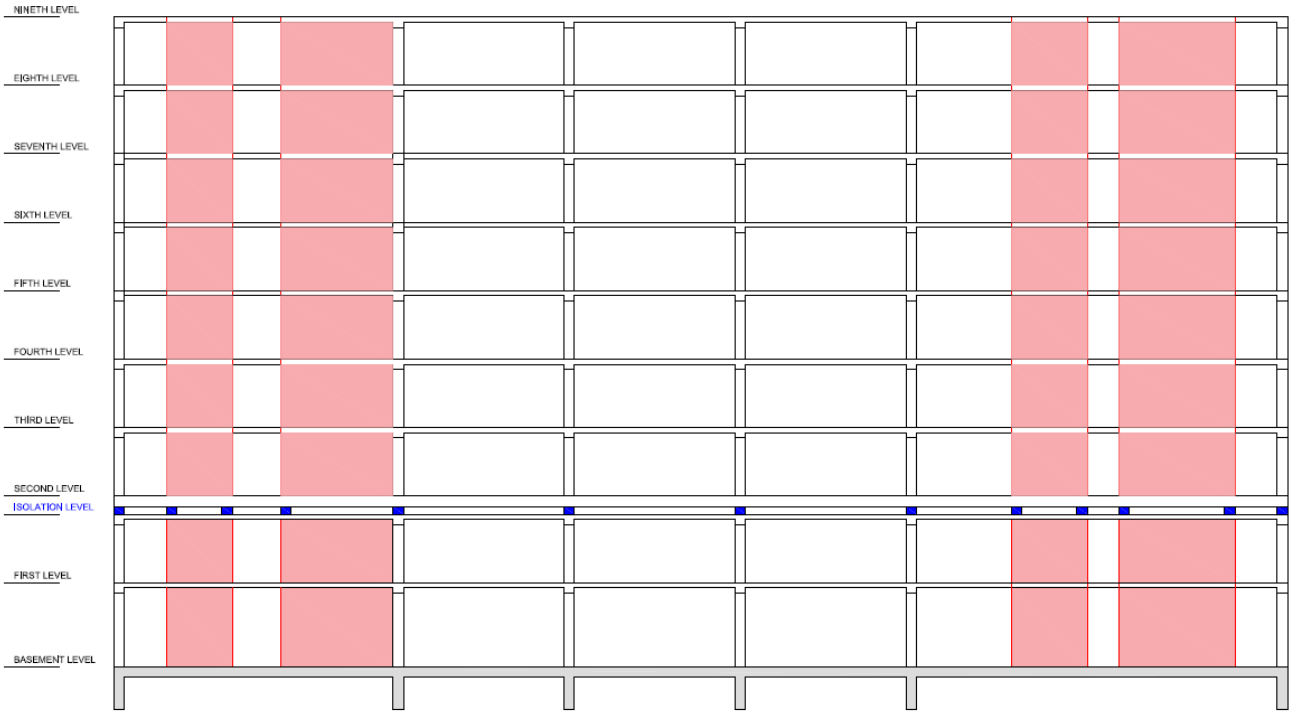


Figure 1.3

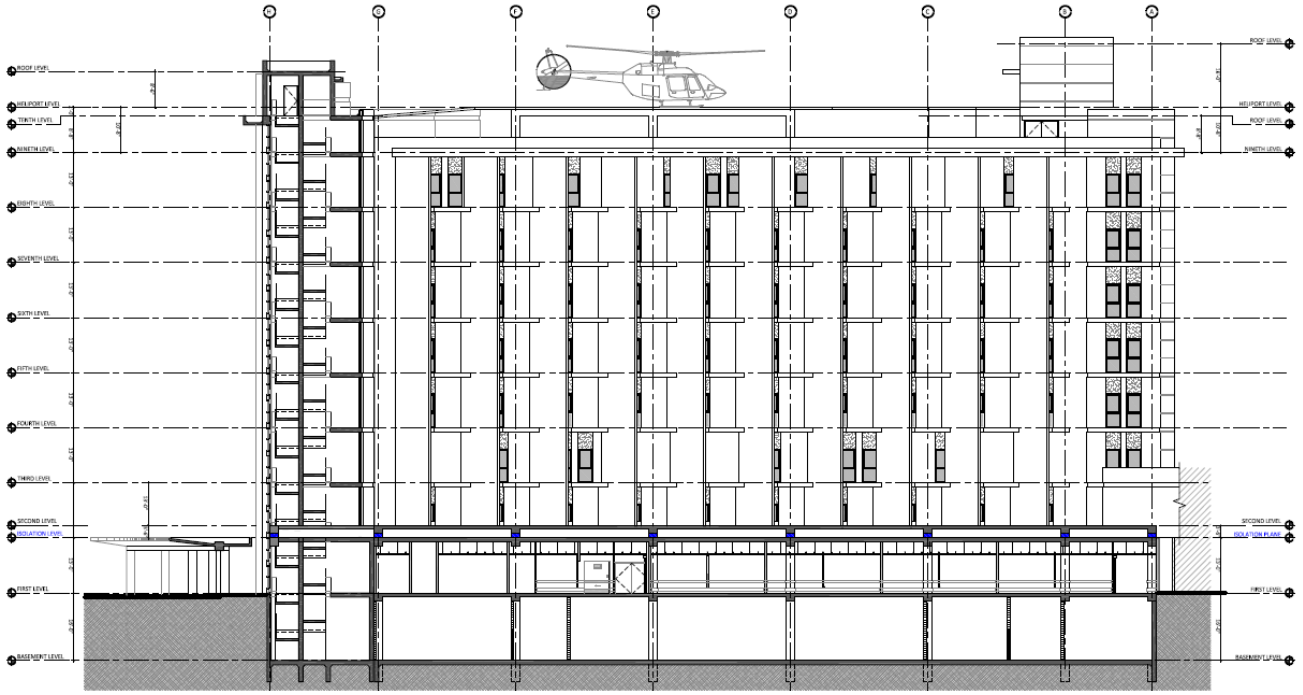
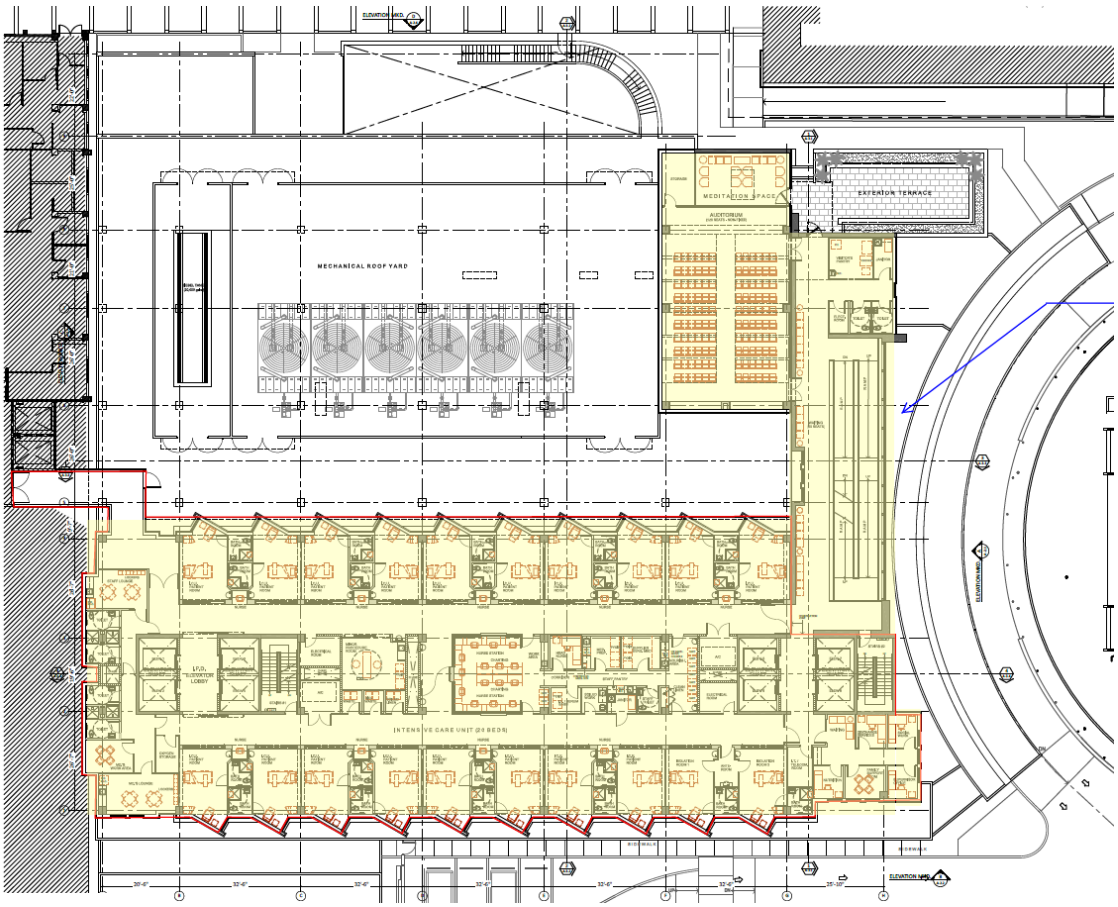


Figure 1.4

From level 2 and up the structure was raised 3'-6" to accommodate isolators and other level of floor beams.



Highlighted in yellow the area above isolators: one continuous structure with continuous floor diaphragm connecting all portions of the hospital blocks.

Figure 1.5



Figure 1.6

- - - - - Seismic Isolation Plane



Figure 1.7

- - - - - Seismic Isolation Plane

▬▬ Seismic Movement Gap

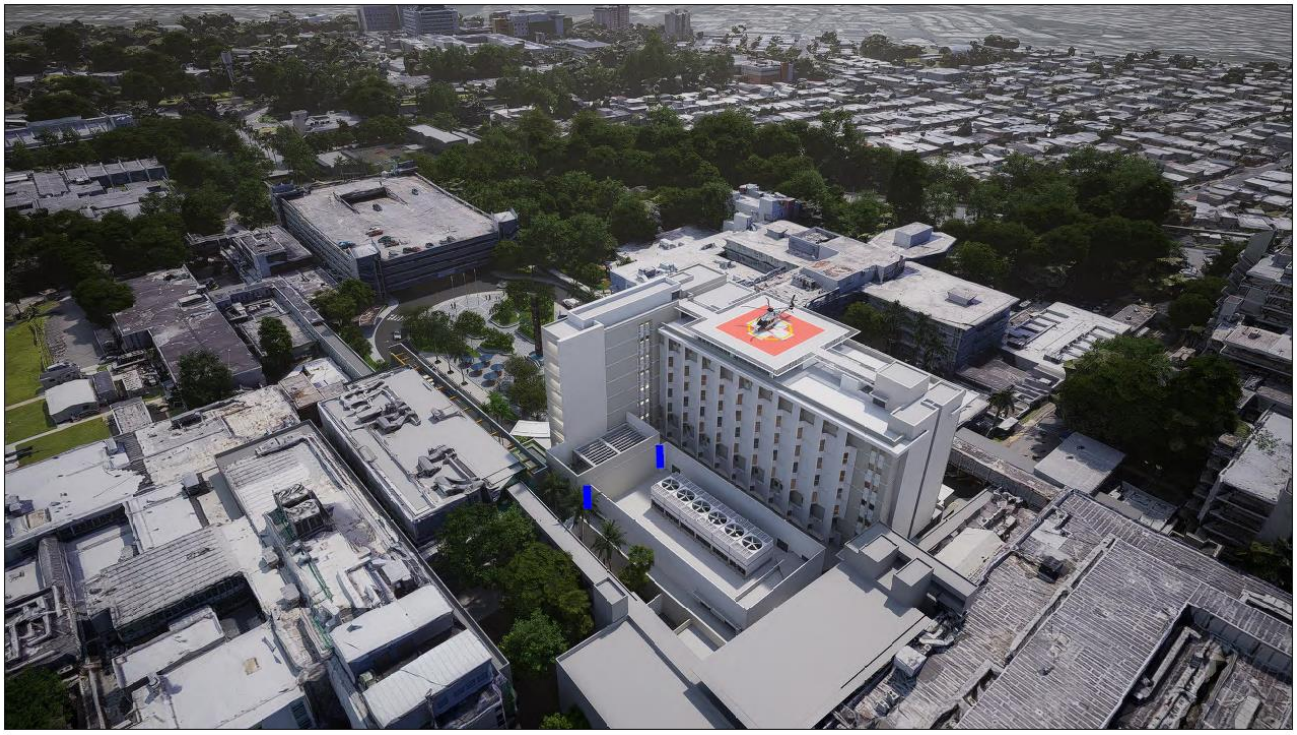
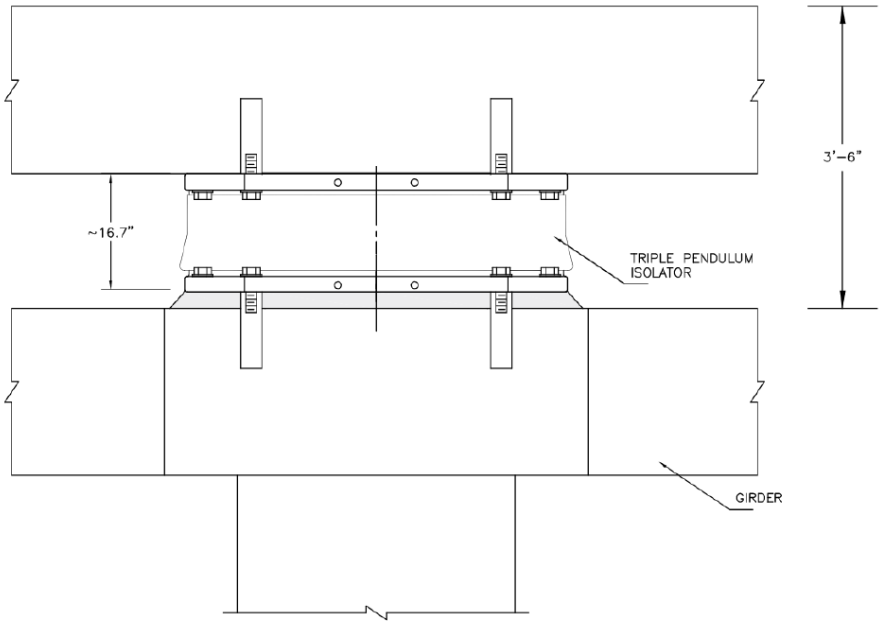


Figure 1.8

Seismic Movement Gap

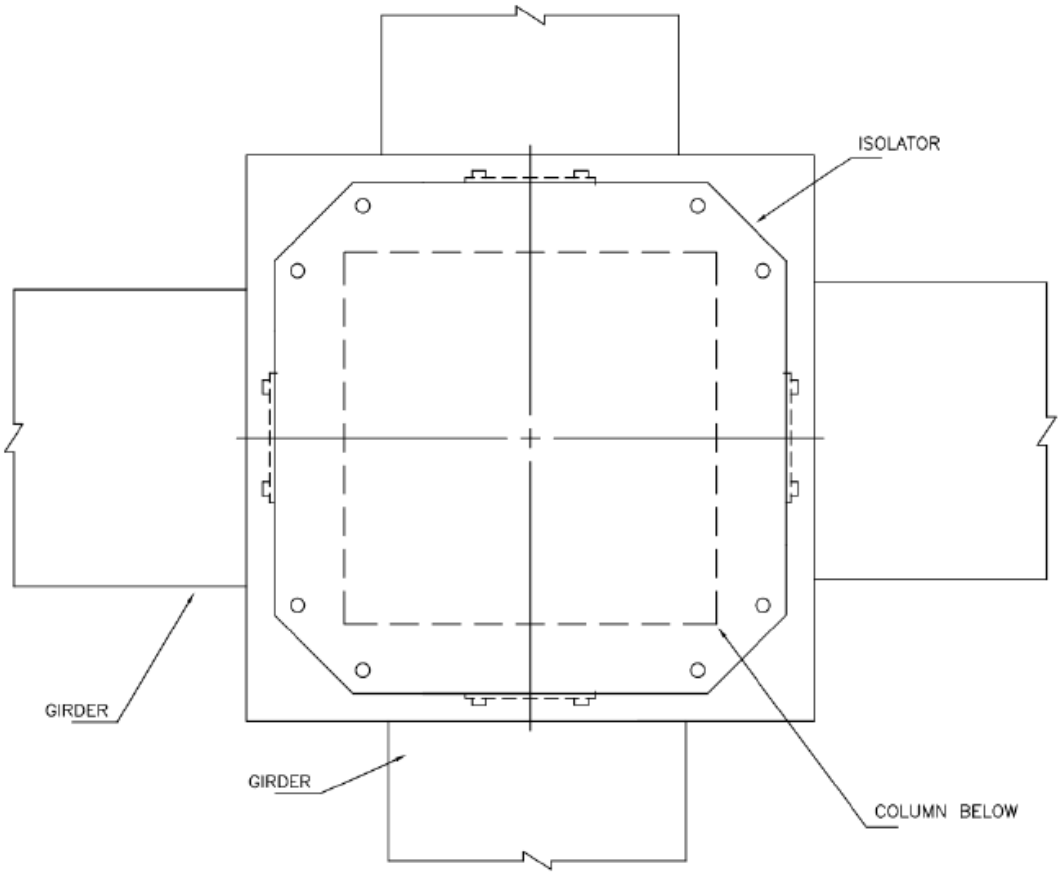
6.13.2 Annex 2 – Typical Isolator Layout at the Seismic Isolation Plane



3'-6" increase of building height to accommodate the isolators and other level of floor beams.

ELEVATION

Figure 2.1



PLAN

Figure 2.2

7.0 ELECTRICAL DESIGN NARRATIVE

ELECTRICAL SYSTEMS

Power Distribution • Lighting • Communications • Fire Alarm • Special Systems

7.1 INTRODUCTION AND PURPOSE

This Bridging Document establishes the Electrical Engineering performance requirements, design criteria, and minimum system standards that the Design-Build (D&B) Contractor must incorporate into the design and construction of the Puerto Rico Trauma Hospital located at Centro Médico, San Juan, Puerto Rico. All electrical distribution equipment serving both essential (Life Safety, Critical, and Equipment System branches) and non-essential (Optional Standby) building loads shall be designed with a minimum 10% spare capacity for future load growth.

This document bridges the Owner's programmatic requirements — as established in Advance Architectural Design Development Document — with the Design-Build Entity's design responsibility. The Contractor shall use this document, together with all referenced codes and standards, as the Basis of Design (BOD) for the following electrical systems:

- Utility service at 38 kV and outdoor yard-type substation with step-down to 13.2 kV medium-voltage distribution
- Normal power distribution — double-ended 13.2 kV to 480 V substation, including its secondary switchgear sections with two electrically-operated main breakers, four distribution breaker sections, and one electrically-operated tie breaker
- Emergency and standby power — diesel generators, automatic transfer switches, NFPA 99 Essential Electrical System, and Optional Standby System
- Uninterruptible power supply (UPS) for critical clinical and IT loads
- Grounding and bonding
- Interior, emergency, exterior, and heliport lighting systems
- Telecommunications — rough-in (pathways, conduit, cable tray, and room provisioning) only for structured cabling, which is not in the Design-Build Entity's contract scope; nurse call — complete system, including wiring and equipment; public address, CCTV, and access control — rough-in only (conduit, backboxes, and cable pathways), with devices and equipment furnished and installed by others
- Fire alarm system
- Lightning protection system

The Design-Build Entity shall engage licensed Professional Engineers (PE) for all electrical systems. The Engineer of Record responsible for the electrical design shall be a Professional Engineer licensed to practice in the Commonwealth of Puerto Rico and an active member in good standing of the Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR). All design documents and drawings shall be signed and sealed by the Puerto Rico-licensed PE. The Design-Build Entity shall submit design documents for Owner review at Schematic Design (SD), Design Development (DD), and Construction Documents (CD) phases.

7.2 PROJECT OVERVIEW

7.2.1 Facility Description

The Puerto Rico Trauma Hospital is a new 215,880 square foot, ten-story acute care trauma facility to be constructed on the campus of the Puerto Rico Medical Center (Centro Médico) in San Juan, Puerto Rico. The facility will be structurally integrated with the existing ASEM Central Services Building at three levels.

7.2.2 Critical Areas Driving Electrical Design

- 5 Trauma Operating Rooms (Ground Level) — highest electrical load density; essential power, isolated power panels (IPPs), and IT equipment per NFPA 99
- Trauma Stabilization — 16 treatment cubicles + 1 airborne infection isolation (AII) room; essential power required at all stations
- Trauma ICU — 28 private rooms + 4 isolation rooms (Levels 1 & 2); bedhead units with essential branch power, data, and nurse call
- Imaging Department — CT Scanner and X-Ray (Ground Level); dedicated power feeders and shielding coordination
- Heliport (Roof Level) — FAA-compliant obstruction and approach lighting; essential power
- Disaster Control and Monitoring Operations Center (Level 9) — independent essential and UPS power; redundant communications infrastructure
- Cafeteria / Kitchen (Basement) — large food service equipment loads
- Emergency Generator Plant (Basement) — three diesel-driven generators with paralleling switchgear and automatic transfer switching for full Essential Electrical System and Optional Standby coverage

7.3 APPLICABLE CODES AND STANDARDS

The Design-Build Entity's design shall comply as a minimum with the following codes, standards, and guidelines. Where conflicts exist, the most stringent requirement shall govern. The Contractor is responsible for determining any additional codes adopted locally in Puerto Rico at the time of permit application.

7.3.1 Federal and Local Codes

- Puerto Rico Building Code (PRBC) — incorporates by reference the 2018 International Building Code (IBC) with corresponding Puerto Rico amendments, 2018 International Fire Code (IFC) with corresponding Puerto Rico amendments, and 2018 International Energy Conservation Code (IECC) with corresponding Puerto Rico amendments, the latest editions adopted in Puerto Rico
- Puerto Rico Department of Health (PRDOH) — Hospital Licensure Regulations, including Regulation 9184
- PREPA manuals and regulations, including the Reglamento Complementario al Código Eléctrico Nacional

- Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR) — professional licensing; electrical design signed and sealed by a Puerto Rico-licensed PE who is a CIAPR member
- Americans with Disabilities Act (ADA) — 2010 ADA Standards for Accessible Design

7.3.2 NFPA Standards

- NFPA 70 — National Electrical Code (NEC), latest edition adopted in Puerto Rico — primary electrical installation standard
- NFPA 99 — Health Care Facilities Code (latest edition) — Essential Electrical System (EES), isolated power, Category 1 patient care spaces
- NFPA 72 — National Fire Alarm and Signaling Code — fire alarm system design and installation
- NFPA 101 — Life Safety Code — emergency lighting, exit signage, egress requirements
- NFPA 110 — Standard for Emergency and Standby Power Systems — emergency generators, transfer switches
- NFPA 20 — Standard for the Installation of Stationary Pumps for Fire Protection (coordination for fire pump power)
- NFPA 780 — Standard for the Installation of Lightning Protection Systems

7.3.3 NEC / NEMA / IEEE Standards

- NEC Article 517 — Health Care Facilities — essential electrical system, isolated power, patient care areas
- NEC Article 700 / 701 / 702 — Emergency, Legally Required Standby, and Optional Standby Systems
- NEC Article 230 — Services; Article 240 — Overcurrent Protection; Article 250 — Grounding and Bonding
- IEEE 241 (Gray Book) — Recommended Practice for Electric Power Systems in Commercial Buildings
- IEEE 142 (Green Book) — Recommended Practice for Grounding of Industrial and Commercial Power Systems
- IEEE 1100 (Emerald Book) — Recommended Practice for Powering and Grounding Electronic Equipment
- NEMA MG-1 — Motors and Generators (for motor-driven equipment)
- NEMA PB-1 — Panelboards
- ASHRAE 90.1 — Energy Standard (lighting power density, energy efficiency of electrical systems)

7.3.4 Healthcare Facility Guidelines

- Facility Guidelines Institute (FGI) Guidelines for Design and Construction of Hospitals — latest edition (electrical systems and patient care space requirements)
- Joint Commission Environment of Care standards (life safety and electrical system testing/maintenance)
- FAA Advisory Circular AC 150/5390-2 — Heliport Design (heliport lighting requirements)

7.4 UTILITY SERVICE AND SITE ELECTRICAL

7.4.1 38 kV Utility Feeder

The electrical utility service for the Puerto Rico Trauma Hospital shall be provided by LUMA Energy at 38 kV via an aerial service connection. The following requirements shall govern the utility interconnection:

- Voltage: 38 kV, three-phase, 60 Hz
- Service Connection: No LUMA evaluation letter currently exists for this project; the Design-Build Entity shall obtain LUMA's evaluation and approval establishing the final 38 kV point of connection, located outside the project site boundary on LUMA's existing aerial distribution system. The Design-Build Entity shall provide a complete, code-compliant transition from the LUMA point of connection to the 38 kV outdoor yard substation (see Section 4.2), including the aerial-to-underground transition, underground feeder, and necessary switching, all located within the project site and complying with PREPA rules and standards and NEC Article 230
- Preliminary Point of Connection: The preliminary point of connection for the 38 kV utility service is located south of the medical center site; this location is subject to LUMA's final evaluation and approval as described above
- Routing: The utility service infrastructure shall be routed within the project site from the point where the LUMA service enters the property to the outdoor substation yard. The LUMA point of connection itself is outside the project site boundary. The Design-Build Entity shall coordinate the final point of connection, equipment locations, route, and any LUMA-required equipment (metering, switching) with LUMA prior to design completion
- Metering: Revenue metering shall be provided per LUMA requirements at the 38 kV service entrance; all metering equipment shall be LUMA-approved and installed in a LUMA-accessible enclosure
- Coordination: The Design-Build Entity shall submit all required utility interconnection applications and load studies to LUMA and obtain LUMA approval for the service connection prior to energizing the substation

** REQUIRED: The Design-Build Entity shall meet with LUMA at project start to confirm the aerial point of connection, pole riser locations, GOAB switch location and rating, metering requirements, and the interconnection agreement. LUMA approval of the 38 kV service connection and substation design is required before construction.*

** REQUIRED: LUMA-endorsed drawings for the utility interconnection (aerial point of connection, pole risers, underground feeder, GOAB switch, and substation) shall be obtained prior to commencing site work.*

7.4.2 Outdoor Yard-Type Substation — 38 kV to 13.2 kV

The primary substation shall be an outdoor yard-type (open-air) configuration, located within the project site at grade level at a dedicated, fenced substation yard. The substation shall step down the 38 kV utility supply to 13.2 kV for distribution throughout the facility.

7.4.2.1 Transformer Configuration

- Quantity: Two (2) power distribution transformers, each rated approximately 3,750 kVA, 38 kV delta primary / 13.2 kV wye secondary, three-phase, 60 Hz — total firm capacity 7,500 kVA (2 × 3,750 kVA), providing full N+1 redundancy; either transformer alone shall carry the full facility load. The Design-Build Entity shall confirm that 3,750 kVA per unit is adequate for the complete facility electrical load calculation including all future surge capacity loads
- Type: Power distribution transformers, less-flammable liquid-filled insulating liquid per NEC 450.23; copper windings; outdoor-rated, NEMA 3R stainless steel tank and enclosure suitable for the Puerto Rico coastal/tropical environment; corrosion-resistant hardware throughout
- Voltage: Primary 38 kV delta; Secondary 13.2 kV, three-phase, grounded wye; each transformer secondary connects to the 15 kV-class primary switchgear (see Section 4.2.3), which feeds the building substation via fused load-break switches (see Section 4.3)
- Impedance: 5.75% nominal (confirm with manufacturer for fault current coordination with LUMA protective relaying and 480 V distribution circuit breakers)
- Taps: De-energized tap changer (DETC) plus or minus 2 x 2.5% on primary winding for voltage adjustment; coordinate with LUMA voltage regulation at the 38 kV delivery point
- Standards: IEEE C57.12.00 (Liquid-Immersed Distribution, Power, and Regulating Transformers — General Requirements); IEEE C57.12.10; IEEE C57.91 (Loading Guide, less-flammable liquid-immersed units); ANSI C57.12.34 as applicable
- Concrete Equipment Pads: Each transformer and all other major substation equipment (protection panels, metering cabinets, switchgear structures) shall be installed on a reinforced concrete equipment pad designed and constructed to support the equipment's weight, seismic, and wind loads, sized to accommodate the equipment footprint with adequate working clearance. Each transformer shall be provided with a spill containment curb/basin per NEC 450.23, sized for 110% of the transformer's insulating liquid volume, draining to an oil/water separator; no insulating liquid shall reach storm drains or soil.

7.4.2.2 38 kV Aluminum Structure and Primary Protection

- 38 kV Aluminum Structure: An outdoor aluminum primary support structure, conforming to PREPA Standard TM-13-2 and TM-13-3 (modified for a two-transformer configuration), shall be provided within the substation yard to support the incoming 38 kV conductors (downstream of the GOAB switch), the lightning arresters, the incoming fuse set, metering PTs/CTs, and the 46 kV fuse assembly serving each of the two transformers; each transformer is protected by a dedicated set of 46 kV-class fuses; the single pole-mounted GOAB switch (Section 4.1) and the 38 kV structure entrance fuse set together serve as the upstream switching and protection point for the substation

- Lightning arresters: One (1) set of 36 kV-class station-type lightning arresters at the incoming 38 kV structure entrance, installed downstream of the GOAB switch and upstream of the incoming fuse set, the metering PTs/CTs, and the transformer primary fuses, to protect the substation against lightning transients and switching surges
- Incoming fuse set and metering: One (1) set of 46 kV-class high-voltage power fuses shall be provided at the 38 kV structure entrance, downstream of the GOAB switch and the lightning arresters, and upstream of the metering potential transformers (PTs) and current transformers (CTs); this incoming fuse set is in addition to, and independent of, the dedicated 46 kV fuse assembly serving each transformer. Metering PTs and CTs shall be located downstream of this incoming fuse set, ahead of the branch to each transformer's 46 kV fuse assembly
- Primary overcurrent protection: 46 kV-class fuses on each transformer primary (one dedicated fuse set per transformer) sized for transformer inrush and full-load protection per LUMA requirements and the system fault current study; protective relay coordination with LUMA's upstream protective devices

7.4.2.3 15 kV Primary Switchgear

The substation shall include an outdoor 15 kV-class metal-enclosed primary switchgear lineup, located within the fenced substation yard, to receive each transformer's 13.2 kV secondary and distribute power toward the building substation. The switchgear lineup shall include the following:

- Transformer incoming switches: Two (2) load-break switches, one per transformer, connecting each transformer's 13.2 kV secondary to its respective switchgear bus section
- Tie switch: One (1) tie load-break switch, normally open, connecting the two bus sections — allowing either transformer to serve the full substation load if the other transformer or its incoming switch is out of service, matching the N+1 philosophy of the double-ended substation described in Section 4.3 and Section 5.1
- Outgoing feeders to building substation: Two (2) load-break switches with current-limiting fuses, one per bus section, feeding the two 13.2 kV underground feeders to the building substation (see Section 4.3)
- Control power: Potential transformers (PTs) shall be provided at the switchgear to derive a 120 V control/auxiliary power supply for the transformer cooling fans and substation lighting
- Auxiliary power distribution: An automatic transfer switch (ATS) and a single dedicated panelboard shall be provided to maintain continuous 120 V power to the transformer fans, substation lighting, and convenience loads
- Switchgear rating: 15 kV class, metal-enclosed, load-break switches rated for the available fault current at the 13.2 kV bus (confirmed by the fault current study); all switches lockable/padlockable in all positions; outdoor rated with a NEMA 3R stainless steel enclosure for the Puerto Rico coastal/tropical environment

7.4.2.4 Substation Yard Layout and Physical Requirements

- Fenced yard: The substation yard shall be fully enclosed with security fencing providing restricted access and a lockable access gate, meeting minimum safety clearances per NESC (National Electrical Safety Code), NEC, NFPA 70E, IEEE 1247, and PREPA Comunicado 0-2-06 from transformer enclosures, the 38 kV aluminum structure, the 15 kV primary switchgear, live parts, and fence to any accessible area
- All substation equipment pads: Reinforced concrete equipment pads, designed to support the imposed equipment, seismic, and wind loads, shall be provided for all floor-mounted equipment — transformer pads (with spill containment curb/basin per NEC 450.23), aluminum structure foundations, 15 kV switchgear bases, protection and metering panel bases, and any other free-standing equipment within the substation yard
- Service access: Service road or paved access for transformer delivery and future maintenance/replacement; transformer enclosures shall be positioned to allow removal of one unit without disturbing the other transformer or the 15 kV primary switchgear
- Hurricane and seismic design: All substation equipment, structures, transformer enclosures, and the 38 kV aluminum structure and 15 kV switchgear structures shall be designed for the project site wind loads (Category 5 hurricane, 180 mph design wind speed) and seismic loads per the Puerto Rico Building Code; all equipment shall be anchored to its concrete pad to resist the design seismic and wind loads
- Lighting: Substation yard shall have security and maintenance lighting powered from the 15 kV switchgear panelboard (Section 4.2.3); area lighting on automatic photocell controls with manual override

7.4.3 13.2 kV Feeders to Building Substation

The two 15 kV switchgear bus sections in the 38 kV substation yard (Section 4.2.3) shall each feed a dedicated 13.2 kV underground feeder to an indoor 13.2 kV-to-480 V double-ended substation located in the Building Basement Main Electrical Room. At the building substation, the two 13.2 kV feeders terminate in duplex load-break switch and fuse assemblies, providing redundancy between the two feeders; the substation transformers step down 13.2 kV to 480Y/277 V and feed the double-ended substation secondary switchgear sections described in Section 5.1. The system shall be designed as follows:

- Duplex primary switches: Two (2) duplex load-break switch and fuse assemblies, one per transformer, shall be provided at the building substation. Each duplex switch provides two incoming positions, connected to the two separate 13.2 kV feeders from the yard substation (Section 4.2.3), so that either feeder can be selected to serve either transformer; this duplex arrangement provides full two-source feeder redundancy at the 13.2 kV level — loss of one 13.2 kV feeder does not interrupt either transformer, because each can be manually switched to the surviving feeder. Each duplex switch shall include current-limiting fuses sized for transformer inrush and full-load protection, coordinated with the upstream 15 kV switchgear fused switches (Section 4.2.3) and the fault current study

- Transformers: Two (2) dry-type, VPI/VPE (Vacuum Pressure Impregnated / Vacuum Pressure Encapsulated) transformers, each rated approximately 3,750 kVA, 13.2 kV delta primary to 480Y/277 V wye secondary, three-phase, 60 Hz; copper windings; total firm capacity 7,500 kVA (2 × 3,750 kVA) providing full N+1 redundancy — either transformer alone shall carry the full facility load; minimum 6% impedance, increased above standard values due to the proximity of downstream distribution equipment and the resulting high available short-circuit currents; indoor-rated enclosure suitable for installation in the Basement Main Electrical Room; each transformer fed by its respective duplex switch above and feeding its dedicated main circuit breaker section of the double-ended switchgear (Section 5.1)
- Secondary switchgear sections: The two transformer secondaries feed a double-ended 480Y/277 V switchgear lineup consisting of two (2) electrically-operated main circuit breakers, four (4) distribution breaker sections, and one (1) electrically-operated tie breaker — see Section 5.1 for full configuration
- Two (2) independent 13.2 kV feeder runs — one per 15 kV switchgear bus section — shall be routed underground from the 38 kV substation yard to the duplex switches at the Building Basement substation; each feeder shall occupy its own separate underground manhole run, physically independent of the other feeder's manhole run, to maintain separation and redundancy between the two sources
- Feeder cables: TRXLPE (Tree-Retardant Cross-Linked Polyethylene)-insulated medium-voltage shielded power cable (15 kV class) rated for underground direct-burial/duct bank service; single-conductor sets per phase in conduit; cable size determined by the Design-Build Entity based on load calculation, voltage drop (maximum 2% on secondary feeders), and short-circuit rating; ICEA/NEC-compliant ampacity per NEC Article 310
- Underground duct bank and manholes: Concrete-encased PVC conduit duct bank for each 13.2 kV feeder, routed from the 38 kV substation yard 15 kV switchgear to the Building Basement substation room wall penetration; separate underground manholes shall be provided for each of the two feeders (no shared manhole between the two feeders); minimum one (1) spare conduit per feeder duct bank for future use; duct bank and manhole design per NEC and ACI 318 for the project seismic zone; conduit entry into the electrical room via sleeve with fire-stopping seal
- Fault current: The Design-Build Entity shall perform a complete fault current study at the 13.2 kV building substation primary and at the 480 V switchgear bus (with both transformers contributing) to determine the available short-circuit current and size all switches, circuit breakers, bus bars, and cables for the available fault level; fault current study to be submitted at DD phase

7.5 NORMAL POWER DISTRIBUTION

Normal power distribution for the facility is 13.2 kV primary (Section 4.3) stepped down to 480Y/277 V secondary within the Building Basement double-ended substation; the double-

ended substation secondary switchgear sections (Section 5.1) distribute power to the corresponding Automatic Transfer Switches (Section 6.2).

7.5.1 Double-Ended Substation Secondary Switchgear Sections

The two Building Basement substation transformer secondaries (Section 4.3) connect via bus bars to a secondary switchgear assembly: a 480Y/277 V metal-enclosed lineup of seven (7) sections, comprising two main breakers, a tie breaker, and four distribution breaker sections feeding the Automatic Transfer Switches of the four load systems; located in the Basement Main Electrical Room.

7.5.1.1 Switchgear — Overall Configuration

- Assembly: One (1) metal-enclosed low-voltage switchgear lineup consisting of seven (7) main sections in the following left-to-right order: Main Breaker Section 1 — Distribution Section 1 — Distribution Section 2 — Tie Breaker Section — Distribution Section 3 — Distribution Section 4 — Main Breaker Section 2
- Voltage: 480Y/277 V, three-phase, four-wire, 60 Hz; solidly grounded wye secondary system
- Bus Rating: Copper bus bars; minimum 5,000 A continuous rating per bus section (confirm based on load calculation); bus fully braced for the available short-circuit current determined by the fault current study; bus bars silver-plated at all joints
- Concrete Equipment Pad: The entire switchgear lineup shall be installed on a continuous reinforced concrete housekeeping pad running the full length of the assembly, designed to support the equipment load and provide adequate working clearance on each side

7.5.1.2 Main Circuit Breakers — Electrically Operated (x2)

- Quantity: Two (2) main circuit breakers — Main Breaker 1 (MB-1) at the left end of the lineup feeding Bus 1 from Transformer 1, and Main Breaker 2 (MB-2) at the right end feeding Bus 2 from Transformer 2
- Type: Power circuit breaker (PCB); electrically operated (EO) — motorized stored-energy charging mechanism with electrical close and electrical trip operators; remote racking in/out capability
- Rating: Frame and trip rating sized by the Design-Build Entity to match transformer full-load current (3,750 kVA at 480 V = approximately 4,510 A full load); minimum 5,000 A frame; 100% continuous duty rating
- Trip Unit: Fully electronic, microprocessor-based trip unit with independently adjustable Long-Time (LT), Short-Time (ST), Instantaneous (INST), and Ground Fault (GF) protection functions; trip unit with Zone Selective Interlocking (ZSI) capability to coordinate with downstream feeder breakers
- Ground Fault Protection: Ground fault protection (GFP) per NEC 230.95 and NEC 517.17 on each main breaker; GFP coordinated in time with downstream branch and feeder protective devices to minimize nuisance tripping in the healthcare environment

- Electrical Operation: Each main breaker shall be furnished with a motorized spring-charging mechanism and AC/DC electrical close and trip coils for remote/automatic operation
- Anti-Pumping and Keyed Interlocks: Anti-pumping relay; mechanical and electrical interlocking with the Tie Breaker (TB) to enforce the standard double-ended closed-bus or open-tie operating modes and prevent parallel operation of both transformers unless specifically enabled

7.5.1.3 Tie Breaker — Electrically Operated

- Quantity: One (1) bus tie circuit breaker (TB) located in the center Tie Breaker Section of the lineup, connecting Bus Section 1 and Bus Section 2
- Type: Same family as the main breakers; power circuit breaker; electrically operated (EO) — motorized stored-energy mechanism with electrical close and trip operators
- Rating: Same frame and trip rating as the main breakers; must be capable of carrying the full Bus 1 or full Bus 2 load individually when operating in open-bus / single-ended mode (one main open, tie closed)
- Trip Unit: Fully electronic microprocessor-based trip unit matching the main breakers; ZSI capability; LT/ST/INST/GF settings coordinated with main breakers and downstream feeders
- Normal Operating Mode: Tie Breaker NORMALLY OPEN; both main breakers NORMALLY CLOSED; Bus 1 served by Transformer 1 and Bus 2 served by Transformer 2 simultaneously (split-bus, open-tie operation); loads distributed across both buses to balance transformer loading
- Automatic Transfer: The Design-Build Entity shall provide an automatic bus transfer (ABT) scheme: upon failure of one incoming transformer or main breaker, the corresponding bus main breaker opens automatically, the Tie Breaker closes automatically (within the transfer time required by NFPA 99 for the loads served), and the surviving transformer/main breaker feeds both buses via the Tie Breaker; ABT shall include time delay, voltage supervision, and anti-paralleling interlocks; coordinate with LUMA and the EES ATS transfer scheme
- Manual Operation: Tie Breaker shall also be operable manually (local pushbutton on door) with operator-visible bus voltage indication to verify source before closing; key interlock scheme to enforce correct switching sequence

7.5.1.4 Distribution Breaker Sections (x4)

- Quantity: Four (4) distribution breaker sections — Distribution Sections 1 and 2 (adjacent to Main Breaker Section 1, serving Bus 1) and Distribution Sections 3 and 4 (adjacent to Main Breaker Section 2, serving Bus 2) — two distribution sections per transformer/bus
- Feeder Circuit Breakers: Circuit breakers, draw-out type, electrically operated (EO), for each outgoing feeder to an Automatic Transfer Switch (Section 6.2); each breaker with electronic trip unit sized and coordinated per the protective device coordination study
- Load-Category Feeder Breakers: Each of the four distribution breaker sections shall include the dedicated feeder breaker for one of the four load categories — Life Safety,

Critical, Equipment System, and Optional Standby (Non-Essential); all feeder breakers in the distribution sections shall serve the load-category Automatic Transfer Switches. The emergency-source (generator) input of each ATS is fed from the corresponding distribution breaker at the generator paralleling switchgear (Section 6.1.2)

- Bus Rating: Each distribution bus section rated to match the main bus — 5,000 A; copper bus bars silver-plated at joints
- Metering: Multi-function power metering on each bus section — kW, kWh, kVAR, kVA, power factor, voltage (all phases), current (all phases), THD — integrated with the Building Management System (BMS) for real-time energy monitoring, demand management, and transformer load balancing reporting
- Ground Fault Protection: Ground fault protection per NEC 517.17 on all feeder circuit breakers serving patient care areas; GFP settings coordinated in a selective, time-graded scheme with the main breaker GFP to prevent loss of the entire bus on a downstream ground fault
- Arc Flash Labeling: All switchgear sections and circuit breaker compartments shall be labeled with arc flash incident energy, flash protection boundary, and required PPE per NFPA 70E / IEEE 1584; arc flash hazard analysis required at DD phase

7.5.2 480 V Mechanical Equipment Power

- Mechanical equipment power: AHUs, cooling tower fans, pumps, and fire pumps shall be served from 480 V panelboards with individual combination starters or variable frequency drives (VFDs) and disconnect means at each piece of equipment; VFDs shall be supplied by the Mechanical Contractor
- VFD Integration: All VFDs (chilled water pumps, condenser water pumps, cooling tower fans, AHU fans, DOAS units, booster pumps) shall be furnished by the Mechanical Contractor and shall receive power from the corresponding 480 V panelboard with properly sized feeders provided by the D&B Electrical Contractor; VFDs shall be supplied with appropriate input/output reactors/filters for harmonic mitigation
- Equipment labeling: All switchgear, panelboards, and disconnect switches shall be labeled per NEC and NFPA 70E with voltage, circuit designation, and arc-flash incident energy
- Provide a double throw switch and a tap box with cam connectors for a portable chiller.

7.5.3 Panelboards and Branch Circuits

- Step-down transformers: 480-120/208 V dry-type, copper-wound, copper-wound K-rated transformers for all 120/208 V panelboards; transformer kVA sized for panelboard load
- Panelboard arrangement: Electrical rooms per floor per Section 5.4; each electrical room to house both an optional (non-essential) power panelboard and an essential power panelboard
- Branch circuits: All patient care areas wired per NEC Article 517; minimum number of receptacles and circuit spacing per FGI Guidelines and NFPA 99; hospital-grade receptacles (NEMA 5-20R) in all patient care spaces

- Isolated Ground circuits: Isolated ground receptacles (orange) at nursing stations, imaging equipment, and other sensitive electronic equipment locations as required
- GFCI protection: GFCI receptacles in all wet locations, patient bathrooms, scrub sinks, janitor rooms, and exterior locations per NEC
- Tamper-Resistant receptacles (TR): Per NEC 406.12, tamper-resistant receptacles shall be provided in pediatric patient care rooms or locations, corridors, waiting rooms, and similar areas

7.5.4 Electrical Rooms

- Basement Main Electrical Room: Houses the double-ended substation (Section 4.3), including its secondary switchgear sections (Section 5.1 — two electrically-operated main breakers, tie breaker, and four distribution breaker sections), the total Automatic Transfer Switches required to serve the four load systems — Life Safety, Critical, Equipment System, and Optional Standby (Sections 6.2, 6.3.5), with more than one ATS permitted per system — main distribution panelboards, dry-type transformers, and 120/208 V panelboards; room shall be sized with NEC-required maintenance clearances and for future expansion; all floor-mounted equipment shall be installed on reinforced concrete housekeeping pads
- Generator Room: Dedicated Basement room housing the three (3) diesel generators (Section 6.1); two-hour fire-rated construction, dedicated combustion air intake and exhaust routing, exhaust discharge coordinated away from air intakes and the heliport approach/landing zone
- Paralleling Switchgear Room: Separate Basement room adjacent to, but not within, the Generator Room; houses the generator paralleling switchgear (Section 6.1.2)
- Floor Electrical Rooms: Floor electrical rooms shall house 480Y/277 V panelboards, dry-type transformers, and 120/208 V panelboards. In addition to the Main Electrical Room, Generator Room, and Paralleling Switchgear Room, the Basement shall be provided with three (3) additional electrical rooms; the First (Ground) Floor shall be provided with four (4) electrical rooms; Levels 2 through 8 shall each be provided with three (3) electrical rooms per floor; Level 9 shall be provided with two (2) electrical rooms. Rooms shall be sized to accommodate both optional (non-essential) and essential panelboards, step-down transformers, and required maintenance clearances
- All electrical rooms: Two-hour fire-rated construction (NEC 700.10, NFPA 99); dedicated ventilation (no water piping above electrical equipment); floor drains not permitted (coordinate with mechanical); housekeeping pads for all equipment; rated for the available fault current

7.6 EMERGENCY AND STANDBY POWER SYSTEMS

The facility shall be classified as a Category 1 healthcare occupancy per NFPA 99. The Essential Electrical System (EES) shall be designed, installed, and tested in full compliance with NFPA 99 (Health Care Facilities Code) and NEC Article 517, and shall provide reliable

emergency power to all life-safety and critical clinical loads. An Optional Standby System, complying with NEC Article 702, shall also be provided for non-essential loads as described in Section 6.3.5. The emergency generator plant shall provide full building coverage, backing 100% of the building load across all load categories — there shall be no normal-only (unbacked) building loads.

7.6.1 Emergency Generators

- Quantity: Three (3) diesel engine-driven generator sets, each rated 1,750 kW standby, 480Y/277 V, three-phase, four-wire, 60 Hz. The emergency generator plant shall cover 100% of the building load — i.e., all four load categories (Life Safety, Critical, Equipment System, and Optional Standby) are connected to generator backup, with no normal-only (unbacked) building loads. Two (2) of the three generators, operating in parallel, shall be sized to independently carry 100% of this total connected building load; the third generator is a spare, providing N+1 redundancy at the generator level. The three generators shall alternate in rotation (lead/lag/spare assignment rotated on a scheduled basis) so that running hours are equalized across all three units over time
- Capacity: Total installed generator capacity 3 × 1,750 kW = 5,250 kW; normal redundant operating capacity with any two units paralleled = 3,500 kW, sized to carry 100% of the total building load (all four load categories). The Design-Build Entity shall confirm by complete building load calculation (ORs, ICUs, Trauma Stabilization, Emergency Department, imaging, heliport, fire alarm, nurse call, Disaster Control Center, elevators, lighting, medical gas compressors and vacuum, BMS/IT infrastructure, mechanical/HVAC equipment, and all Optional Standby (non-essential) loads) that 3,500 kW of paralleled capacity is adequate to cover 100% of building load, including motor starting inrush and future surge capacity
- Voltage Output: 480Y/277 V, three-phase, four-wire, 60 Hz; all three generators shall be capable of paralleling onto a common bus via the paralleling switchgear (see Section 6.1.2)
- Fuel and day tanks: Ultra-low-sulfur diesel (ULSD); one (1) freestanding day tank per generator, located in the generator room; day tank capacity shall be the maximum permitted indoor volume per NFPA 30, NFPA 37, NFPA 110, and the AHJ, with remote fill and overfill protection, leak detection, and spill containment
- Bulk Diesel Storage and Supply: A building main diesel storage tank shall be provided with a minimum 5-day (120-hour) full-load reserve capacity, sized per the Design-Build Entity's fuel consumption calculation for the installed generator capacity; coordinate fuel piping, day tank fill pumps, tank venting, spill containment, and leak detection per NFPA 30 and NFPA 110. In addition, the Owner shall maintain a contracted diesel resupply agreement guaranteeing delivery sufficient to sustain a minimum 20-day full-load operating capacity, supplementing the 5-day on-site main tank reserve
- Starting: Automatic start on loss of normal utility power; generators shall reach rated voltage and frequency and be ready to accept load within 10 seconds per NFPA 110 Level 1
- Engine: Turbocharged diesel, EPA Tier 2 compliant or as accepted by AHJ
- Enclosure/Location: All three generators shall be housed in a dedicated generator room in the Basement with proper ventilation, combustion air intake, and exhaust routing; room

shall have two-hour fire-rated construction, exhaust silencers, flexible exhaust connectors, and vibration isolation pads; coordinate exhaust discharge location away from air intakes, occupied areas, and heliport approach/landing zone. The paralleling switchgear (Section 6.1.2) shall be located in a separate room adjacent to the generator room, not within the generator room itself

- Acoustic Treatment: Sound attenuation shall be provided at the generator room walls and ceiling, gravity louvers, wall (intake) louvers, and the radiator discharge canvas (flexible duct connector), to limit noise transmission to adjacent occupied spaces and the building exterior, per the project's acoustic design criteria and applicable local noise ordinances
- Controls: Generator control panels with automatic start/stop, paralleling controls via the paralleling switchgear, automatic load shedding on overload, run-hour equalization/rotation logic to alternate lead, lag, and spare assignment among the three units, BMS integration for remote monitoring of generator status, kW output, fuel level (day tank and main tank), coolant temperature, battery status, and alarm annunciation
- Testing: Generators shall be exercised under load monthly; full-load bank testing at project closeout and annually thereafter; remote monitoring required
- Generators remote annunciator to be provided at Security/Fire Command Center Room. The remote annunciator to be storage battery operated and hardwired as per NFPA99 (Section 6.7.1.2.7).

7.6.1.1 Paralleling Switchgear

The three (3) emergency generators shall connect to a dedicated paralleling switchgear assembly located in a separate, two-hour fire-rated room adjacent to the generator room (not within the generator room itself). The paralleling switchgear shall synchronize and parallel the three generators onto a common bus, then distribute generator power to twelve (12) separate distribution breakers — eleven (11) serving the Optional Standby (Non-Essential) load category and the three NFPA 99 Essential Electrical System (EES) branches, each routed to its corresponding Automatic Transfer Switch (ATS) located in a Main Electrical Room adjacent to the double-ended substation in the Building Basement (Section 6.2), and one (1) dedicated load bank breaker for periodic generator load testing.

- Generator breakers: One (1) electrically operated, draw-out or fixed-mount generator output breaker per generator (3 total), each with synchronizing controls, reverse power/loss of field protection, and interlocking to prevent out-of-phase paralleling
- Bus configuration: Single common paralleling bus, rated for the full output of all three generators operating in parallel (3 × 1,750 kW); bus shall be sized and braced for the available fault current with all three generators contributing
- Distribution breakers — Life Safety Branch: One (1) electrically operated breaker feeding the emergency-source input of the Life Safety Branch ATS(s) (Section 6.3.1)
- Distribution breakers — Critical Branch: One (1) electrically operated breaker feeding the emergency-source input of the Critical Branch ATS(s) (Section 6.3.2)
- Distribution breakers — Equipment System: Two (2) electrically operated breakers feeding the emergency-source input of the Equipment System ATS(s) (Section 6.3.3)

- Distribution breakers — Optional Standby (Non-Essential): seven (7) electrically operated breakers feeding the emergency-source input of the Optional Standby ATS(s) (Section 6.3.5). This branch is governed by NEC Article 702 (Optional Standby Systems) and is distinct from the three NFPA 99 EES branches above — it serves non-essential building loads (e.g., general office, food service, non-clinical support areas) that the Owner has elected to place on generator backup
- Load Bank breaker: One (1) breaker dedicated to connection of a permanent or portable load bank, enabling periodic generator testing under load per NFPA 110
- Controls: Automatic synchronizing and load-sharing controls; load-shed/load-add logic to protect against generator overload if fewer than three units are online; BMS integration for breaker status, bus voltage/frequency, and load on each distribution breaker
- Protective relaying: Microprocessor-based multifunction relays on the generator breakers and bus, coordinated with the distribution breakers, per IEEE C37.2 and NFPA 110

** REQUIRED: The Design-Build Entity shall perform a complete EES load calculation and confirm final generator kW ratings at Schematic Design phase. Generator sizing shall account for motor starting inrush, VFD loads, harmonic loads, and future surge capacity.*

7.6.2 Automatic Transfer Switches (ATS)

- A minimum of one Automatic Transfer Switch (ATS) shall be provided for each of the four (4) load categories: Life Safety Branch, Critical Branch, Equipment System, and Optional Standby (Non-Essential) System. Any of the four categories may be further subdivided into multiple ATS units serving individual loads or load groupings within that category (e.g., a dedicated ATS per elevator or other major piece of equipment within the Equipment System category) as determined by the Design-Build Entity's load calculation and equipment layout. Each ATS, regardless of subdivision, shall have a normal-source input fed from its corresponding load-category breaker/subfeed at the double-ended substation distribution sections (Section 5.1.4) and an emergency-source input fed from its corresponding distribution breaker/subfeed at the generator paralleling switchgear (Section 6.1.2); Life Safety Branch and Critical Branch ATS units shall transfer to generator power within 10 seconds per NEC Article 700 and NFPA 99, respectively
- ATS Type: Automatic transfer switches; open-transition (break-before-make) transfer; furnished with an external manual operator; 4-pole (switched neutral) construction where a neutral conductor is required
- Separate ATSs shall be provided for the Life Safety Branch and the Critical Branch per NFPA 99 / NEC Article 517 — these branches shall not be combined on a single ATS
- Number and location: The total Automatic Transfer Switches required to serve the four load systems (Life Safety, Critical, Equipment System, and Optional Standby) shall be located in the Basement Main Electrical Room adjacent to the double-ended substation (Section 4.3); more than one ATS may be provided per system. All ATS units, including any additional units serving a given system, shall be located in the Basement Main Electrical

Room; downstream subdistribution from each ATS shall extend to floor electrical rooms as required to minimize feeder lengths and maintain branch separation per NFPA 99

- Equipment System and Optional Standby subdivision: Large motor and large equipment loads may each be served by their own dedicated, individually-sized ATS rather than a single shared ATS — large HVAC equipment such as chillers within the Optional Standby System, and elevators within the Equipment System category — allowing independent time-delayed starting/sequencing per piece of equipment and simplifying future load additions; regardless of subdivision, time-delay contactors and sequencing controls shall be provided to prevent generator overload

7.6.3 Essential Electrical System (EES) — NFPA 99 / NEC 517

The Essential Electrical System shall be designed in strict conformance with NFPA 99 Category 1 and NEC Article 517, as applicable to a general hospital. The EES shall comprise three separate and distinct branches. A fourth, separate Optional Standby System (Section 6.3.5), governed by NEC Article 702 and distinct from the NFPA 99 EES, shall serve designated non-essential building loads from the same generator plant:

7.6.3.1 Life Safety Branch

- Illumination of exits, exit signs, exit corridors, stairways, and means of egress lighting
- Alarm and alerting systems — fire alarm system (all circuits), medical gas master alarms
- Generator control and communications
- Paging and public address system serving means of egress
- Elevator cab lighting, controls, and communications
- Emergency communication systems

7.6.3.2 Critical Branch

- Patient care areas: Receptacles and fixed equipment in ORs, Trauma ICU, Trauma Stabilization, ED, and all Category 1 patient care spaces
- Task illumination in ORs, procedure rooms, ICU rooms, Trauma Stabilization, medication preparation areas, nurses' stations
- Isolated power panels (IPP) in ORs — Critical Branch IPP serving life-critical patient care equipment in each OR per NFPA 99 / NEC 517.160 (see Section 6.3.4 for the companion Optional Standby IPP)
- Nurse call system
- Heliport lighting (FAA required)
- Disaster Control and Monitoring Center — UPS and essential power
- Blood bank refrigerators, medication refrigerators, and critical laboratory equipment
- Communication systems at nursing stations, patient rooms, and key clinical areas

7.6.3.3 Equipment System (Delayed Automatic or Manual Connection)

- Selected elevators; supply, return, and ventilating systems for operating, delivery, and isolation rooms; oxygen plant
- Sump pumps, elevator motors (non-life-safety)

- Medical gas compressors and vacuum pumps
- Central sterile supply and other major clinical support equipment

7.6.3.4 Isolated Power Panels (IPPs) — Operating Rooms

Each of the five (5) Trauma Operating Rooms shall be served by two (2) dedicated Isolated Power Panels (IPPs) per NFPA 99 and NEC 517.160 — one fed from the Optional Standby (Non-Essential) branch and one fed from the Critical Branch. Each isolated power system (IPS) shall provide an ungrounded power supply for patient care equipment within the OR, with continuous ground fault monitoring via a dedicated Line Isolation Monitor (LIM) for each panel.

- Each of the two IPPs (Optional Standby IPP and Critical Branch IPP) shall include its own isolation transformer (120/208 V, ungrounded secondary, copper windings), its own Line Isolation Monitor (LIM) with a remote hazard current indicator and audible/visual alarm at the OR entrance, and the branch circuit panelboard for the OR receptacles and equipment assigned to that branch
- Each LIM shall monitor both legs of its respective isolated circuit continuously; alarm shall annunciate — but NOT de-energize the circuit — when total hazard current exceeds 5 mA; this allows surgery to continue safely while the fault is located
- Each LIM alarm shall be integrated into the nurse call/OR control system and reported to the BMS, identified by branch (Optional Standby IPP or Critical Branch IPP)
- Isolated power receptacles in each OR shall be clearly labeled by source branch — Optional Standby IPP or Critical Branch IPP; life-critical patient care equipment circuits shall be assigned to the Critical Branch IPP, while non-life-critical OR equipment may be assigned to the Optional Standby IPP at the Design-Build Entity's discretion in coordination with the Owner's clinical/biomedical staff

7.6.3.5 Optional Standby System (Non-Essential Loads)

In addition to the three NFPA 99 Essential Electrical System branches above, an Optional Standby System shall be provided per NEC Article 702 to serve designated non-essential building loads from the shared generator plant. This system is electrically and administratively distinct from the EES — it is not part of the NFPA 99 Category 1 Essential Electrical System and shall not be combined with EES branch wiring or panels.

- Loads served: General office areas, administrative spaces, food service and kitchen equipment, chillers, non-clinical support areas, and other Owner-designated non-essential loads as identified during the EES/Optional Standby load calculation
- Source: Fed from the dedicated Optional Standby distribution breakers at the paralleling switchgear (Section 6.1.2); transferred via the Optional Standby ATS located in the Main Electrical Room adjacent to the double-ended substation (Section 6.2)
- Priority: Optional Standby loads are the lowest priority on the generator plant; the paralleling switchgear load-shed logic shall shed Optional Standby loads first in the event of a generator failure or overload condition affecting EES capacity

- Wiring and distribution: Optional Standby panelboards, feeders, and branch circuits shall be physically and electrically separated from EES wiring per NEC 700.10 and NFPA 99; clearly labeled as "Optional Standby — Non-Essential" at all panels and disconnects

7.6.4 Uninterruptible Power Supply (UPS)

- A centralized UPS system (or distributed UPS systems) shall be provided for the following critical loads requiring zero-transfer-time power continuity:
  - Disaster Control and Monitoring Operations Center (Level 9) — UPS for all computers, servers, communications, CCTV, BMS workstations, and monitoring equipment; minimum 30-minute runtime at full load (extend to 60 minutes if feasible)
  - Hospital Information System (HIS) / Electronic Health Records (EHR) servers and network infrastructure — if a central server room/IT room is provided within the facility
  - Critical monitoring equipment — patient monitoring systems where applicable (coordinate with Owner's medical equipment procurement)
  - Fire alarm system control panels and network communications (if not battery-backed per NFPA 72 within panels)
- UPS Type: On-line double-conversion (VFI — Voltage and Frequency Independent) per IEC 62040-3; provides continuous clean power with zero transfer time on utility or generator failure
- UPS Configuration: N+1 redundant UPS modules within each UPS system; static bypass and manual bypass for maintenance without interruption to critical loads
- Battery: Sealed VRLA (valve-regulated lead-acid) or lithium-ion batteries; battery monitoring integrated into BMS for battery health, state of charge, and estimated runtime reporting

7.7 GROUNDING AND BONDING

A comprehensive facility grounding and bonding system shall be designed and installed per NEC Article 250, IEEE 142, and the special requirements of NEC Article 517 for healthcare facilities and NFPA 99 for patient safety. The grounding system shall provide a safe and low-impedance ground fault return path, limit step and touch potentials, protect equipment from lightning and transient overvoltages, and maintain the equipotential plane required in patient care areas.

- Building Ground Grid: A copper ground grid or ring shall be installed below grade around and beneath the building footprint, connected to ground rods per NEC 250.50 and IEEE 142
- Substation Ground Grid: An outdoor substation ground grid shall be designed per IEEE 80; the combined grid resistance shall not exceed the value required by LUMA and IEEE 80 for the available fault current
- Indoor Substation Ground Ring: A ground ring shall be provided for the indoor substation, interconnected to the building ground ring

- Equipment Grounding: All metallic equipment enclosures, raceways, cable trays, transformer tanks, and generator housings shall be bonded to the building grounding system
- Patient Care Areas — Equipotential Bonding: In all Category 1 patient care spaces (ORs, ICU rooms, Trauma Stabilization cubicles, patient rooms), all exposed conductive surfaces within the patient care vicinity — including medical equipment frames, metallic components of fixed and movable conductive equipment, and metal surfaces that could contact a patient — shall be bonded to the reference grounding point per NFPA 99 and NEC 517.13
- Patient Equipment Grounding Point (PEGP): A Patient Equipment Grounding Point shall be provided at the head wall/bed location in each ICU, OR, and Trauma Stabilization station for bonding of portable patient equipment
- Isolated Power System Grounding: The isolated (ungrounded) secondary of each OR isolated power panel (IPP) shall NOT be grounded; the equipment grounding conductor shall connect the IPP equipment enclosure to the reference grounding point per NEC 517.160 and NFPA 99
- Telecommunications / Surge Protection: Surge protection devices (SPDs) shall be provided at the main service entrance incoming terminals of the double-ended substation secondary switchgear sections (Type 1), at each ATS downstream bus, and at each distribution panelboard and step-down transformer secondary serving sensitive electronic and medical equipment (Type 2); SPDs UL 1449 listed throughout
- Lightning Protection: See Section 11

7.8 LIGHTING SYSTEMS

7.8.1 Interior Lighting

The interior lighting system shall be designed to meet the illuminance levels, color rendering, and controllability requirements of the Illuminating Engineering Society (IES) Handbook, IES RP-29-20 (Lighting for Hospitals and Healthcare Facilities), and the FGI Guidelines for hospital facilities, while meeting the lighting power density (LPD) limits of ASHRAE 90.1 for energy compliance.

- Light Sources: LED throughout the facility; high Color Rendering Index (CRI ≥ 90) in all patient care areas; tunable white LED (correlated color temperature 2,700–6,500 K adjustable) in ORs, ICU rooms, and Trauma Stabilization areas for clinical task accuracy
- Luminaire Types: Recessed lay-in for administrative and support spaces; recessed for corridors; sealed luminaires with a flat, wipe-down surface for easy cleaning in patient rooms and patient care areas; recessed/surface in public spaces; vapor-tight in mechanical and electrical rooms; IP65-rated sealed luminaires in surgical suites and trauma rooms

Space Type	Target Illuminance	Notes
Trauma OR — General (at floor)	200 fc (2000 lux)	Controlled via dimming; separate surgical field lighting by Owner equipment
Trauma OR — Surgical Field	≥ 2,000 fc	Owner-furnished surgical lights; power and supports by Design-Build Entity
Trauma ICU — Patient Area	30 fc (300 lux)	Dimmable; night mode ≤ 1 fc
Trauma Stabilization Cubicle	50 fc (500 lux)	Task lighting; dimmable
Imaging — CT / X-Ray Room	30–50 fc	Dimming required during imaging procedures
Patient Room — General	20 fc (200 lux)	Dimmable; exam mode ≥ 50 fc; night mode ≤ 1 fc
Nursing Station	50 fc (500 lux)	At counter height; supplemental task lighting
Administrative / Offices	35–50 fc (350–500 lux)	Per ASHRAE 90.1 zone control
Corridors — Clinical	10–30 fc	Minimum 10 fc maintained; night mode available
Mechanical / Electrical Rooms	30 fc (300 lux)	Industrial/utility luminaires
Stairways	10 fc (100 lux)	Essential branch; emergency backup
Cafeteria / Lobby	30–50 fc (300–500 lux)	Decorative/architectural lighting by D&B

7.8.2 Emergency and Exit Lighting

- Emergency lighting shall be provided per NFPA 101 and NEC Article 700 throughout all means of egress, including exit stairways, corridors, lobbies, and exterior exits; minimum 1 fc maintained on the egress path
- Exit signs: LED combination illuminated exit signs with battery backup (90-minute minimum); illuminated from Life Safety Branch or integral battery per NEC 700
- Battery unit equipment: Emergency lighting units with integral sealed batteries (90-minute rating) may supplement the Life Safety Branch circuits in areas where circuit routing is impractical; all units shall comply with UL 924
- Patient care areas: Emergency task lighting in ORs, ICU, and Trauma Stabilization shall be powered from the Essential Electrical System Critical Branch — not from battery units — to ensure continuous, full-illuminance task lighting during extended outages

7.8.3 Exterior and Site Lighting

- Site and service parking area lighting: LED pole-mounted area lights on photocell + time clock controls
- Building façade / architectural lighting: Coordinate with architectural design intent
- Ambulance entrance: High-illuminance area lighting (≥ 30 fc) at the ambulance drop-off, trauma bay entrance, and emergency department entrance; essential branch powered
- All exterior luminaires: IP65 rated; hurricane-rated mounting (wind load per ASCE 7 / PRBC for Puerto Rico); corrosion-resistant housings (marine-grade aluminum or stainless steel components) for coastal environment

7.8.4 Heliport Lighting

The Roof Level heliport shall be provided with FAA-compliant lighting systems per FAA Advisory Circular AC 150/5390-2. All heliport lighting shall be powered from the Essential Electrical System Critical Branch — power continuity is required for night-time and instrument flight rule (IFR) medevac operations.

- Perimeter lights: FAA-compliant flush-mounted or low-profile omnidirectional white/yellow lights at the perimeter of the Final Approach and Takeoff (FATO) area; spacing and photometric output per AC 150/5390-2
- Touchdown/Liftoff (TLOF) area lights: FAA-compliant TLOF edge or in-pavement lights in white/green around the landing pad
- Windsock / wind indicator: Lighted windsock mounted on an FAA-approved support structure at the heliport level; illuminated at night from essential branch
- Obstacle/obstruction lighting: FAA-required red obstruction lights on any rooftop mechanical equipment, structures, or antenna masts that penetrate the FAA-defined heliport obstacle clearance surface; coordinate with FAA airspace review
- Flood lighting: Supplemental flood/area lighting of the heliport pad and access path for night operations
- Controls: Heliport lighting shall be controlled from the Disaster Control Center (Level 9) and from a local control panel at the heliport level; pilot-activated lighting (PAL) radio control may be considered

7.8.5 Lighting Controls

- Centralized lighting control system: A digitally-addressable lighting control system (DALI, DMX, or equivalent open-protocol system) shall be provided for all clinical, administrative, and common areas; integrated with the BMS for monitoring and energy reporting
- Occupancy sensors: Ceiling-mounted ultrasonic or dual-technology sensors in offices, conference rooms, and support spaces for automatic shutoff; sensor-based control per ASHRAE 90.1 requirements for each space type
- Daylight harvesting: Photosensor-based daylight dimming control for perimeter spaces with significant natural light (administrative floors, lobbies); dimming ballasts/drivers per ASHRAE 90.1

- Dimming: All clinical areas (ORs, ICU, patient rooms, procedure rooms) shall have smooth, continuous dimming capability from 100% to ≤ 1% for patient sleep/night mode and procedure-specific illuminance levels
- Time scheduling: Central time clock programming for exterior, site, and non-24-hour spaces; local override at wall stations
- Code Compliance: Lighting power density per ASHRAE 90.1 Table 9.6.1 (Space-by-Space Method) for all spaces; automatic shutoff per ASHRAE 90.1 Section 9.4.1

7.9 COMMUNICATIONS AND DATA SYSTEMS

7.9.1 Telecommunications Infrastructure

Structured cabling (the actual cable installation, terminations, patch panels, and active network equipment) is not in the Design-Build Entity's contract scope and shall be provided under a separate Owner contract. The Design-Build Entity shall design and install the rough-in infrastructure only — pathways, conduit, cable tray, and dedicated room/space provisioning — per ANSI/TIA-569 (Pathways and Spaces), sized and routed to accommodate the Owner's structured cabling installer.

- Main Telecommunications Room (MTR): Locate in the Basement near the main electrical room; this is the building's main point of entry for all external telecommunications services (internet, telephone, private fiber from ASEM building) (room and pathway provisioning by Design-Build Entity; rack/equipment installation by Owner's structured cabling contractor)
- Point of Connection: Preliminary point of connection for telecommunications service is a manhole located north of the project site; final point of connection and service requirements shall be as determined by the Junta Reglamentadora de Telecomunicaciones de Puerto Rico (JRTC). The Design-Build Entity shall coordinate evaluation and endorsement of the connection with the corresponding telecommunications service provider/agency
- Telecommunications Rooms (TRs): One (1) TR per floor minimum, consistent with the two electrical rooms per floor arrangement; additional TRs shall be provided throughout the facility as necessary to meet the 292 ft maximum cable distance required for Ethernet cabling from the termination point at the TR to each wall outlet; TRs to house patch panels, network switches, and floor-level communications equipment; TRs sized per TIA-569 with adequate power, cooling (dedicated mini-split or served by HVAC), and UPS-backed power; Design-Build Entity scope is limited to room provisioning, sizing, and pathway connections — patch panels, network switches, and other active equipment are furnished and installed by the Owner's structured cabling contractor
- Horizontal cabling pathway: Design-Build Entity shall provide cable tray above ceilings and EMT conduit stub-outs in walls sized for Category 6A (10 GbE capable) UTP or F/UTP cabling from TRs to all data/voice outlet locations; the cabling itself, terminations, and outlet jacks are not in the Design-Build Entity's scope and shall be furnished and installed by the Owner's structured cabling contractor

- Backbone cabling pathway: Design-Build Entity shall provide ladder-type cable trays from MTR to each TR sized to accommodate fiber optic backbone cabling for both data (hospital network) and telephone/voice systems; the fiber cabling itself is not in the Design-Build Entity's scope and shall be furnished and installed by the Owner's structured cabling contractor
- Outlet rough-in: Design-Build Entity shall provide outlet boxes and conduit stub-outs for a minimum of two (2) data/voice outlet locations per patient room, per workstation, and per nursing station location, with additional locations at imaging, ORs, and special areas per program; faceplates, jacks, and cable terminations are not in the Design-Build Entity's scope and shall be furnished and installed by the Owner's structured cabling contractor
- Cable TV (CATV) rough-in: Design-Build Entity shall provide outlet boxes and conduit stub-outs for CATV provisioning at waiting areas and patient rooms; coaxial cabling, splitters/taps, and active CATV head-end equipment are not in the Design-Build Entity's scope and shall be furnished and installed by the Owner's structured cabling/CATV contractor
- Wireless: While the Design-Build Entity's scope is the wired infrastructure, coordination for wireless access point (WAP) locations and rough-in pathway (homerun conduit/cable tray to each WAP location) shall be included; the homerun cabling itself is not in the Design-Build Entity's scope and shall be furnished and installed by the Owner's structured cabling contractor; final WAP quantity and placement by Owner's wireless network contractor
- Cable management: Organized cable trays (ladder type in mechanical/electrical areas; wire basket tray above ceilings in patient care areas) throughout the building; no cable tray shall pass through electrical rooms or fire-rated barriers without proper fire-stopping

** REQUIRED: JRTC (Junta Reglamentadora de Telecomunicaciones de Puerto Rico) endorsement of the telecommunications point of connection, along with JRTC-endorsed drawings, shall be obtained prior to commencing telecommunications work.*

7.9.2 Nurse Call / Patient Communication System

A fully digital, IP-based nurse call system shall be provided throughout all patient care areas per FGI Guidelines and NFPA 99 requirements for hospital occupancies.

- Patient room stations: One (1) pillow speaker or bedside unit per patient bed with call button, audio communication, and bed/nurse call integration; stations wired to TR per floor
- Corridor dome lights: Visible indicator dome lights (with multiple color zones) above each patient room door and at nursing station corridor display for call annunciation
- Nursing station master stations: Color-touch display panels at each nursing station showing all active calls with priority queuing; audio communication to patient stations
- Staff duty stations: Staff call buttons (duty/code) at nursing stations and support areas

- Emergency/Code stations: Code Blue buttons in ORs, Trauma Stabilization, ICU, and patient rooms; code call shall activate audible annunciation throughout the zone and report to the Disaster Control Center
- Integration: Nurse call system shall integrate with hospital telephone/paging system, and shall have the capability to interface with the BMS for alarm monitoring; interface to real-time location system (RTLS) if provided by Owner
- Essential power: Nurse call system shall be powered from the Essential Electrical System Critical Branch; local UPS backup for head-end controller

7.9.3 Public Address

A fully digital IP-based public address (PA) system rough-in shall be provided throughout the facility per NFPA 72. Design-Build Entity scope is limited to rough-in only (conduit, backboxes, and cable pathways); PA devices and equipment shall be furnished and installed by others, with final device and equipment locations to be coordinated with the Owner's Representative.

- System coverage: All occupied spaces including patient rooms, corridors, ORs, waiting areas, lobbies, stairwells, and exterior areas near building entrances
- Voice intelligibility: System shall be designed for 0.7 STI (Speech Transmission Index) minimum in all occupied areas per NFPA 72; ceiling speaker layout based on room dimensions and background noise levels
- Zones: Minimum one (1) selectable zone per floor plus a building-wide all-call; ORs and ICU on a separate, independently mutable zone for clinical environments; exterior zones for ambulance/heliport areas
- Control: Primary control from the Disaster Control Center (Level 9); secondary control at the main nursing supervisor station; paging microphones at nursing stations per floor
- Essential power: PA system powered from Life Safety Branch; battery backup per NFPA 72 within control equipment for 24-hour standby plus 2-hour voice alarm

7.9.4 Closed-Circuit Television (CCTV) and Access Control

CCTV and Access Control rough-in shall be provided throughout the facility. Design-Build Entity scope is limited to rough-in only (conduit, backboxes, and cable pathways); CCTV and access control devices and equipment shall be furnished and installed by others, with final device and equipment locations to be coordinated with the Owner's Representative.

- CCTV: IP-based digital surveillance system; cameras at all building entrances, exits, stairwells, elevator lobbies, ambulance entrance, heliport access, pharmacy, blood bank, and perimeter areas; indoor dome cameras throughout corridors and key clinical areas as directed by Owner security plan; camera coverage at outdoor substation yard (see Section 4.2.3)
- Recording: Network video recorder (NVR) with minimum 30-day local storage; server located in the Disaster Control Center with failover; cameras backed up to cloud/off-site if Owner elects
- Access Control: Card reader / credential-based access control at all building entrances, clinical zone entries, pharmacy, blood bank, electrical rooms, telecommunications rooms,

stairwell reentry doors, and roof/heliport access; proximity card / mobile credential system; lockdown capability from Disaster Control Center

- Intercom: Video intercom at main public entrances (Emergency Department, main lobby, ambulance entrance) for after-hours access; integrated with access control
- ASEM Integration: CCTV and access control systems shall have the capability to integrate with the existing ASEM Central Services Building security systems; coordinate with ASEM security management
- Essential power: CCTV system NVR, access control head-end, and all door strike/maglocks served from Essential Electrical System (fail-secure configuration per NFPA 101 for stairwell reentry doors; fail-safe where required by life safety code)

7.9.5 Disaster Control and Monitoring Center (Level 9)

The Disaster Control and Monitoring Operations Center on Level 9 is the facility's central operations hub for emergency and disaster response. This room shall be provided with dedicated, redundant power and communications infrastructure to maintain full functionality during emergencies, utility outages, and hurricane events.

- Power: Dedicated Essential Electrical System circuits (Critical Branch) plus a dedicated UPS system (see Section 6.4) for all equipment in the Disaster Control Center; minimum 60-minute UPS runtime at full load
- Data / Network: Dedicated fiber optic connections to the MTR and to the ASEM Central Services Building; redundant network switches with dual power supplies; VoIP telephone system with direct lines to external emergency services
- Communications: Dedicated public address control station, nurse call monitoring display, fire alarm annunciator panel (or remote annunciator), CCTV monitoring workstations, BMS workstation, generator and critical system monitoring displays
- Medical Gas Monitoring: Master alarm panels for all medical gas systems (as required by NFPA 99 — one of the two required master alarm locations shall be the Disaster Control Center); continuous display of all gas/vacuum system statuses
- Satellite / Backup Communications: Provisions (conduit and power stub-outs) for Owner-furnished satellite communication terminal (VSAT) or cellular signal booster for emergency communications independence from local carrier infrastructure
- Room physical security: Access-controlled entry; the room shall be hardened against water intrusion (no overhead piping except fire suppression) and designed for 24/7 occupancy

7.10 FIRE ALARM SYSTEM

A complete, addressable fire alarm and emergency communication system shall be designed and installed in strict compliance with NFPA 72 (National Fire Alarm and Signaling Code) and NFPA 101 (Life Safety Code) throughout the entire facility, including all levels from Basement through Roof Level.

- System Type: Fully addressable, intelligent, multiplex fire alarm system; every initiating device and output device shall have a unique address; the control panel shall provide floor-by-floor and zone-by-zone alarm annunciation
- Control Panel: Listed, addressable fire alarm control panel (FACP) with redundant power supplies (primary AC from Essential Life Safety Branch + 24-hour secondary battery per NFPA 72); located in Security/ Fire Command Center room and a remote annunciators at the Disaster Control Center (Level 9) and Main Lobby.
- Initiating Devices: Addressable manual pull stations at all exit doors and exit stairwell entries per NFPA 72; In addition, manual pull stations to be spaced no further than a travel distance of 200 ft along the route of egress. All inititation devices requires access for inspection, testing and periodic maintenance. Duct detectors must be accessible for inspection testing and maintenance as per NFPA90A.; Addressable smoke detectors (photoelectric) in all corridors, lobbies, common areas, waiting areas, electrical/mechanical rooms, telecommunications rooms, and storage rooms; heat detectors in kitchens, laundry, and spaces inappropriate for smoke detectors; duct smoke detectors on all HVAC supply air ducts ≥ 2,000 CFM per NFPA 90A; waterflow switches and tamper switches from the fire protection system (mechanical) integrated into the fire alarm system per NFPA 72 and NFPA 13

** REQUIRED: Final initiating device locations shall be directed and confirmed in accordance with IBC 2018 , IFC 2018,NFPA 101,NFPA72and NFPA70. The strictest code applies.*

- Notification Appliances: Addressable speaker/strobe combination appliances (ADA-compliant candela ratings) in all corridors, public areas, common areas, and mechanical rooms; visual-only strobes in ORs, ICU rooms, and spaces where audible alarms may be clinically inappropriate (coordinate with Owner)
- Emergency Voice Evacuation: The fire alarm system shall incorporate an emergency voice alarm communication (EVAC) system per NFPA 72; pre-recorded and live voice messages shall override all PA system functions on fire alarm activation; intelligibility per NFPA 72 (0.7 STI minimum)
- Smoke Control Coordination: The fire alarm system shall be the control interface for all HVAC smoke control functions per NFPA 92 — including fan shutdown, fire/smoke damper actuation, and stair pressurization fan start; coordination with the BMS is required (fire alarm controls life-safety smoke control; BMS monitors status)
- Elevator Recall: Fire alarm shall initiate elevator recall to the designated floor per NFPA 72 and ASME A17.1 upon smoke detection at elevator lobbies or machine room
- Door Holder Release: Magnetic door holders (on smoke barrier/corridor doors held open) shall be released by the fire alarm system upon alarm
- Monitoring: The fire alarm system shall be monitored 24/7 by an UL-listed central station per NFPA 72; connection via dedicated telephone line, cellular, and/or IP pathway with primary and secondary paths

- Testing and Inspection: Full system commissioning test at project completion per NFPA 72; annual inspection program established; all test records to be submitted to AHJ and provided to Owner
- High-Rise Provisions: As a ten-story hospital, the building shall comply with all applicable high-rise fire alarm provisions of NFPA 101 and the PRBC, including fire command center provisions and communication with the fire department

7.11 LIGHTNING PROTECTION

A complete lightning protection system (LPS) shall be designed and installed per NFPA 780 (Standard for the Installation of Lightning Protection Systems) and UL 96A (Installation Requirements for Lightning Protection Systems). Puerto Rico's tropical location results in high annual thunderstorm frequency and lightning ground flash density; a properly designed LPS is essential for patient safety and equipment protection.

- Air terminals (rods): UL-listed copper or aluminum air terminals installed at the roof perimeter, at all roof projections, mechanical equipment, and elevated rooftop structures (including cooling towers if above roof level, DOAS units, antennae, and the heliport structure) at spacing per NFPA 780
- Heliport LPS: The heliport structure, FAA obstruction lights, and all conductive equipment on the Roof Level shall be bonded and connected to the LPS; LPS components on the heliport shall comply with FAA Advisory Circular AC 150/5390-2 and shall not obstruct the heliport approach/landing zone
- Conductors: Main size conductors (copper minimum 29 AWG equivalent per NFPA 780 Table 4.7) connecting air terminals to down conductors and to the grounding system; conductors shall be mechanically protected where exposed to damage
- Down conductors: Multiple, symmetrically spaced down conductors along building exterior per NFPA 780; down conductors shall connect to the building ground grid at grade
- Ground termination: LPS down conductors shall terminate at dedicated ground rods at grade, interconnected to the building ground grid; the combined LPS + building ground system resistance shall be measured and documented
- Bonding: All metallic masses on the roof and upper floors (HVAC equipment, piping, ductwork, cable trays, equipment frames) shall be bonded to the LPS to prevent side-flash per NFPA 780 Section 4.14
- Surge Protection Devices (SPDs): In addition to the LPS, coordinated SPDs shall be installed at the main service entrance incoming terminals of the double-ended substation secondary switchgear sections (Type 1), at all distribution panelboards and step-down transformer secondaries (Type 2), and at all sensitive electronic equipment panels (Type 3 where required); SPDs are the secondary line of defense for transient overvoltage protection beyond the primary air termination network
- Testing: Complete LPS test and inspection per NFPA 780 at project completion; visual inspection and continuity test; document to UL 96A Master Label requirements if Owner requires certification

7.12 ENERGY AND SUSTAINABILITY

- Lighting Power Density (LPD): Interior lighting shall comply with ASHRAE 90.1 Table 9.6.1 (Space-by-Space Method) maximum LPD values for all space types; LED luminaires with high efficacy (minimum 100 lm/W for general spaces) shall be specified
- Automatic Lighting Controls: Automatic shutoff per ASHRAE 90.1 Section 9.4.1 in all applicable spaces; occupancy/vacancy sensors in private offices, conference rooms, and support spaces; daylight harvesting in perimeter zones with adequate glazing; scheduling controls for exterior and non-24-hour spaces
- Power Factor Correction: The electrical distribution design shall include power factor correction (capacitor banks distributed at motor loads) to maintain a minimum facility power factor of 0.90 lagging at the utility meter
- Energy Metering: Multi-function metering at the double-ended substation secondary switchgear sections (Section 5.1); all metering data integrated into BMS for real-time monitoring and energy reporting
- Generator Fuel Efficiency: Emergency generators sized to operate efficiently at typical EES load (50–80% of rated kW); avoid gross oversizing that degrades part-load fuel efficiency; generator fuel consumption at rated and test loads shall be documented

7.13 INTERFACE WITH EXISTING ASEM CENTRAL SERVICES BUILDING

The proposed Trauma Hospital will be structurally and functionally integrated with the existing ASEM Central Services Building at three (3) levels. The Design-Build Entity shall coordinate all electrical interfaces and interconnections with ASEM facilities management and shall ensure no interruption to active electrical services in the existing hospital during construction.

- Corridor Connector (Level 2): The corridor connector to the ASEM Central Services Building second level shall be provided with all required electrical services including: lighting (normal and emergency), fire alarm devices, access control door hardware, and data/communications outlets; the connector shall be treated as a separate fire alarm zone with its own initiating devices
- Fire Alarm Integration: The new Trauma Hospital fire alarm system shall be coordinated with the existing ASEM building fire alarm system

7.14 DESIGN-BUILD ENTITY SCOPE AND KEY DESIGN CONSTRAINTS

7.14.1 Items Fully in Design-Build Entity Scope

- Electrical design by a Professional Engineer (PE) licensed in Puerto Rico and an active member of the Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR); all drawings and design documents signed and sealed by the Puerto Rico-licensed PE

- All utility coordination with LUMA — interconnection application, load study, metering — through LUMA approval and energization
- Complete outdoor yard-type substation (civil, structural, electrical — two less-flammable liquid-filled, copper-wound 3,750 kVA transformers (38 kV delta primary / 13.2 kV wye secondary) on 4-inch concrete pads with oil containment, 38 kV aluminum primary structure, 15 kV primary switchgear with tie switch, protection, metering) from the LUMA aerial point of connection through two 13.2 kV feeders (separate manholes) to the indoor Building Basement double-ended substation (duplex load-break switch and fuse assemblies, two dry-type, copper-wound VPI/VPE 3,750 kVA transformers, and the double-ended substation secondary switchgear sections with two main breakers, four distribution sections, and a tie breaker)
- All electrical systems described in this Bridging Document from utility service entrance through final connections at each device, receptacle, lighting fixture, and equipment terminal
- All permits, inspections, and regulatory approvals for electrical systems (LUMA, PRBC, PRDOH, AHJ)
- Arc flash analysis and installation of arc flash hazard labels on all switchgear and panelboards per NFPA 70E
- Training of Owner's facilities staff on all electrical systems (minimum 8 hours per system for major systems — generators, switchgear, fire alarm, lighting controls, UPS)
- Short-circuit and protective device coordination study, including calibration and field setting of all protective devices

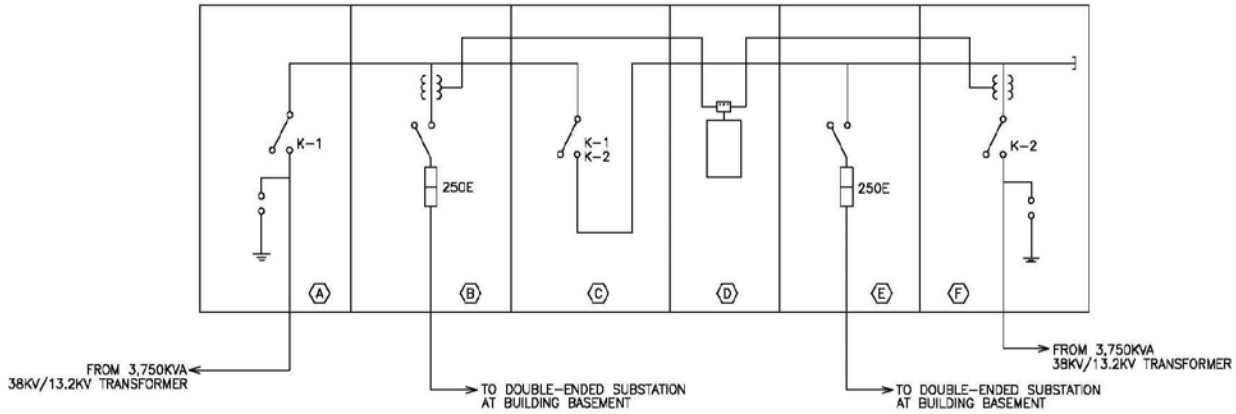
7.14.2 Key Design Constraints

- Seismic isolation plane at the Interstitial Level: All electrical conduits, cable trays, and equipment crossing the seismic isolation plane must use flexible connections / seismic loops to accommodate differential movement; electrical system design shall account for the building's seismic isolation system
- The Heliport (Roof Level) creates restricted airspace — all rooftop electrical equipment (antenna masts, HVAC equipment, generators exhaust stacks, photovoltaic if added) must comply with FAA heliport obstruction clearance requirements per AC 150/5390-2
- Tropical and hurricane environment: All outdoor and exposed electrical equipment (substation, generators, site lighting, exterior conduit and junction boxes) shall be rated for 180 mph design wind speed per ASCE 7 and PRBC; all exterior enclosures shall be NEMA 3R (stainless steel or fiberglass) for corrosion resistance in Puerto Rico's coastal/marine climate
- LUMA coordination timeline: 38 kV interconnection approval from LUMA can require significant lead time; Design-Build Entity shall initiate LUMA interconnection process immediately upon contract award and shall not allow LUMA approval to be the critical path
- Surge Capacity in Private Rooms: The Design-Build Entity shall provide electrical, nurse call, and telecommunications provisions for two (2) beds per room in 72 private rooms, to accommodate surge capacity

7.15 ELECTRICAL DESIGN NARRATIVE ANNEXES

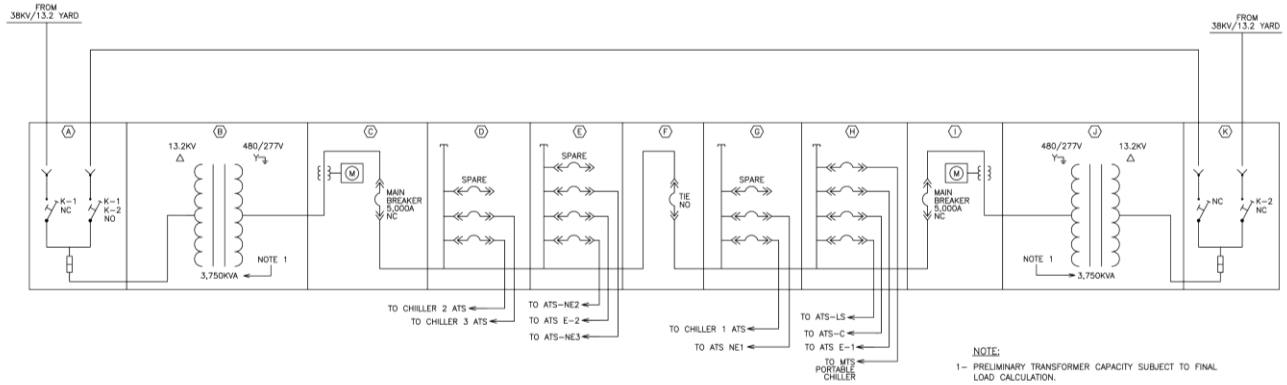
The following annex drawings are included for reference, illustrating the single-line configuration of key electrical distribution equipment described in this Bridging Document:

7.15.1 Annex 1 - Primary 15 kV Switchgear at Substation Yard



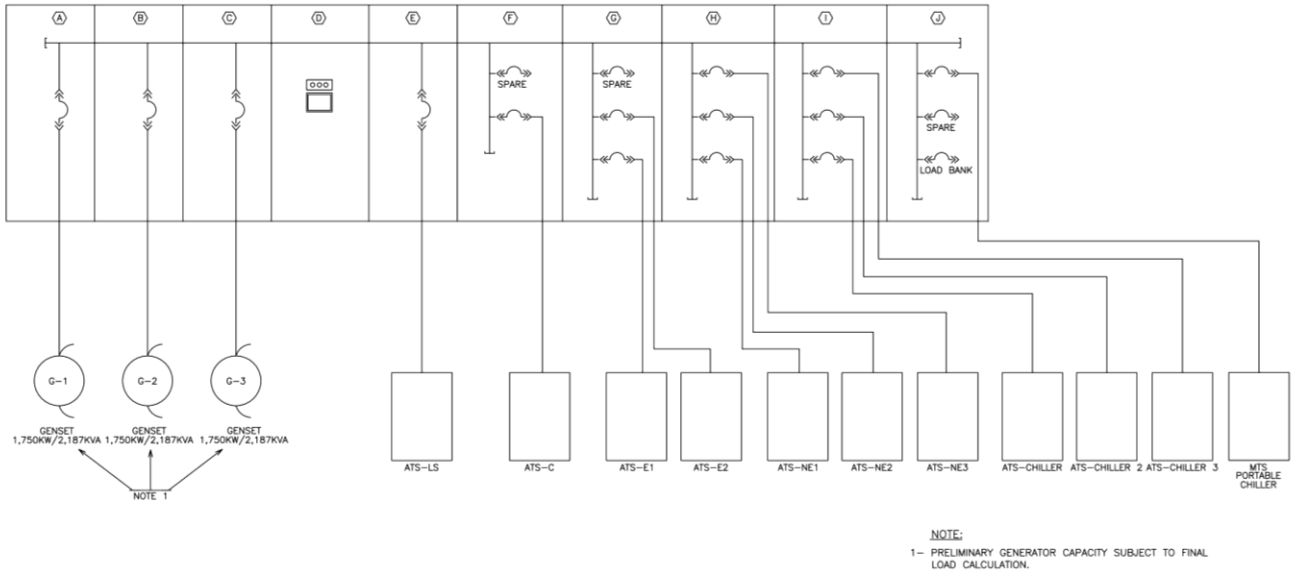
ANNEX 1: 15KV PRIMARY SWITCHGEAR AT 38KV YARD
SCALE= N.T.S.

7.15.2 Annex 2 – Double-Ended Substation



ANNEX 2: DOUBLE-ENDED SUBSTATION
SCALE= N.T.S.

7.15.3 Annex 3 – Paralleling Switchgear



ANNEX 3: PARALLELING SWITCHGEAR
SCALE= N.T.S.

8.0 MECHANICAL DESIGN NARRATIVE

MECHANICAL SYSTEMS

Air Conditioning • Plumbing • Fire Protection • Medical Gases

8.1 INTRODUCTION AND PURPOSE

This Bridge Document establishes the Mechanical Engineering performance requirements, design criteria, and minimum system standards that the Design-Build (D&B) Contractor must incorporate into the design and construction of the Puerto Rico Trauma Hospital located at Centro Médico, San Juan, Puerto Rico.

This document bridges the Owner's programmatic requirements — as established in the Architectural Project Design Summary and Construction Project Description — with the Design-Build Entity's design responsibility. The Contractor shall use this document, together with all referenced codes and standards, as the Basis of Design (BOD) for the following mechanical systems:

- Air Conditioning and Ventilation (HVAC)
- Plumbing — Potable Water, Hot Water, and Drainage
- Fire Protection — Sprinkler and Standpipe Systems
- Medical Gases — Supply, Distribution, and Alarm Systems

The Design-Build Entity shall engage licensed Professional Engineers (PE) for all mechanical systems. The Engineer of Record responsible for the mechanical design and the design drawings shall be a Professional Engineer licensed to practice in the Commonwealth of Puerto Rico and an active member in good standing of the Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR). All design documents and drawings shall be signed and sealed by the Puerto Rico-licensed PE. The Design-Build Entity shall submit design documents for Owner review at Schematic Design (SD), Design Development (DD), and Construction Documents (CD) phases.

8.2 PROJECT OVERVIEW

8.2.1 Facility Description

The Puerto Rico Trauma Hospital is a new 215,880 square foot, ten-story acute care trauma facility to be constructed on the campus of the Puerto Rico Medical Center (Centro Médico) in San Juan, Puerto Rico. The facility will be structurally integrated with the existing ASEM Central Services Building at three levels.

8.2.2 Critical Clinical Areas Driving Mechanical Design

- 5 Trauma Operating Rooms (Ground Level) — OR-A/B/C/D at 600 SF each, OR-E at 400 SF; Class B positive pressure, independent dedicated air systems, 20 ACH per ASHRAE 170
- Trauma Stabilization — 16 treatment cubicles + 1 airborne infection isolation (AII) room.

- Trauma ICU — 28 private rooms + 4 isolation rooms (Levels 1 & 2)
- Trauma Telemetry, Intermediate Care, and Physical Rehab nursing floors (Levels 4–7)
- Imaging Department: CT Scanner and X-Ray (Ground Level)
- Minor Procedure Rooms (Levels 2, 4, 5, 6, 7)
- Heliport with dedicated elevator core (Roof Level)
- Disaster Control and Monitoring Operations Center (Level 9)

8.2.3 Surge Design Basis — All Mechanical Systems

The facility is designed for a normal occupancy of 110 beds and a surge capacity of 182 beds, achieved by placing two (2) patients per patient room. ALL mechanical systems shall be designed and sized for the SURGE CAPACITY of 182 beds (two beds per room), not the normal occupancy of 110 beds. This is the governing design basis for equipment sizing, flow calculations, and system capacity across all disciplines.

- HVAC: Computerized cooling load analysis shall be based on surge occupancy (2 patients + visitors + staff + double medical equipment loads per room). FCU minimum capacity 24,000 BTU/hr per room sized for surge. AHU and chiller plant capacity verified against surge peak load.
- Medical Gases: All patient room outlets provided as double stations (2 per gas per room) per surge occupancy. Medical air compressor (triplex) and vacuum (quadruplex) system capacities shall be verified against simultaneous surge demand, including potential for multiple patients on mechanical ventilation.
- Plumbing: Domestic water demand calculations (fixture units, pipe sizing, booster pump capacity) shall be based on surge occupancy (182 beds). Fire protection design occupancy per NFPA 101 shall reflect surge bed count.
- The Design-Build Entity shall clearly document the surge occupancy basis in the Mechanical Basis of Design (BOD) narrative and in the computerized cooling load analysis, and shall confirm that all specified equipment meets surge capacity requirements before final equipment selection.

8.3 APPLICABLE CODES AND STANDARDS

The Design-Build Entity's design shall comply as a minimum with the following codes, standards, and guidelines. Where conflicts exist, the most stringent requirement shall govern. The Contractor is responsible for determining any additional codes adopted locally in Puerto Rico at the time of permit application.

8.3.1 Federal and Local Codes

- Puerto Rico Building Code (PRBC) — latest adopted edition
- Puerto Rico Department of Health (PRDOH) — Hospital Licensure Regulations
- Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR) — professional licensing; mechanical design signed and sealed by a Puerto Rico-licensed PE who is a CIAPR member

- Americans with Disabilities Act (ADA) — 2010 ADA Standards for Accessible Design
- Occupational Safety and Health Administration (OSHA) requirements.
- Puerto Rico Joint Permits Regulation (Reglamento Conjunto 2023).

8.3.2 NFPA Standards

- NFPA 99 — Health Care Facilities Code (latest edition) — Medical Gas Systems, Category 1
- NFPA 13 — Standard for the Installation of Sprinkler Systems
- NFPA 14 — Standard for the Installation of Standpipe and Hose Systems
- NFPA 20 — Standard for the Installation of Stationary Pumps for Fire Protection
- NFPA 24 — Standard for the Installation of Private Fire Service Mains
- NFPA 72 — National Fire Alarm and Signaling Code (coordination with fire alarm)
- NFPA 101 — Life Safety Code
- NFPA 99 Chapter 14 — Hyperbaric Facilities
- NFPA 30 — Flammable and Combustible Liquids Code (diesel fuel storage)
- NFPA 110 — Standard for Emergency and Standby Power Systems (generator fuel coordination)
- NFPA 54 / NFPA 58 — National Fuel Gas Code / LP-Gas Code (LPG hot water and storage)

8.3.3 ASHRAE Standards

- ASHRAE 55 — Thermal Environmental Conditions for Human Occupancy
- ASHRAE 62.1 — Ventilation for Acceptable Indoor Air Quality
- ASHRAE 90.1 — Energy Standard for Buildings (minimum energy efficiency)
- ASHRAE 170 — Ventilation of Health Care Facilities — PRIMARY HVAC DESIGN STANDARD
- ASHRAE 64 — Methods of Testing Remote Mechanical-Draft Evaporative Refrigerant Condensers

8.3.4 Healthcare Facility Guidelines

- Facility Guidelines Institute (FGI) Guidelines for Design and Construction of Hospitals — latest edition
- Joint Commission Environment of Care standards (if applicable to accreditation)
- SMACNA — HVAC Duct Construction Standards — Metal and Flexible
- ASSE 1010, 1017, 1070 — plumbing device standards
- ASHE — American Society for Healthcare Engineering guidelines

8.3.5 Sustainability

- U.S. Green Building Council LEED — LEED certification is optional at the Design-Build Entity's discretion (not mandatory); if pursued, the NC rating system applies. Sustainable/energy-efficient design practices are encouraged regardless of certification

8.4 AIR CONDITIONING AND VENTILATION (HVAC)

The HVAC system shall ensure patient safety, infection control, thermal comfort, and energy efficiency consistent with the requirements of ASHRAE 170 and FGI Guidelines. The Design-

Build Entity shall prepare a full HVAC Basis of Design narrative and room-by-room air balance schedule for Owner review.

8.4.1 Design Conditions

Parameter	Outdoor (San Juan, PR)	Indoor Design
Summer Dry Bulb (DB)	91°F DB / 79°F WB	—
Humidity (Outdoor)	~80% RH (tropical)	—
Patient Rooms (ICU/Med-Surg)	—	70–75°F / 30–60% RH
Operating Rooms	—	68–75°F / 20–60% RH (ASHRAE 170)
Administrative / Offices	—	72°F ±2°F
Emergency / Trauma Stabilization	—	70–75°F / 30–60% RH

8.4.2 Chilled Water Plant

The primary cooling plant shall be located in the Basement level mechanical plant area. The plant shall be based on three (3) chiller units, each rated a minimum of 800 tons of refrigeration, operating two (2) units with one (1) unit as backup (2+1 / N+1 redundancy). This provides a firm plant capacity of 1,600 tons with full redundancy.

Pumping Configuration: The chilled water system shall be a variable primary flow (primary-only) type. A single set of variable-speed primary chilled water pumps shall circulate water through the chillers and the distribution loop; chilled water flow through the system shall be modulated by the two-way energy valves at each coil, with pump speed controlled to maintain system differential pressure. A minimum-flow bypass with a control valve shall be provided to protect the chillers from low-flow conditions during periods of low demand.

- Chiller Type: Centrifugal type, water-cooled, with cooling tower as condenser medium
- Minimum Unit Efficiency: 0.58 kW/ton or better, in compliance with ASHRAE 90.1 and ASHRAE 64
- Quantity and Capacity: Three (3) chiller units, each minimum 800 tons refrigeration; two (2) units operating (duty) and one (1) unit standby (backup). Firm/operating capacity = 1,600 tons. The Design-Build Entity shall verify the 800-ton minimum unit size against a computerized building load computation (see Section 10.3) and increase capacity if required, while maintaining the three-unit 2+1 arrangement
- Leaving Chilled Water Temperature: 38°F leaving chilled water temperature; the lower supply temperature shall be coordinated with coil selection and dehumidification requirements for Puerto Rico's tropical climate
- Cooling Tower: Induced-draft type; located in the dedicated Mechanical Roof Yard at the Second Level (per the schematic plans), not on the main roof. The condenser water plant shall consist of six (6) cooling tower cells — four (4) operating (duty) and two (2) backup — matching the three-chiller (2+1) plant and preserving N+1 redundancy on the condenser

side. This quantity is consistent with the schematic plans; the Design-Build Entity shall confirm final cell sizing against the chiller condenser load

- Cooling Tower — Construction: Full stainless steel construction (basin, casing, and structural components) for corrosion resistance in Puerto Rico's coastal/marine environment and to maximize service life; stainless steel hardware and fasteners throughout
- Cooling Tower — Seismic Protection: The cooling tower(s) shall be provided with seismic restraints, anchorage, and isolation/snubber assemblies designed for the project seismic loads; equipment, supports, and connections shall be coordinated with the building's seismic isolation system, and all piping crossing the seismic isolation plane shall use flexible seismic connectors (see Section 11.3)
- Cooling Tower Fans — Noise Attenuation: Cooling tower fans shall be provided with noise attenuation (low-noise fan blades and/or fan discharge/intake sound attenuators) to meet site noise criteria, given the proximity to occupied patient floors, the heliport, and adjacent hospital buildings on the Centro Médico campus; the Design-Build Entity shall confirm sound power/pressure limits and provide acoustical calculations
- Cooling Tower Fans — VFD: Cooling tower fans shall be driven by variable frequency drives (VFDs) to modulate fan speed for condenser water temperature control, energy savings, and further noise reduction at part-load operation
- Condenser Water Temperatures: Condenser water entering the chiller at 85°F and leaving the chiller at 97°F (12°F condenser range) at design conditions. Note: the cooling tower cools the water leaving the chiller (97°F) back down to 85°F before it re-enters the chiller; tower selection shall achieve the 85°F entering-condenser-water temperature at the San Juan design wet-bulb
- Condenser Water Flow: 2.3 GPM per ton of refrigeration through the chiller condenser; condenser water pumps and piping shall be sized for this flow at each chiller (e.g., ≈ 1,840 GPM per 800-ton chiller). Condenser water pumps shall be arranged one per chiller to match the 2+1 plant, with VFDs
- Chilled Water Supply/Return Temperatures: 38°F supply / 53°F return (15°F ΔT); the system shall be designed around a 15°F chilled water temperature difference to maximize plant efficiency and minimize pumping energy

8.4.2.1 Chiller Room — Acoustic and Vibration Isolation

The Main Chiller Room is located in the Basement level directly below the Trauma Surgery Department and Operating Rooms on the Ground Level. Because centrifugal chiller compressors generate significant noise and vibration, the chiller room shall be designed and constructed as a sound-isolated mechanical room to prevent transmission of noise and vibration to the surgical suites above. The following measures are required:

- Enclosure: Chiller room walls, floor slab, and ceiling (underside of Ground Level slab) shall be constructed with sound-rated assemblies, minimum STC 60, or as determined by the acoustic consultant, including mass-loaded assemblies, resilient layers, and/or floating floor construction

- Equipment Vibration Isolators: All chillers, pumps, cooling tower fans, and rotating equipment shall be mounted on inertia-base vibration isolators (spring-type or combination spring-neoprene) sized for each piece of equipment to attenuate vibration transmission to the building structure
- Flexible Pipe Connectors: All chilled water and condenser water piping connections at equipment shall use flexible vibration-isolation pipe connectors to prevent structure-borne noise transmission through the piping system
- Acoustic Doors: Chiller room access doors shall be acoustically rated (STC 50 minimum), gasketed, and self-closing
- Duct Silencers: Mechanical ventilation ducts penetrating the chiller room walls or slab shall include duct silencers/sound attenuators to prevent flanking noise transmission
- Acoustic Consultant: The Design-Build Entity shall engage a qualified acoustic consultant to perform a noise and vibration analysis and confirm compliance with the maximum noise criteria (NC) levels for operating rooms (NC-20 to NC-25 per FGI/ASHRAE 170 guidelines) at the Ground Level above; the acoustic report shall be submitted to the Owner at Design Development phase

8.4.3 Chilled Water Distribution

- Vertical Distribution — Dual Risers: Because each patient care floor is served by two (2) AHUs, chilled water shall be distributed vertically through two (2) independent risers. Each riser shall feed one of the two AHUs on each floor, so that the loss or isolation of one riser leaves the other AHU — and therefore partial cooling capacity — in service on every floor
- Each riser shall be independently valved and isolatable at each floor takeoff and at the plant, allowing maintenance of one riser without shutting down the entire building
- Risers shall be sized so that, where feasible, one riser can carry a partial load for life-safety and critical areas during maintenance of the other; the Design-Build Entity shall evaluate cross-connection with isolation valves at the plant header to allow either set of primary pumps to feed either riser
- Piping: Seamless cast iron Schedule 40 for pipe diameters above 2½"; Copper Type K for 2" diameter and smaller
- Insulation: All chilled water and reheat water piping shall be insulated per the Pipe Insulation Schedule below. Vapor barrier is required on all chilled water piping to prevent condensation in Puerto Rico's tropical humid climate. All insulation materials shall comply with FSI <=25 / SDI <=50 per ASTM E84 and NFPA 90B.

Pipe Insulation Schedule

Service / Temp.	Min. Dia. (in)	Max. Dia. (in)	Min. Thickness	K Value / Calc. R	Material Type	Outdoor Finish	Indoor Concealed Finish	Indoor Exposed Finish
CHILLED WATER 40 - 60°F	1/2"	1"	1-1/2"	K=0.19 @ 50F R-7.9	Poly-Isocyanurate (PIR) with Integral Vapor Retarder (Perm <=0.05). FSI <=25 / SDI <=50. ASTM E84, NFPA 90B	Continuous Vapor Retarder Jacket (Perm <=0.05) + 6 oz. Canvas with MON ECO 55-10 & 55-50 Mastic + 0.016" Alum. Alloy Jacket with Sealed Laps	Continuous Vapor Retarder Jacket (Perm <=0.05) + MON ECO 55-50 Mastic with White Finish	Continuous Vapor Retarder Jacket (Perm <=0.05) + MON ECO 55-50 Mastic + Manville Zeston PVC Jacket 30 MLS White Gloss. Flame Spread <=25 / Smoke Dev. <=50, ASTM E84
	1-1/4"	2"	1-1/2"	K=0.19 @ 50F R-7.9				
	2-1/2"	8"	2"	**K=0.19 @ 50F R-10.5**				
REHEAT WATER 95 - 120°F	1/2"	1"	1"	K=0.26* @ 107F R-3.8	Rigid Fiberglass Micro-Lok(R) by Johns Manville. FSI <=25 / SDI <=50. ASTM E84, NFPA 90B	6 oz. Canvas with MON ECO 55-10 & 55-50 Mastic + 0.016" Alum. Alloy Jacket with Vapor Barrier Foil and Sealed Laps	MON ECO 55-50 Mastic with White Finish and Vapor Barrier Foil	MON ECO 55-50 Mastic + Manville Zeston PVC Jacket 30 MLS White Gloss. Flame Spread <=25 / Smoke Dev. <=50, ASTM E84
	1-1/4"	2"	1-1/2"	K=0.26* @ 107F R-5.8				
	2-1/2"	8"	2"	K=0.26* @ 107F R-7.7				

- * K value for Rigid Fiberglass at 107F mean temperature per manufacturer data
- Pipe supports, hangers, and expansion compensation per ASHRAE and SMACNA standards
- Isolation valves, balancing valves, and pressure/temperature test ports at all major branches and at each riser takeoff

8.4.4 Chilled Water Pumps

- Type: Vertical inline centrifugal pumps; arranged as variable primary flow (primary-only) pumps serving both the chillers and the distribution loop. Vertical inline configuration saves floor space in the chiller room and eliminates the need for a separate base plate and coupling guard
- Motors: Totally enclosed fan-cooled (TEFC), minimum 15 HP each
- Configuration: One (1) variable primary pump per chiller — three (3) pumps total, matching the three-unit 2+1 chiller arrangement (two duty, one standby); pumps staged and interlocked with their associated chillers
- Variable Frequency Drives (VFDs) on all chilled water pumps; pump speed modulated to maintain system differential pressure as two-way energy valves throttle flow
- Chilled Water Bypass (REQUIRED): A chilled water bypass line with a modulating control valve is required and shall be provided across the supply and return mains at the plant. The bypass shall maintain each chiller's minimum evaporator flow at all times under low-load conditions when the two-way energy valves throttle distribution flow — preventing chiller low-flow trips, protecting against evaporator freeze at the 38°F supply temperature, and ensuring stable variable primary flow operation
- The bypass control valve shall be controlled by the central automatic control system, modulated based on measured primary loop flow versus the active chillers' minimum flow setpoint; the bypass shall fail open on loss of control signal or power
- Flow metering on the primary loop integrated into the central control system for chiller staging and ΔT verification

- Automatic lead-lag switching and standby pump auto-start on duty pump failure

8.4.5 Air Handling Units (AHUs) and Fan Coil Units

8.4.5.1 System Architecture

- Patient Care Floors (Levels 2, 4, 5, 6, 7): Provide a minimum of two (2) air conditioning units (AHUs) per floor serving the patient room floor common areas (corridors, nursing stations, support spaces, waiting/visitor areas). The two units per floor provide redundancy so that the loss of one unit does not leave the floor without conditioned air. Each of the two AHUs shall be fed from a separate independent chilled water riser (see Section 4.3) for full hydraulic redundancy
- Patient Rooms: Provide one (1) dedicated fan coil unit (FCU) per patient room, minimum 24,000 BTU/hr capacity, to serve the surge configuration of two (2) beds per room. Each FCU is independently controlled per room without affecting adjacent rooms
- Operating Rooms, ICU, Isolation, and Procedure Rooms: Served by independent, dedicated AHU systems (not by the patient-room FCU arrangement) due to higher air change rates, HEPA filtration, and pressure relationship requirements per ASHRAE 170
- Surgical AHU — UV Light (REQUIRED): The AHUs serving the Surgery Department / Operating Rooms shall be provided with ultraviolet germicidal irradiation (UV-C / UVGI). UV-C lamps shall be installed downstream of the cooling coil and over the drain pan to keep coil and pan surfaces free of microbial growth and to provide air disinfection. Lamps shall be accessible for safe maintenance with interlocked access doors and run-time monitoring integrated into the central control system

8.4.5.2 Air Handling Units (AHUs)

- Location: Rooftop or dedicated mechanical rooms as determined by Design-Build Entity
- Type: Modular, draw-through, exterior-rated (roof units), double-wall casing construction (insulation fully encapsulated between an inner and outer metal liner) for cleanability, infection control, and condensation prevention in the tropical climate; with: modular filters (MERV-14 minimum for clinical areas; HEPA for OR and isolation rooms), chilled water cooling coil, reheat coil (electric or hot water, for dehumidification reheat only — not space heating, which is not required in Puerto Rico's tropical climate), supply/return fans with VFDs, two-way energy valve on chilled water coil, stainless steel drain pan with trap
- AHU Condensate Drain: All AHU condensate drain pans shall be stainless steel, double-sloped, with deep-seal traps; the condensate drain piping shall be insulated with vapor barrier to prevent condensation/sweating on the pipe exterior in the humid climate
- Chilled Water Coil ΔT: All AHU chilled water coils shall be selected for a minimum 15°F water temperature difference (38°F entering / 53°F leaving) at design conditions; coil rows, fin spacing, and circuiting shall be selected to achieve and maintain the 15°F ΔT, enforced by the two-way energy valves
- Constant Flow Operation: AHUs shall be constant air volume (CV) — fans deliver a fixed design airflow. The return (and supply) air temperature shall be regulated by the two-way energy valve modulating chilled water flow through the coil, rather than by varying airflow. VFDs on fans are used for balancing, filter-loading compensation, and night/standby

setback — not for load-based flow modulation. This constant-flow strategy maximizes coil dehumidification for the tropical climate

- Quantity: Minimum two (2) AHU units per patient care floor for common areas, plus dedicated AHUs for OR, ICU, and critical care areas; Design-Build Entity to determine total quantity based on system design and zoning
- Airflow: Minimum average 15,000 CFM per handler; confirm based on ASHRAE 170 room-by-room calculations
- Zoning: Common area AHUs are constant air volume (CV); zone temperature regulated by the two-way energy valve modulating chilled water flow at the coil. All critical care areas on independent, dedicated air systems
- Outdoor Air: AHUs and fan coil units shall receive pre-conditioned ventilation air from the Dedicated Outdoor Air System (DOAS) — see Section 4.6. AHUs and fan coils handle space sensible cooling load and recirculation; the DOAS handles the outdoor air ventilation and latent (dehumidification) load
- All Air Handling Units (AHU) serving ground level areas, specifically operating room areas and related support services, stabilization/observation areas and related support services, and critical care unit areas related support services shall have additional direct expansion refrigerating fan coil capacity as backup during any chilled water system operative failure.

8.4.5.3 Fan Coil Units (FCUs)

- Application: One (1) FCU per patient room, minimum 24,000 BTU/hr capacity (sized for surge occupancy of two beds per room), and at perimeter zones, offices, and support spaces where applicable for individual space control
- Type: Chilled water fan coil units with double-wall casing construction, with VFD or ECM (electronically commutated) fan motors; concealed ceiling or vertical type as suited to room layout
- Coil: Chilled water cooling coil served by the central plant, controlled by a two-way energy valve; individual room thermostat control via BMS-integrated DDC controller reporting to the central computer system
- Outdoor Air: All FCU ventilation air shall be supplied pre-conditioned from the DOAS — no direct outdoor air intake at individual FCUs; this ensures positive pressure and proper humidity control in each patient room
- Condensate: Each FCU drain pan piped to drainage with trap; the condensate drain line shall be insulated with vapor barrier to prevent condensation on the pipe exterior in the humid climate; condensate monitoring/overflow protection to prevent water damage above occupied patient rooms
- Filtration: Minimum MERV-8 at FCU (return) in addition to MERV-14 ventilation air from DOAS; serviceable filter access required

8.4.6 Dedicated Outdoor Air System (DOAS)

All outdoor (ventilation) air serving the Air Handling Units and Fan Coil Units shall be supplied through Dedicated Outdoor Air System (DOAS) units. The DOAS decouples ventilation and dehumidification from space sensible cooling, which is critical in Puerto Rico's hot and humid

tropical climate to maintain the relative humidity limits required by ASHRAE 170 and FGI for healthcare spaces.

- Location: The DOAS units shall be located in the upper Mechanical Room at the Ninth Level, directly beneath the Roof-Level Heliport (per the schematic plans). Outdoor air intakes shall be positioned to draw clean air away from the heliport exhaust/downwash, generator and cooling tower discharges, and any vent terminals; the Design-Build Entity shall verify intake separation distances per ASHRAE 170 / FGI and FAA heliport clearance requirements
- Configuration: Dedicated outdoor air units that filter, cool, dehumidify, and (as required) reheat 100% outdoor air to a neutral or cold supply air condition before delivery to AHUs, FCUs, or directly to spaces
- Dehumidification: DOAS shall deliver supply air at a low dew point (target 50–55°F leaving air dew point) to satisfy the entire latent load of the building and maintain space RH within ASHRAE 170 limits (30–60% RH for clinical areas)
- Energy Recovery: Each DOAS unit shall include total energy recovery (enthalpy wheel or membrane energy exchanger, minimum 60% effectiveness) between outdoor air intake and building exhaust air; cross-contamination must comply with ASHRAE 170 — no energy recovery between exhaust from isolation/contaminated areas and supply air
- Patient Room Bathroom Exhaust: The patient room bathroom (toilet) exhaust shall be ducted to and integrated with the DOAS as the exhaust air source for energy recovery. Because the conditioned bathroom exhaust is cooler and drier than outdoor air, routing it through the DOAS energy recovery device pre-cools and pre-dehumidifies the incoming outdoor air, reducing the cooling/latent load on the DOAS coil
- The bathroom exhaust energy recovery device shall be a sensible/total recovery type with no cross-contamination of airstreams (membrane plate exchanger or run-around coil preferred over wheel for toilet exhaust to avoid odor/contaminant transfer); bathroom exhaust shall be maintained at negative pressure relative to the patient room at all times
- Bathroom exhaust fans shall run continuously (or be interlocked with the DOAS) to maintain the required exhaust air flow for energy recovery and to keep the toilet room under negative pressure per ASHRAE 170
- Filtration: Minimum MERV-14 at DOAS; additional final filtration at downstream AHUs serving critical areas
- Cooling: Chilled water coil served by the 38°F leaving chilled water from the central plant to achieve required low dew point
- Reheat: Hot water, electric, or recovered-heat reheat to deliver neutral supply air where required to avoid overcooling spaces
- Redundancy: N+1 configuration for DOAS units serving critical care areas; Design-Build Entity to determine final quantity and capacity based on total building ventilation requirements per ASHRAE 170
- Controls: Each DOAS integrated into the BMS with leaving air temperature, dew point, and airflow monitoring; demand-controlled ventilation via CO_2 sensors where permitted by ASHRAE 170

8.4.7 ASHRAE 170 — Critical Space Ventilation Requirements

The following minimum requirements per ASHRAE 170 (Table 7.1) shall be incorporated. The Design-Build Entity shall provide a complete room-by-room schedule as part of the Basis of Design.

Space Type	Min. ACH Total	Min. ACH OA	Pressure Rel.	HEPA / Filtration
Trauma Operating Rooms	20	4	Positive (+)	HEPA at supply
Pre/Post-Op Nursing	6	2	Positive (+)	MERV-14
Trauma ICU — Pvt Rooms	6	2	Positive (+)	MERV-14
Airborne Infection Isolation (AII)	12	2	Negative (−)	HEPA at exhaust
Trauma Stabilization Cubicles	6	2	Neutral/Positive	MERV-14
Minor Procedure Rooms	6	2	Positive (+)	MERV-14
Imaging — CT / X-Ray	6	2	Neutral	MERV-14
Soiled Utility / Janitor	10	10	Negative (−)	None required
Med-Surg Patient Rooms	6	2	Positive (+)	MERV-14
Corridors — Clinical	2	—	Neutral	MERV-13

8.4.8 Ductwork

- Material: Galvanized steel, per SMACNA HVAC Duct Construction Standards, minimum 26-gauge for low pressure systems
- Velocity: Maximum 1,500 FPM in main ducts; 1,000 FPM in branch ducts serving clinical spaces
- Static Pressure Drop: Supply and return ductwork shall be designed for a maximum friction loss of 0.08" WG (water gauge) per 100 LF of duct. Exhaust ductwork shall be designed for a maximum friction loss of 0.015" WG per 100 LF of duct. All ductwork shall be sized accordingly to maintain these design criteria
- Insulation: All supply, return, and exhaust ducts (except terminal general-exhaust ducts discharged directly to atmosphere) shall be insulated per the Ductwork Insulation Schedule below. Patient room bathroom exhaust ducting routed to the DOAS for energy recovery shall be insulated to preserve the recoverable energy.

Ductwork Insulation Schedule

Location	Insulation to Duct	K Value	R Value	Density	Thickness	Material Type	NFPA Grade
Interior Concealed	Supply / Return / Exhaust	0.25 BTU-IN/HR at 75°F	R-6	1.5 LB/FT³	1½"	Flexible Fiberglass with FSK Vapor Barrier	—
Interior Exposed	Supply / Return / Exhaust	0.25 BTU-IN/HR at 75°F	R-8	1.5 LB/FT³	2"	Rigid Fiberglass with FSK Vapor Barrier	Flame Spread C25 / Smoke C50 per ASTM E84
Exterior	Supply	0.25 BTU-IN/HR at 75°F	R-10	6 LB/FT³	2"	Rigid Polyisocyanurate with Canvas and Mastic, Painted White with Aluminum (0.16) Cover	—

- All supply air ducts serving ORs and isolation rooms shall have no flex duct beyond final 12"
- Duct leakage class per SMACNA; all systems serving critical care areas to be pressure tested prior to ceiling close-out
- Fire/Smoke Dampers (REQUIRED): The outdoor air and exhaust air ducts that run through the vertical chases/shafts from the First through the Tenth Levels shall be provided with combination fire/smoke dampers (FSD) at every point where the ducts penetrate a fire-rated floor or shaft enclosure, per NFPA 90A, NFPA 101, and the building code. Each FSD shall be UL 555/555S listed with the fire rating matching the rated barrier penetrated
- FSD Actuation and Monitoring: Fire/smoke dampers shall close automatically on signal from the fire alarm system (smoke detection) and on loss of power, using electric actuators with end-switch position indication reported to the fire alarm system and the central control system (BMS); coordinate damper control with the building smoke-control sequence per NFPA 92
- FSD Access: Provide code-compliant access doors at every fire/smoke damper for inspection, testing, and reset per NFPA 80 / NFPA 105; all dampers shall be accessible for the periodic operational testing required for healthcare occupancies

8.4.9 Terminal Units and Air Distribution

To maintain effective dehumidification in Puerto Rico's high-humidity tropical climate, the air conditioning system shall be constant air volume (CV). Variable Air Volume (VAV) boxes shall NOT be used. Constant airflow keeps the cooling coil continuously dehumidifying at design face velocity, preventing the rise in space relative humidity that occurs when VAV systems reduce airflow at part load.

- Constant Volume (CV) Terminals: Constant-volume terminal units / constant-volume regulators shall be provided to maintain fixed design airflow to each zone; airflow does not modulate with load
- Temperature Control via Energy Valve: Space and return air temperature shall be controlled by modulating the chilled water flow through the AHU coil using the two-way

energy valve — not by varying airflow. The energy valve throttles chilled water to hold the scheduled return (or supply) air temperature setpoint while airflow remains constant

- Reheat: Where individual zone temperature control or simultaneous dehumidification with reheat is required (e.g., to prevent overcooling while dehumidifying), constant-volume reheat terminals (electric) shall be provided
- Surgical Suite Reheat (REQUIRED): Each surgical suite (each Operating Room) shall be provided with a dedicated duct-mounted electric reheat coil on its supply duct, allowing independent temperature and humidity control for each OR per the surgeon's/procedure's requirements (ASHRAE 170 allows 68–75°F adjustable per room). The electric reheat shall be controlled by the room's setpoint via the central control system, coordinated with the constant-volume airflow and the two-way energy valve at the AHU coil
- ICU Reheat (REQUIRED): The AHUs serving the Intensive Care Units (ICU) shall be provided with electric reheat for independent zone temperature and humidity control of the critical care areas, coordinated with the constant-volume airflow and the AHU two-way energy valve; reheat controlled by zone setpoint via the central control system
- Trauma Stabilization Reheat (REQUIRED): The AHU serving the Trauma Stabilization unit (Ground Level — 16 treatment cubicles + 1 isolation room) shall be provided with electric reheat for temperature and humidity control of this critical care area, coordinated with the constant-volume airflow and the AHU two-way energy valve; reheat controlled by zone setpoint via the central control system
- All OR and isolation room supply air through ceiling diffusers designed for laminar or non-aspirating flow per FGI and ASHRAE 170; OR and isolation rooms remain constant volume to hold required air change rates and pressure relationships at all times
- Air Distribution Grilles and Diffusers (REQUIRED): All supply, return, and exhaust air distribution grilles, registers, and diffusers shall be of aluminum construction for corrosion resistance in Puerto Rico's coastal tropical environment; all grilles and registers shall be provided with opposed-blade dampers (OBD) for individual airflow balancing and shutoff
- Grille/Diffuser Finish: Aluminum finish (mill, anodized, or painted white as required by the interior design) with concealed or visible mounting as suited to the space type; all clinical area grilles shall be smooth and cleanable
- Exterior Louvers (REQUIRED): All outdoor air intake and exhaust louvers shall be aluminum construction, drainable-blade type (to prevent water infiltration), and hurricane-resistant rated. Louvers shall be selected and tested to withstand the design wind loads for Puerto Rico (ASCE 7 / PRBC hurricane exposure) without structural failure or water infiltration at the design wind speed; provide bird/insect screens at all outdoor air intakes

8.4.10 Building Management System (BMS) / DDC Controls

- All units (AHUs, fan coils, DOAS, chillers, pumps) shall be furnished with a complete automatic control system; every chilled water coil shall be controlled by a two-way energy valve (pressure-independent characterized control valve with integral flow measurement and energy/ΔT monitoring)

- Two-way energy valves shall maintain design ΔT, eliminate coil overflow / low-ΔT syndrome, automatically balance flow, and report real-time flow, supply/return temperature, energy consumption, and valve position to the central system
- Control System Architecture: The automatic control system shall be fully centralized in a computer-based system (head-end server with operator workstation/s); all DDC controllers shall report to this central computer over an open-protocol network (BACnet/IP preferred)
- All HVAC equipment shall be integrated into the centralized BMS with Direct Digital Controllers (DDC) per unit, reporting to the central computer system
- BMS shall monitor and control: constant supply airflow and duct static pressure, return/supply air temperature regulated by the two-way energy valve, zone temperature and humidity, CO_2 levels for occupancy-based OA control, AHU filter differential pressure, chiller plant sequencing, two-way energy valve flow and ΔT, DOAS leaving air temperature/dew point and energy recovery operation
- Alarms: All critical parameter deviations (temperature out of range, pressure relationship failure in OR/isolation rooms, filter differential high) shall generate audible and visual alarms at BMS workstation
- OR pressure monitoring: Continuous room pressure monitoring with visual indicators at each OR door
- BMS to integrate with fire alarm system for smoke control and fan shutdown per NFPA 90A

8.4.11 Stair Pressurization and Smoke Control

As a high-rise hospital, the building requires engineered smoke control and stairwell ventilation to keep the means of egress tenable during a fire. The Design-Build Entity shall design these life-safety systems per NFPA 92, NFPA 101, and the building code, coordinated with the fire alarm and the architectural smoke-barrier design.

- Stairwell Pressurization (REQUIRED): Both exit stairwells shall be provided with mechanical pressurization systems to keep the stairs smoke-free during a fire. Dedicated stair pressurization fans (with intake at a clean location) shall maintain a positive pressure in each stairwell relative to the adjacent floors within the range required by NFPA 92 (nominally 0.05 to 0.35 in. w.c. with stair doors closed), so smoke cannot migrate into the egress stairs
- Pressure Relief / Modulation: Each stair pressurization system shall include barometric relief dampers or variable-speed (VFD) fan modulation to maintain the pressure within code limits and to prevent excessive door-opening force (max. 30 lbf per NFPA 101) as doors open and close during evacuation
- Activation: Stair pressurization fans shall start automatically on a general fire alarm / smoke detection signal, on emergency (essential) power, with status and alarms reported to the fire alarm system and the central control system (BMS); manual override at the fire command center
- Elevator Hoistway / Lobby Smoke Control: Provide smoke control for elevator hoistways and the heliport/egress elevator lobbies as required by NFPA 101 and the building code

(pressurization or smoke-protected approach), coordinated with the stair pressurization strategy

- Smoke Control Coordination: HVAC air handling systems shall be interlocked with the fire alarm to execute the smoke-control sequence (fan shutdown, smoke exhaust, and zone isolation via the fire/smoke dampers) per NFPA 90A and NFPA 92; the sequence shall be tested as part of project closeout commissioning

8.5 PLUMBING SYSTEMS

The plumbing system shall serve all domestic cold water, hot water, drainage, waste, vent, and specialty plumbing requirements of the facility. The Design-Build Entity shall design the system to meet FGI Guidelines, IPC (or PRBC equivalent), and ASSE standards.

8.5.1 Water Storage — Cisterns

- Potable Water Cistern: Minimum 30,000 gallons capacity; construction coordinated with structure (the schematic plans show a 30,000-gallon water tank); serves all plumbing fixtures including lavatories, sinks, showers, drinking fountains, water closets, and urinals; supplied from the ASEM main water distribution ring at the main street. The Design-Build Entity shall provide a new potable water meter and service connection from the ASEM water main to the building
- No gray water system shall be provided; all fixtures (including water closets and urinals) shall be served from the potable water system
- The cistern shall be designed for earthquake resistance per structural requirements of the seismic isolation building system
- Cistern shall include: access manholes, overflow drains, and level indicators connected to BMS/central control system
- Cistern Water Level Monitoring (REQUIRED): The potable water cistern water level shall be continuously monitored by the central control system (BMS). A continuous-reading level transmitter (ultrasonic or pressure-type) shall be installed providing real-time level indication at the BMS operator workstation at all times
- Level Alarms: The control system shall generate audible and visual alarms at the BMS for the following conditions: (1) Low Level alarm at a pre-set minimum level to alert operators before the cistern runs critically low and allow time to restore supply; (2) High Level / Overflow alarm to detect overfill or failed fill valve; (3) Loss of level signal alarm (transmitter or communication failure). All alarms shall be logged by the BMS with time-stamp and shall remain active until acknowledged by the operator
- Potable Chlorination System (REQUIRED): A chlorination disinfection system is required for the potable water cistern to maintain a residual disinfectant and ensure water quality. The system shall provide automatic chlorine dosing with residual monitoring, proportioned to flow/storage, and shall maintain the chlorine residual required by the Puerto Rico Department of Health. The Design-Build Entity may provide supplemental UV disinfection, but chlorination is the required primary disinfection method. Chlorination equipment,

dosing pumps, and residual analyzers shall be integrated into the central control system with low-residual alarm

8.5.2 Domestic Water Pumping

Water closets and urinals shall use flush valves (flushometer / direct-flush) rather than flush tanks. Flush valves draw a high instantaneous flow (approximately 25 GPM per water closet for a few seconds) directly from the piping and require a higher minimum flowing pressure at the fixture. The domestic water booster system and distribution piping shall be sized for this higher peak instantaneous demand and minimum pressure.

- Demand basis: System peak demand shall be calculated using flush-valve water supply fixture unit (WSFU) values per the flush-valve column of the plumbing code/Hunter's curve (a flush-valve water closet ≈ 10 WSFU vs. ≈ 5 WSFU for a tank type); the higher diversified peak flow shall govern pump and pipe sizing
- Potable Water Pumps: Centrifugal end-suction, vertical discharge, TEFC motors; configuration: variable-speed (VFD) booster set with one (1) standby pump (minimum). The booster set shall be sized for the flush-valve peak flow — horsepower and number of pumps to be determined by the Design-Build Entity's hydraulic calculation (the previously cited 10 HP is a minimum starting point and will likely increase with flush-valve demand)
- Pressure: Maintain minimum flowing pressure at every fixture adequate for flush-valve operation — minimum 25–35 psi residual at the most hydraulically remote flush valve (per manufacturer), and minimum 40 psi at standard fixtures; maximum 80 psi (PRVs per ASSE 1003). The high-zone booster shall account for the flush-valve minimum at the topmost floor
- Multiplexed booster pumps and/or a hydropneumatic tank shall be considered to handle the rapid, intermittent flush-valve flow spikes without pressure sag; the Design-Build Entity shall confirm the configuration based on hydraulic analysis
- Automatic lead-lag with standby pump auto-start on failure
- BMS Connection (REQUIRED): The potable water pumping/booster system shall be connected to and monitored by the Building Management System (central control computer). The BMS shall monitor and report pump status (run/standby/fault), system pressure in both risers, VFD speed/output, flow, hydropneumatic tank pressure, and shall annunciate alarms for low pressure, pump failure, and standby pump activation

8.5.3 Domestic Water Vertical Distribution — Dual Risers (Pressure Zones)

The potable water distribution shall be divided into two (2) independent vertical risers, zoned by building height to manage static pressure and provide distribution redundancy:

- Riser No. 1 — Low Zone: Serves Floors 1 through 4 (Ground/First through Fourth Levels)
- Riser No. 2 — High Zone: Serves Floors 5 through 9 (Fifth through Ninth Levels)
- Each riser shall be independently valved and isolatable at the base and at each floor takeoff, allowing maintenance of one zone without affecting the other
- Pressure zoning: The high-zone riser shall be boosted/regulated to deliver adequate pressure to the upper floors, including the minimum flowing pressure required for flush

valves at the topmost floor; pressure reducing valves (PRVs) shall limit pressure on lower floors of each zone to a maximum of 80 psi per code; the two-zone arrangement prevents excessive static pressure at the lowest fixtures while ensuring flush-valve minimum pressure at the highest fixtures

- The Design-Build Entity shall confirm final zone breakpoint and booster staging based on hydraulic calculations and the building height/static head

8.5.4 Domestic Water Distribution Piping

- All piping materials shall conform to the Plumbing Pipe Material Schedule below. Fittings shall be welded or Viega Propress type for copper; glue or compression welded for PVC.

Plumbing Pipe Material Schedule

Type of Service	Min Dia. (in)	Max Dia. (in)	Aboveground Material	Underground Material	Fitting Characteristics
City Water Hot or Cold	1/2"	2"	Rigid Copper Type L, Seamless ASTM B88	Rigid Copper Type K, Seamless ASTM B88	Welded or Viega Propress
	2-1/2"	4"	Ductile Cast Iron, AWWA C-151	Ductile Cast Iron, AWWA C-151	
Sanitary and Ventilation	2"	6"	PVC SCH 40 DR22, ASTM D2665	4" and smaller: PVC SCH 40 6" and larger: SDR 14-PR	Glue or Compression Welded

- Hot Water Supply: Recirculating hot water system; max. 0.5 gal. wait time at fixture per FGI Guidelines for hospital facilities
- Hot Water Vertical Distribution — Dual Risers: Two (2) independent hot water supply risers zoned to match the potable cold water pressure zones — Riser No. 1 serving Floors 1–4 (low zone) and Riser No. 2 serving Floors 5–9 (high zone) — maintaining balanced cold/hot pressures at thermostatic mixing valves and allowing one zone to be isolated for maintenance without affecting the other
- Hot Water Recirculation Returns: Each hot water supply riser shall have a dedicated recirculation return riser (two HWS + two HWR risers total); recirculation pumps maintain continuous circulation per zone for the 0.5-gallon FGI wait time and the minimum 120°F system temperature for Legionella control (ASHRAE 188), with zone-by-zone thermal disinfection capability and BMS monitoring of recirculation pumps and zone temperatures
- Hot Water Temperature: Generate at 120°F minimum; distribute at 110°F to patient-accessible fixtures (thermostatic mixing valves per ASSE 1017); scald protection at 110°F max at patient showers and lavatories
- Anti-Scald and Backflow Prevention devices per ASSE 1010, ASSE 1017, ASSE 1070 as applicable

8.5.5 Hot Water Generation

- Potable hot water shall be generated by LPG (liquefied petroleum gas / propane) fired water heaters; minimum two (2) units for redundancy (N+1 configuration)

- LPG storage: Bulk propane storage tank(s) located at exterior grade-level pad with separation distances and safety requirements per NFPA 58 (Liquefied Petroleum Gas Code); coordinate tank sizing, location, and refueling access with Owner and AHJ
- LPG piping and combustion venting per NFPA 54 (National Fuel Gas Code); gas detection and shutoff at water heater room
- Water heaters sized for peak hospital domestic hot water demand with adequate storage; provide hot water storage tanks as required
- Legionella control: System shall be designed and operated per ASHRAE 188 — Legionellosis: Risk Management for Building Water Systems
- Thermal disinfection capability (periodic flush at 160°F) required

8.5.6 Pipe Insulation

- All domestic hot water supply and return piping shall be insulated per the Plumbing Piping Insulation Schedule below. Cold water piping in unconditioned spaces or ceiling plenums shall be insulated with vapor barrier to prevent condensation in Puerto Rico's humid climate. All insulation materials shall comply with Flame Spread <=25 and Smoke Developed <=50 per ASTM E84.

Plumbing Piping Insulation Schedule

Temp. Range (F)	Min Dia. (in)	Max Dia. (in)	Thickness	K Value	Material Type	Exterior Finish	Interior Finish	Int. Exposed Finish
HOT WATER 100 - 120°F	1/2"	1-1/2"	1"	0.22 BTU-IN/FT-H at 75°F	Rigid Fiberglass Micro-Lok by John Manville	6 oz. Canvas with MON ECO 55-10 & 55-50 Mastic + 0.16" Alum. Alloy Jacket with Vapor Barrier Foil	MON ECO Mastic 55-50 White Finish with Vapor Barrier Foil	MON ECO 55-50 Mastic with Johns Manville Zeston PVC Jacket 30 MLS White Gloss. Flame Spread <=25 / Smoke Dev. <=50
	2"	3"	1"					
	4"	8"	1.5"					

8.5.7 Drainage, Waste, and Vent (DWV)

- Sanitary drainage: Cast iron hub-and-spigot or no-hub per ASTM A74; all below-slab piping to be cast iron
- Vent system: Individual and circuit venting per code; roof penetrations for all vent terminals min. 10 ft. from air intakes
- Acid waste drainage: Chemical-resistant piping (polypropylene or PVDF) for all laboratory and imaging department sinks with neutralization tanks before connection to sanitary system
- Floor drains in all soiled utility rooms, janitor closets, equipment rooms, ORs, procedure rooms, and bathrooms
- Grease interceptor for cafeteria/kitchen waste as required by local authority
- Basement Sump Pit — Storm Water Ejector System (REQUIRED per Sheet A-1.1): The basement foundation slab shall be provided with a sump pit as indicated on the architectural foundation plan (Sheet A-1.1). The sump pit shall collect groundwater infiltration, mechanical equipment condensate overflow, floor drain drainage, and any stormwater that may accumulate in the basement level. Given Puerto Rico's high water

table, intense tropical rainfall events, and the below-grade nature of the basement slab, a properly designed sump and ejector system is essential for the protection of the building structure, mechanical equipment, and electrical systems.

- Sump Pit Construction: The sump pit shall be constructed in the basement foundation slab at the lowest point of the basement floor, as indicated on Sheet A-1.1. Minimum sump pit dimensions: 24 inches diameter by 36 inches depth, precast concrete or fiberglass liner, with removable grated cover at floor level. The pit shall be sealed against groundwater infiltration between the liner and the slab. A check valve shall be provided on each pump discharge to prevent backflow into the pit.
- Duplex Submersible Storm Pump System (RECOMMENDED): Provide a duplex (2-pump) system of submersible storm water ejector pumps — one (1) duty pump + one (1) standby pump — installed in the sump pit. Duplex configuration provides N+1 redundancy to protect the basement from flooding during pump failure or maintenance. Each pump shall be sized to handle the calculated peak inflow rate with a minimum 25% safety margin. Pump selection shall be based on a hydrology analysis of the basement drainage area including floor drains, condensate, and potential groundwater infiltration at the project site.
- Storm Pump Performance Requirements: Each submersible storm pump shall be capable of: (1) total dynamic head sufficient for forced discharge from the basement level to the exterior municipal storm drain network at the street, accounting for elevation difference, pipe friction losses, and pipe length; (2) minimum 50 GPM capacity each (or as calculated by the hydrology analysis, whichever is greater); (3) automatic float-switch operation with high/low/override float levels; (4) oil-free motor suitable for continuous submerged operation; (5) stainless steel or cast iron pump body with corrosion-resistant coating for tropical environment.
- Discharge Piping: Storm pump discharge piping shall be Schedule 40 PVC or ductile cast iron, with check valves and isolation gate valves at each pump discharge. Individual pump discharges shall join in a common header before exiting the building. The discharge shall be directed to the exterior municipal stormwater system (street storm drain network) as required by local authority. Backflow prevention shall be provided at the building exterior connection to prevent street flooding from backing up into the basement sump.
- Controls and BMS Integration: The duplex pump system shall include an automatic alternating control panel (lead-lag) with manual override for each pump. The control panel shall include: (1) automatic alternation of lead/lag pump to equalize wear; (2) simultaneous operation of both pumps on high-water alarm; (3) visual alarm indicator and audible alarm at the panel; (4) BMS monitoring points — pump run status (each pump), high-water alarm, pump failure alarm, and sump water level (continuous or float-based) — all reported to the central BMS operator workstation with alarm annunciation. A high-water alarm shall also be annunciated at a 24-hour monitored location per the Owner's facilities management protocol.

8.5.8 Specialty Plumbing

- Emergency eyewash and shower stations at locations per ANSI Z358.1 — pharmacy, laboratory, and all hazardous material storage areas
- Medical equipment connections (ice machines, water purification for dialysis/imaging) by Design-Build Entity per equipment schedule
- Roof drainage: Primary and overflow (emergency) roof drains per IPC; no combination with sanitary system
- Emergency Generator Diesel Fuel: The schematic plans show a 20,000-gallon diesel storage tank in the Second Level Mechanical Roof Yard serving the emergency generators. The Design-Build Entity (mechanical) shall coordinate the diesel fuel piping, day tanks, tank venting, spill containment, and leak detection per NFPA 30 and NFPA 110, in coordination with the electrical/generator scope; fuel-oil system to be designed for the hurricane-resilient run time required for a Category 1 facility

8.5.9 Plumbing Controls — DDC / BMS

- DDC controllers on all pumps reporting to the centralized computer-based control system
- BMS shall monitor and control: water flow and system pressure in both potable risers, potable cistern level (high/low alarms), hot water temperature, booster pump status and alarms, backflow preventer test reporting

8.6 FIRE PROTECTION SYSTEMS

The fire protection system shall provide automatic sprinkler protection throughout the entire facility in accordance with NFPA 13 and the requirements of NFPA 99 for health care occupancies. The system shall be designed as a wet pipe system throughout, except where special hazards or clinical constraints require alternate systems.

8.6.1 Fire Water Cistern

- Capacity: Minimum 36,000 gallons; dedicated exclusively to fire protection system
- Construction: Underground reinforced concrete; seismic design per structural requirements
- Water Supply: The fire protection water supply shall be taken from the ASEM main water distribution ring at the main street. The Design-Build Entity shall provide a new dedicated 4" fire service meter and connection from the ASEM water main to the fire cistern. Rainwater collection shall be provided as supplemental supply to ensure resilience during emergencies and hurricanes
- The cistern shall maintain full capacity at all times; automatic refill with low-level alarm at BMS/fire command center
- Rainwater Collection System (REQUIRED): The fire protection cistern shall be supplemented by a dedicated rainwater collection and storage system. Rainwater shall be collected from the building roof and rooftop mechanical areas and directed to the fire

cistern as a supplemental water supply source. This provides resilience during emergencies and hurricanes when the ASEM water main may be interrupted.

- Rainwater Collection Infrastructure: The rainwater collection system shall include: (1) roof drainage leaders from designated collection areas routed to a pre-filtration and first-flush diverter assembly before entering the cistern — first flush of minimum 0.1 gallon per square foot of collection area shall be diverted to sanitary drain to remove contaminants; (2) a coarse filtration screen (minimum 100-mesh stainless steel) at the cistern inlet to prevent debris entry; (3) an overflow connection from the cistern to the storm drain system; (4) collection piping sized for the 10-year design storm event for San Juan, Puerto Rico.
- Cistern Capacity and Water Quality: The 36,000-gallon fire cistern capacity includes provision for rainwater collection volume. Water in the fire cistern shall not be used for potable purposes. No cross-connection with the potable water system is permitted. All connections between the rainwater collection system and fire cistern shall include air gaps or reduced-pressure backflow preventers per applicable plumbing code.
- BMS Monitoring: The rainwater collection system inlet valve and cistern level shall be monitored by the BMS. Alarms shall annunciate at the fire command center and BMS for: (1) low cistern level (below 75% capacity); (2) inlet filter clogged condition; (3) first-flush diverter malfunction. The cistern shall automatically refill from the ASEM water main when the level drops below the low-level setpoint.

8.6.2 Fire Pumps

- Type: Diesel engine-driven, split-case horizontal centrifugal
- Performance: Minimum 1,000 GPM at 150 PSI rated working pressure
- Diesel Tank: Integral tank with minimum 500-gallon capacity (minimum 8-hour run time at full load)
- Configuration: Primary fire pump + electric jockey (pressure maintenance) pump; consider diesel backup electric pump for N+1 per AHJ requirements for critical care facility
- Installation per NFPA 20; fire pump room shall have 2-hour fire-rated construction, dedicated ventilation, and drainage pit

8.6.3 Sprinkler System

- System Type: Wet pipe automatic sprinkler throughout; pre-action system in electrical/data rooms and MRI (if applicable)
- Pipe: Victaulic grooved-end carbon steel Schedule 10 (for mains); Schedule 40 where required by code; no plastic piping in clinical areas
- Design Standard: NFPA 13; hydraulically calculated per system type; Light Hazard (patient rooms, corridors), Ordinary Hazard Group 1 (mechanical/utility rooms, storage)
- Sprinkler heads: Concealed type in all patient care areas and public spaces; upright/pendent in mechanical rooms; quick-response heads in all occupied areas per NFPA 13
- No sprinklers in electrical switchgear rooms, transformer vaults, MRI rooms (coordinate with Owner); provide alternative protection as required by AHJ

- Clean Agent Fire Suppression — FM-200 System (REQUIRED for Server Rooms / Data Rooms): All server rooms, data rooms, and telecommunications rooms (IT rooms) in the facility shall be protected by a dedicated clean agent fire suppression system using FM-200 (HFC-227ea) as the suppression agent, in lieu of water-based sprinkler or pre-action systems. FM-200 is a gaseous clean agent that suppresses fire rapidly without water, foam, or residue — protecting critical electronic equipment, data, and servers from both fire and water damage. No wet-pipe or pre-action sprinkler systems shall be installed in rooms protected by FM-200.
- FM-200 System Design Standard: The FM-200 clean agent system shall be designed, installed, tested, and maintained per NFPA 2001 — Standard on Clean Agent Fire Extinguishing Systems (current edition) and the FM-200 (HFC-227ea) manufacturer's specifications. The system shall achieve the minimum design concentration of 7.9% v/v (or as required per NFPA 2001 for the specific hazard) throughout the protected enclosure volume, including below raised floor and above suspended ceiling if present.
- FM-200 System Components: Each protected room shall include: (1) FM-200 cylinder storage assembly with solenoid-actuated valve and pressure gauge; (2) distribution piping and discharge nozzles designed per NFPA 2001 to achieve uniform agent distribution throughout the room volume; (3) dedicated fire detection — cross-zoned smoke detectors (minimum two (2) detection devices required to actuate discharge to prevent accidental activation) connected to the fire alarm panel per NFPA 72; (4) manual discharge station and manual abort station at the room exit; (5) pre-discharge alarm — audible and visual warning devices (horn/strobe) inside the protected room activating before agent discharge to allow room evacuation; (6) door holders releasing on alarm to close all doors before discharge; (7) room integrity seal — all penetrations, cable entries, and gaps in the enclosure shall be sealed to maintain agent concentration for the required 10-minute hold time per NFPA 2001.
- Room Enclosure Requirements: For FM-200 to be effective, the protected rooms shall be constructed as reasonably tight enclosures. All wall, floor, and ceiling penetrations (conduit, pipe, cable trays) shall be sealed with listed fire-stopping materials that also serve as air seals. A door fan pressurization test (enclosure integrity test per NFPA 2001 Annex B) shall be performed prior to system acceptance to verify the room can hold the design FM-200 concentration for the required hold time.
- FM-200 Cylinder Sizing and Refill: FM-200 cylinders shall be sized for the total calculated agent quantity required to achieve design concentration in each protected room, plus a minimum 10% safety margin. Cylinder quantity and storage location shall be coordinated with the structural engineer for floor loading. A re-fill service contract and agent refill plan shall be submitted with the O&M manuals. The D&B Contractor shall confirm FM-200 (HFC-227ea) availability and compliance with any applicable EPA SNAP program listings at the time of procurement.
- BMS and Fire Alarm Integration: The FM-200 system shall be fully integrated with the building fire alarm system (NFPA 72). Pre-discharge warning, agent discharge, system trouble, and abort conditions shall all report to the fire alarm control panel and to the BMS operator workstation. The fire alarm system shall simultaneously initiate: (1) HVAC

shutdown for the protected room (close supply and return dampers to prevent agent dilution and discharge to other areas); (2) activation of pre-discharge alarm inside the room; (3) door holder release to close the room doors before discharge. All FM-200 system wiring, conduit, and detection devices shall be installed by a licensed fire protection contractor.

8.6.4 Standpipe System

- Class I standpipe system per NFPA 14 (fire-department-use 2½" hose connections; the building is fully sprinklered per NFPA 13). The building has two (2) stairwells; a standpipe riser shall be provided in each of the two stairwells (one riser per stair), providing full hose coverage and riser redundancy per NFPA 14
- The two standpipe risers shall be interconnected at the base (looped at the bottom and fed from the fire pump discharge) so that the system remains supplied if one riser is isolated; interconnection arranged per NFPA 14
- 2½" hose valve connections at each floor landing in each stairwell; 1½" hose connections at hose cabinets in corridors as required
- Fire Department Hose Valves: Class I 2½" fire department hose connection valves shall be provided at each floor landing in each stairwell per NFPA 14, for fire department use
- Fire Department Connection / Siamese (FDC) — REQUIRED: A fire department connection (siamese two-way inlet) shall be provided at the exterior building perimeter, accessible to fire department apparatus, to allow the fire department to pump water (boost pressure) into the standpipe/sprinkler system. Minimum two (2) FDC locations serving the interconnected standpipe risers; each FDC with check valve, automatic drip/ball drip, and identification signage per NFPA 14

8.6.5 Controls and Monitoring

- All control valves: Supervised open (tamper switches) reporting to fire alarm panel (NFPA 72)
- Flow switches at each floor and zone; waterflow alarms reporting to fire alarm panel
- Fire pump controller: Listed per NFPA 20; alarms (pump start, loss of power, phase failure) reporting to fire alarm and BMS
- Hydraulic calculations and water supply analysis (flow test from the ASEM water main) required as part of D&B design deliverables; the Design-Build Entity shall coordinate with ASEM facilities to confirm available flow and pressure at the point of connection

8.7 MEDICAL GAS SYSTEMS

Medical gas systems shall be designed, installed, and tested in accordance with NFPA 99 (Health Care Facilities Code), latest edition, Category 1 requirements for Hospital-level facilities, and the FGI Guidelines. All medical gas systems are life-safety systems and shall be treated accordingly.

The Design-Build Entity shall engage a medical gas installer with current ASSE 6010 certification. The final certification of all medical gas and vacuum systems shall be performed by an independent, third-party Medical Gas Systems Verifier certified to ASSE 6030 prior to system activation and Owner acceptance.

8.7.1 Medical Gases Required

Gas / Vacuum	Symbol	Pipe Color	Primary Use Locations
Medical Oxygen (O_2)	O2	Green	All patient rooms, ORs, ICU, ED, Procedure Rooms
Medical Vacuum (WAGD / Suction)	VAC	White	All patient rooms, ORs, ICU, ED
Medical Air (MA)	MA	Yellow	ORs, ICU, Procedure Rooms, Vents
Nitrous Oxide (N_2O)	N2O	Blue	ORs, Minor Procedure Rooms (if applicable)
Nitrogen (N_2)	N2	Black	Surgical power tools in ORs
Carbon Dioxide (CO_2)	CO2	Gray	Laparoscopic ORs (if applicable)
Waste Anesthesia Gas Disposal (WAGD)	WAGD	Magenta	All ORs and anesthetizing locations

8.7.2 Medical Gas Source Equipment

8.7.2.1 Medical Oxygen — PSA Generation Plant

- Medical oxygen shall be generated on-site by a Pressure Swing Adsorption (PSA) oxygen generation plant that produces oxygen from ambient air, in compliance with NFPA 99 requirements for oxygen concentrator supply systems and USP / CGA oxygen 93 purity standards
- Configuration: Duplex (N+1) PSA generators with automatic alternating operation; each generator sized to meet 100% of peak demand independently so the facility remains supplied during maintenance or single-unit failure
- Air supply: Dedicated oil-free air compressors (duplex/redundant) with air treatment train — filtration, drying, and buffer/feed air receivers — upstream of the PSA generators
- Oxygen storage: Product oxygen buffer/storage tank(s) sized to provide adequate reserve and stable supply during PSA cycling and peak demand
- Reserve / backup source: A reserve supply of high-pressure oxygen cylinders (manifold with automatic switchover) shall be provided per NFPA 99 to serve the facility automatically in the event of total PSA plant failure; reserve sized for the duration required by NFPA 99 and the AHJ for a Category 1 system
- Continuous oxygen concentration monitoring with alarm; low-concentration condition shall trigger master alarms and, if required, automatic changeover to the cylinder reserve source

- PSA plant room: Adequately ventilated, located per NFPA 99 separation and safety requirements; coordinate room location, ventilation, and electrical (essential power) with the D&B design
- Emergency Oxygen Supply Connection (EOSC): An emergency oxygen supply connection shall be provided on the exterior of the building, accessible to emergency vehicles, per NFPA 99. The EOSC allows a temporary/auxiliary oxygen source (mobile liquid oxygen trailer or cylinder truck) to be connected to supply the building's oxygen piping system if the PSA plant and cylinder reserve are both unavailable. The connection shall include the required check valves, shutoff valves, and labeling per NFPA 99
- Redundant Connection to Existing ASEM Hospital: A cross-connection to the medical oxygen system of the existing ASEM Central Services Building shall be provided as an additional redundant source. This interconnection — with appropriate isolation valves, check valves, and pressure regulation — shall allow either facility to supply oxygen to the other in an emergency. The Design-Build Entity shall coordinate the tie-in point, capacity, and controls with ASEM facilities and confirm that the combined demand does not compromise either building's supply
- Source priority: The control/alarm system shall manage source sequencing — primary PSA plant, then cylinder reserve, then existing-hospital interconnection and/or exterior emergency connection — with automatic or manual changeover and master alarm annunciation per NFPA 99
- Oxygen supply pressure: 50–55 PSI at zone valve outlets
- Line pressure regulators and relief valves per NFPA 99

8.7.2.2 Medical Air Compressors

- Medical air compressor system: Oil-free, triplex configuration (three compressors), automatic alternating/sequencing, sized so the system meets full peak demand with one or more compressors out of service per NFPA 99 Category 1
- Air Dryers — Desiccant Type: The medical air system shall use desiccant (regenerative) air dryers to achieve a low pressure dew point, with duplex (redundant) dryers, coalescing pre/after filters, and dew point monitors; desiccant dryers are required for the low dew point and reliable moisture removal needed in Puerto Rico's high-humidity climate
- Receiver tank sized per NFPA 99 Category 1 requirements
- Air purity: Meets CGA G-7.1 Grade E medical air quality; CO and dew point monitor alarms required

8.7.2.3 Medical Vacuum

- Medical vacuum shall be a centralized, modular vacuum plant with four (4) pumps in a quadruplex configuration; the modular arrangement allows individual pump maintenance without taking the system offline, and provides redundancy beyond the NFPA 99 minimum
- Pump Type: Oil-sealed (oil-recirculating) liquid/rotary vane vacuum pumps, continuous duty, with the required oil separation and exhaust treatment per NFPA 99
- VFD Control: Each vacuum pump shall be driven by a variable frequency drive (VFD) to modulate capacity to match demand, reduce energy consumption, and lessen wear;

pumps shall stage and rotate automatically (lead/lag/standby sequencing across the four units)

- Configuration: Quadruplex — sized so the system maintains full rated vacuum with one or more pumps out of service per NFPA 99 Category 1 demand and redundancy requirements
- Vacuum level: 12–15" Hg below atmospheric minimum at the inlet of any station outlet
- Vacuum receiver tank, bacterial/inlet filtration, and exhaust to atmosphere at a safe location per NFPA 99; exhaust away from air intakes and occupied areas
- WAGD system: Separate dedicated system from medical vacuum; active WAGD (venturi or blower) per NFPA 99

8.7.3 Medical Gas Distribution Piping

- Piping material: Seamless copper tube, cleaned and capped per ASTM B819 (internally cleaned for oxygen service) — Type K for main and riser piping, and Type L for branch piping to outlets
- All joints: Brazed (silver-phosphorus alloy) in nitrogen purge environment; no solder, compression, or push-fit fittings
- Pipe identification: Color-coded per NFPA 99 and labeled at all outlets, valves, and branch points
- Zone valves (Area Isolation Valves): Per NFPA 99, located in labeled, locked valve boxes in corridors with gauges, for every gas/vacuum service. Minimum arrangement:
  - Patient Care Floors: Two (2) medical gas zone valve assemblies per patient floor — one serving each nursing wing (east wing and west wing) — so either wing can be isolated independently without interrupting the other
  - Operating Rooms: Each Operating Room shall have its own dedicated zone valve assembly, located outside the OR in the corridor, so any single OR can be isolated for maintenance or emergency without affecting the other ORs (per NFPA 99)
  - Other clinical areas (ICU, Trauma Stabilization, ED, Imaging, Procedure Rooms): zone valves per nursing unit / clinical area as required by NFPA 99

8.7.4 Outlet Stations (Head Walls / Boom)

- All outlets: DISS (Diameter-Index Safety System) per NFPA 99 — gas-specific, non-interchangeable connections
- Outlet quantities per room type to comply with FGI Table 2.1-3 (minimum):
  - Trauma OR: O_2 (3), VAC (3), MA (2), N_2O (1), N_2 (1), WAGD (1)
  - Trauma ICU Private Room: O_2 (2), VAC (2), MA (1)
  - Trauma Stabilization Cubicle: O_2 (2), VAC (2), MA (1)
  - Minor Procedure Room: O_2 (2), VAC (2), MA (1)
  - Patient Room (Med-Surg, Telemetry, Rehab): O_2 (2), VAC (2) — Double station per room to accommodate surge capacity of two (2) beds per room per NFPA 99
- Final outlet schedule to be submitted by Design-Build Entity as part of SD deliverable

8.7.5 Medical Gas Alarms

- Master Alarm Systems (REQUIRED): Two (2) independent master alarm systems/panels per NFPA 99 — located at two separate, continuously monitored locations (e.g., the Disaster Control/Monitoring Center on Level 9 and a 24-hour-occupied primary nursing station / facility engineering). The two master alarms shall be wired on independent circuits so that failure of one does not disable the other; each monitors all source equipment and main line conditions for every medical gas and vacuum system
- Area Alarm Panels (REQUIRED): One (1) area alarm panel per floor or per zone served, located at the nursing station or at the entrance of each zone per NFPA 99; each area alarm monitors the pressure of every medical gas/vacuum serving that floor or zone downstream of the area (zone) isolation valves
- Alarms per NFPA 99: High/low pressure alarms for all gas systems; vacuum level alarms; source equipment failure alarms; WAGD system alarms
- Master Alarm BMS Connection (REQUIRED): The medical gas master alarm system shall be connected to the Building Management System (central control computer) for centralized monitoring and reporting. All master alarm conditions (source equipment status, main line pressures, all gas/vacuum systems) shall be reported to and annunciated at the BMS, in addition to the dedicated master alarm panels. The BMS connection is supplementary to — and shall not replace or compromise — the dedicated, code-required NFPA 99 master alarm panels and their independent wiring
- All alarms integrated into BMS and connected to nurse call / facility emergency notification system

8.7.6 Medical Gas Testing and Certification

- All medical gas piping systems shall be tested per NFPA 99 including: initial blowdown, pressure testing, cross-connection testing, purity testing, and flow testing at each outlet
- Final certification by an independent third-party Medical Gas Systems Verifier (ASSE 6030 certified) is required prior to Owner acceptance and system activation; the verifier shall be independent of the installing contractor per NFPA 99
- Design-Build Entity to submit a Medical Gas Commissioning Plan at DD phase

8.8 ENERGY AND SUSTAINABILITY REQUIREMENTS

- LEED certification is optional and at the discretion of the Design-Build Entity — it is not a mandatory project requirement. The mechanical systems shall nonetheless incorporate energy-efficient and sustainable design practices (high-efficiency equipment, energy recovery, VFDs, water conservation) consistent with the project design intent, whether or not LEED certification is pursued
- Energy efficiency: The mechanical systems shall incorporate high-efficiency equipment, energy recovery, VFDs, and water conservation practices consistent with the project design intent; energy modeling is not required

- Energy Recovery: Total energy recovery (enthalpy wheel or membrane) on all DOAS units serving outdoor air to AHUs and fan coils (minimum 60% effectiveness)
- VFDs: Required on all AHU fans, chilled water pumps, condenser water pumps, and cooling tower fans
- Water Conservation: Water closets and urinals shall use flush valves (flushometers) with low-consumption flush volumes (e.g., 1.28 gpf water closets, 0.125–0.5 gpf urinals) per LEED WE requirements; low-flow lavatories and showers; rainwater collection is utilized for the fire protection cistern
- Commissioning: Full mechanical commissioning (Cx) by Owner's Commissioning Agent (CxA) required; Design-Build Entity to provide a Commissioning Plan and coordinate with CxA throughout design and construction
- Metering: Energy and water sub-metering per LEED and FGI requirements; all data to integrate with BMS

8.9 INTERFACE WITH EXISTING ASEM CENTRAL SERVICES BUILDING

The proposed Trauma Hospital will be structurally and functionally integrated with the existing ASEM Central Services Building at three (3) levels. The Design-Build Entity shall:

- Survey and document all existing mechanical systems at the interface levels prior to design
- Coordinate with ASEM facilities management for all tie-ins or disconnections of existing mechanical systems
- Ensure no interruption to active medical gas, HVAC, or plumbing services serving the existing hospital during construction — a detailed Infection Control Risk Assessment (ICRA) and Interim Life Safety Measures (ILSM) plan shall be submitted prior to any work adjacent to occupied areas
- The corridor connector at Level 2 to ASEM Central Services Building shall be provided with appropriate mechanical services (HVAC, fire sprinkler) designed for the connector space
- Coordinate relocation of existing ASEM Emergency Department ambulance entrance, drop-off, and waiting area services — all MEP systems to be expanded and relocated into the new building per the program
- Medical oxygen cross-connection: Coordinate the redundant medical oxygen interconnection between the new Trauma Hospital and the existing ASEM building (see Section 7.2.1), including tie-in location, isolation/check valves, pressure regulation, and joint operating procedures with ASEM facilities

8.10 DESIGN-BUILD ENTITY SCOPE AND KEY DESIGN CONSTRAINS

8.10.1 Items Fully in Design-Build Entity Scope

- Mechanical design by a Professional Engineer (PE) licensed in Puerto Rico and an active member of the Colegio de Ingenieros y Agrimensores de Puerto Rico (CIAPR); all drawings and design documents signed and sealed by the Puerto Rico-licensed PE
- All mechanical systems described in this Bridge Document from source equipment through final connections at each room outlet or device
- Coordination with structural design for all equipment pads, roof curbs, penetrations, and seismic restraints
- All permits, inspections, and regulatory approvals for mechanical systems
- Building Management System (BMS) complete with all point connections described herein
- If LEED certification is pursued (optional), LEED documentation for all mechanical-related credits
- Training of Owner's facilities staff on all mechanical systems (minimum 8 hours per system)

8.10.2 Key Design Constraints

- All mechanical systems must be designed to remain operational after a seismic event of the design level; the building utilizes a seismic isolation plane at the Interstitial Level — all piping and duct crossing this plane must use flexible seismic connectors
- The Heliport (Roof Level) creates restricted airspace above the building — all rooftop mechanical equipment must comply with FAA and PRASA height and clearance restrictions for heliport operations
- The Second Level Mechanical Roof Yard houses the cooling towers and the 20,000-gallon emergency generator diesel tank; all equipment in this yard shall have stainless steel/marine-rated construction, hurricane wind-load anchorage, seismic restraints coordinated with the building isolation system, and acoustic treatment given the adjacency to patient floors above and the auditorium/terrace
- Infection Control Risk Assessment (ICRA) Class III or IV measures required for all work adjacent to or within the existing ASEM building
- Puerto Rico's tropical climate (high humidity, hurricane exposure) must be considered in all equipment, material, and control selections; all exterior equipment shall be rated for hurricane wind loads and coastal corrosion resistance

Attachment D: SARPS Recommendations

The Design-Builder shall incorporate, as an integral part of the design, engineering, and development of the project, all recommendations issued by SARPs detailed below. These recommendations will be considered contractual requirements and must be fully integrated, coordinated, and reflected in the design documents, technical specifications, IFC drawings, construction, testing, and commissioning plans. The Design-Builder will be responsible for their correct implementation and for ensuring that these recommendations comply with applicable standards, codes, regulations, and performance criteria established for the project.

1. The Design-Builder must comply with all requirements set forth in the FGI Hospital Design and Construction Guidelines, in their current edition at the time the construction plans, or any major modifications to the physical structure, are endorsed. The Design-Builder must pay particular attention to the criteria, standards, and guidelines applicable to the type of healthcare facility being projected, as well as all clinical, operational, patient safety, and hospital infrastructure requirements contained in these guidelines.

    a. The site design shall provide a signed route from public roads that directs ambulance traffic to the ambulance entrance to the emergency department and vehicle traffic to the public entrance.

    b. Paved emergency access to permit discharge of patients from automobiles and Ambulances shall be provided.

    c. The emergency department entrance shall be clearly marked. A well-marked, illuminated, and covered entrance shall be provided at grade level.

    d. If a raised platform/dock is used for ambulance discharge, a ramp or elevator/lift to grade level shall be provided for pedestrian and wheelchair access.

    e. The emergency vehicle entry cover/canopy shall provide shelter for both the patient and the emergency medical crew during transfer between an emergency vehicle and the building.

    f. The emergency bays should be sized so they are compatible with horizontal and vertical vehicle clearances of EMS providers as required.

g. Emergency department ambulance entrances shall provide a minimum of 6 feet (1.83 meters) in clear width to accommodate bariatric stretchers, mobile patient lift devices, and accompanying attendants.

h. If required by the patient handling and movement assessment (PHAMA), bariatric lifts shall be available.

i. If bariatric lifts are provided in the covered ambulance bay, they shall be positioned to help with patient transfers.

j. The amount of janitors will be evaluated to ensure it meets the need.

2. In all handwashing stations (patient room bathrooms, public bathrooms, staff bathrooms) and in (clean) staff handwashing stations, equal or similar of the Bobrick Model B-262 (mkd 1) Surface Mounted Paper Towel Dispenser must be evaluated.

    a. Handwashing stations in patient care areas must be in a visible and unobstructed area and equipped with hand-free controls.

    b. If the handwashing station includes a cabinet, it must be designed to prevent storage under the sink.

    c. Handwashing stations must include a hand-drying device that does not require hands to come into contact with the dispenser.

    d. The hand-drying device must be fully enclosed to protect against dust or dirt and to ensure single-unit dispensing. It must operate in a way that requires only touching a towel.

3. Paper towel dispensers must be directly accessible next to the sink (on the same wall as the sink), not on the opposite wall or on any other wall where one has to cross a space because the floor gets wet and there may be a risk of slipping and falling.

4. Hand drying devices (hand dryer mkd 4) - Must be directly accessible next to the sink (on the same wall where the sink is located), they must not be located on the opposite wall from where the sink is located or on any other wall where you have to cross a space because the floor gets wet and there may be a risk of slipping and falling.

5. In all patient restrooms, public restrooms and staff restrooms, the following should be evaluated: equal or similar of Surface-Mounted Toilet Tissue Dispenser Two Rolls Bobrick Model B-69997 (mkd 5).

   Evaluate hospital use, preferably fully enclosed so that the lid cannot be lifted and the paper touched, and to protect against dust or dirt.

6. In all applicable bathrooms, the equal or similar Bobrick Model B-3949 (mkd 15) Paper Towel Dispenser and Waste Receptacle must be evaluated for hospital use, a separate, lidded, step-on type waste bin is preferred. If a paper towel dispenser for hands is to be provided, in addition to the hand dryer, it must be fully enclosed to protect against dust or dirt and to ensure single-unit dispensing. It must operate in a way that requires only touching a towel.

7. All finishing materials for countertops, shelves, and cabinet doors must be hospital-grade, easy to clean and disinfected, and selected to withstand impact damage and cleaning with EPA-registered hospital disinfectants. Wood should be avoided, and if used as an alternative, all shelves and cabinet doors must be Formica on both sides; there should be no exposed wood, not even on the shelves inside the cabinets.

   a. Handwashing station countertops shall be made of porcelain, stainless steel, solid surface materials, or impervious plastic laminate assembly. For countertops that require a substrate, marine-grade plywood (or equivalent material) with an impervious seal shall be required.

   b. If a handwashing station includes casework, it should be designed to prevent storage beneath the sink.

   c. If using sink stations with double cabinets (upper and lower), the placement of the paper towel dispenser on the wall between the cabinets must be carefully considered. The dispenser's height must be considered not to touch the surfaces.

BASEMENT LEVEL

1. Janitor. A floor-mounted shower-type sink with its wall is preferred over the traditional wall-mounted sink for better functionality when placing the rack where

the mops are attached so that they drain in the sink area and not on the floor. Also, because the environmental services personnel must exert a lot of force to carry the bucket and empty the water if the sink is wall-mounted, and often this personnel is female and has less brute strength.

2. Food Nutrition Services. In addition to the requirements established in the FGI Guidelines for Design and Construction of Hospitals and the U.S. Public Health Service FDA Food Code, they must comply with all provisions of Hospital Regulation No. 9184 of July 1, 2020, Chapter XXII Nutrition and Dietetics Services, Articles 22.15 through 22.26.

    a. The nutrition and dietetics service will have restrooms exclusively for the use of its employees, both male and female. These restrooms will be in an area outside or separate from the kitchen. This area will be equipped with lockers and showers for staff hygiene.

    b. There must be a handwashing station for staff before entering the kitchen area.

    c. Please observe the entry and exit logistics in the tray washing area (dirty trays enter on one side and clean trays exit on the other).

    d. Determine the janitor that will be for the exclusive use of food and nutrition services.

    e. Determine the storage waste disposal area that will be for the exclusive use of food and nutrition services.

    f. Determine the elevator that will be for the exclusive use of food and nutrition services, as required by Hospital Regulation No. 9184 of July 1, 2020, Chapter XXII Nutrition and Dietetics Services, Articles 22.15 to 22.26, which states, "…To the extent possible and during food distribution hours, there will be an elevator exclusively for use in food distribution."

3. Bio-Security Storage. The storage room for contaminated biomedical waste must comply with all provisions of Hospital Regulation No. 9184 of July 1, 2020, Chapter XXV, Security Program and Physical Plant, Article 25.06, Other Security Measures, Section E, Storage for Biomedical Waste and Morgue.

a. Must have a closed cooling system or be separated from the rest of the hospital.

b. Must be properly labeled and access restricted to authorized personnel only.

c. Must have handwashing facilities outside the storage area.

d. Must have a supply of handwashing supplies and personal protective equipment.

FIRST LEVEL

1. Provide some type of control on the doors (mkd 1-143, 1-104 & 1-120) that give access to the intensive care department only for authorized personnel.

2. Elevators 1, 2, 3 and 4 must be controlled only for authorized personnel.

3. Rooms. Ensure that intensive care rooms meet the minimum space requirements required by the FGI Guidelines for Design and Construction of Hospitals for intensive care rooms.

    a. Area. Each intensive care patient room shall have a minimum clear floor area of 200 square feet (18.58 square meters) with a minimum headwall width of 13 feet (3.96 meters) per bed.

    b. Clearances. intensive care patient room shall have the minimum clearances:

        i. 1 foot (30.48 centimeters) from the head of the bed to the wall
        ii. 5 feet (1.52 meters) from the foot of the bed to the wall
        iii. 5 feet (1.52 meters) on the transfer side
        iv. 4 feet (1.22 meters) on the non-transfer side

4. Equipment Storage Room. Define this space because the equipment used in the unit cannot obstruct corridors or other spaces, nor be stored next to clean and sterile supplies; there is always medical equipment in a unit that needs to be stored or that has spare parts.

5. Consider providing lockers for the intensive care department staff.

6. Consider a scrub station, as required by the FGI Guidelines for Design and Construction of Hospitals establish that at least one (1) hand scrub position shall be located adjacent to the entrance to each operating room, class 3 imaging room and cesarean delivery room.

    a. One (1) hand scrub station consisting of two scrub positions shall be permitted to serve two operating rooms if located adjacent to the entrance of each room.

7. Provide some type of control on the doors (mkd 1-037, 1-024, 1-021 and 1-013) that give access to the surgery department área-operating rooms only for authorized personnel.

8. Define biomedical waste room & waste room dedicated to a surgery department (operating rooms A, B, C, D & E). Consider the transit for environmental services personnel who will be dedicated to the operating rooms.

9. Ensure that the multiple-patient bays or cubicles in the pre- and post (recovery) procedure patient care station (spaces mkd 1-069, 1-010, 1-009 & 1-012) meet the minimum space requirements required by the FGI Guidelines for Design and Construction of Hospitals for pre- and post-procedure (recovery) patient care areas.

    a. Where bays are used, the following minimum clearances shall be provided:

        i. 5 feet between the sides of patient beds/gurneys/lounge chairs.
        ii. 3 feet between the sides of patient beds/gurneys/lounge chairs and adjacent walls or partitions.
        iii. 2 feet between the foot of patient beds/gurneys/lounge chairs and the cubicle curtain.

    b. Where cubicles are used, the following minimum clearances shall be provided:

        i. 3 feet between the sides of patient beds/gurneys/lounge chairs and adjacent walls or partitions.

ii. 2 feet between the foot of patient beds/gurneys/lounge chairs and the cubicle curtain.

10. Identify a Lounge area for staff in surgery department.

11. Janitor. A floor-mounted shower-type sink with its low wall is preferred over the traditional wall-mounted sink for better functionality when placing the rack where the mops are attached so that they drain in the sink area and not on the floor. Furthermore, because environmental services personnel must exert a lot of force to carry the bucket and empty the water if the sink is wall-mounted, and often these personnel are female and have less brute strength.

12. Equipment Storage Room. Define this space because the equipment used in the unit cannot obstruct corridors or other spaces, nor be stored next to clean and sterile supplies; there is always medical equipment in a unit that needs to be stored or that has spare parts.

13. Identify the staff lounge area, staff toilet room & staff storage facilities designated for staff in trauma stabilization & observation area.

14. Provide some type of control on the doors (*mkd 1-059 & 1-101*) that give access to the trauma stabilization & observation area only for authorized personnel.

15. Consider the nourishment room in trauma observation area as required by FGI Guidelines for Design and Construction of Hospitals for observation unit in emergency services.

16. Define patient toilet room & shower room in trauma observation area as required by FGI Guidelines for Design and Construction of Hospitals for observation unit in emergency services. - At least one toilet room shall be provided for each six patient care station and for each major fraction thereof. A minimum of one shower room is provided in the observation rooms. Combination of the shower room and toilet room in the same room shall be permitted. See toilet room space mkd 1-094.

17. Consider the exam room in trauma observation area as required by FGI Guidelines for Design and Construction of Hospitals for observation unit in emergency services. - An exam room shall be provided in observation unit. Omission of the exam room shall be permitted if all patient care stations are single-patient's rooms.

18. Ensure that multiple-patient observation bays or cubicles in trauma observation areas (space mkd 1-068) at least meet the minimum space requirements required by FGI Guidelines for Design and Construction of Hospitals for observation unit in emergency services.

    a. Patient bays or cubicles shall have a minimum clear floor area of 80 square feet per patient care station.

    b. A minimum clearance of 5 feet shall be provided between the sides of adjacent patient beds.

    c. A minimum clearance of 4 feet shall be provided between the sides of patient beds and adjacent walls or partitions.

19. Ensure that multiple-patient trauma rooms or cubicles in trauma stabilization area (spaces mkd 1-081, 1-086, 1-089 & 1-091) at least meet the minimum space requirements required by FGI Guidelines for Design and Construction of Hospitals for trauma rooms in emergency services.

    a. Space requirements for a single-bed trauma/resuscitation room: Area. Each trauma/resuscitation room shall have a minimum clear floor area of 250 square feet. Clearances. A minimum clearance of 5 feet shall be provided around all sides of the gurney.

    b. Space requirements for a multiple-patient trauma/resuscitation room: Area. Where a trauma room for multiple patients is provided, the minimum clear floor area for each patient care station defined by privacy curtains (a bay) shall be 200 square feet. Clearances. A minimum clearance of 5 feet shall be provided around all sides of the gurney, with 10 feet between each patient's bed or gurney.

    c. Door openings. Doorways leading from the ambulance entrance to the trauma/resuscitation room shall have a minimum clear width of 72 inches (6 feet) and a height of 83.25 inches (7 feet).

20. Isolation room space mkd 1-084.

    a. A handwashing station is recommended in this room, in addition to the one in the anteroom.

b. The proposed first floor plan does not have all dimensions marked; the plan was only viewed digitally, without considering the scale. However, it must be ensured that the isolation room (AII room) in the trauma observation area meets at least the minimum space requirements established by the FGI Guidelines for Design and Construction of Hospitals for isolation rooms in emergency services. - They must have a minimum of 120 square feet. - A minimum clearance of 4 feet must be provided between the sides and feet of patient gurneys or beds and adjacent walls or partitions.

c. All isolation rooms (AII rooms) must be visible from a nurse station.

21. Decontamination triage. The human decontamination room must comply with all the requirements established in FGI Guidelines for Design and Construction of Hospitals for interior human decontamination room in emergency services regarding location, entrance, space requirements, architectural detail & surface requirements, electrical system requirements, plumbing system requirements & nurse call requirements.

22. Provide some type of control on the doors (mkd 1-179 & 1-162) that give access to the fast track area only for authorized personnel.

23. Ensure that exam or evaluation rooms (spaces mkd 1-205 & 1-207) meet with the minimum space requirements required by FGI Guidelines for Design and Construction of Hospitals for exam room or emergency department treatment room in fast-track area in emergency services.

    a. Area. Shall have a minimum clear floor area of 100 square feet with a minimum clear dimension of 10 feet.

    b. Clearance. A minimum clearance of 3 feet on each side and at the foot of the exam table, recliner or chair.

24. Consider supply storage (medical supplies, medications, etc.) in a fast-track area, as required by FGI Guidelines for Design and Construction of Hospitals for fast-track areas in emergency services.

25. Define staff lounge area, staff toilet room & staff storage facilities designated for staff in fast-track area.

26. Ensure that from the triage area (vitals area-spaces mkd 1-200 & 1-201) the nursing staff has a full and unobstructed view of the patients in the waiting room.

END OF DOCUMENT

Attachment D: SARPS Recommendations

SECOND LEVEL

1. Ensure that all critical care rooms meet the minimum space requirements required by FGI Guidelines for Design and Construction of Hospitals for critical care rooms

    a. Area. Each intensive care patient room shall have a minimum clear floor area of 200 square feet (18.58 square meters) with a minimum headwall width of 13 feet (3.96 meters) per bed.

    b. Clearances. intensive care patient room shall have the minimum clearances:

        i. 1 foot (30.48 centimeters) from the head of the bed to the wall
        ii. 5 feet (1.52 meters) from the foot of the bed to the wall
        iii. 5 feet (1.52 meters) on the transfer side
        iv. 4 feet (1.22 meters) on the non-transfer side

2. Equipment Storage Room. Define this space because the equipment used in the unit cannot obstruct corridors or other spaces, nor be stored next to clean and sterile supplies; there is always medical equipment in a unit that needs to be stored or that has spare parts.

3. Elevators 1, 2, 3 and 4 must be controlled only for authorized personnel.

4. Consider some types of control on the doors (mkd 2-042, mkd 2-091, 2-022 & 2-021) that give access only for authorized personnel.

5. Janitor. A floor-mounted shower-type sink with its low wall is preferred over the traditional wall-mounted sink for better functionality when placing the rack where the mops are attached so that they drain in the sink area and not on the floor. Furthermore, because environmental services personnel must exert a lot of force to carry the bucket and empty the water if the sink is wall-mounted, and often these personnel are female and have less brute strength.

6. Storage Room. Define this space because the equipment used in the unit cannot obstruct corridors or other spaces, nor be stored next to clean and sterile supplies; there is always medical equipment in a unit that needs to be stored or that has spare parts.

Attachment D: SARPS Recommendations

THIRD LEVEL

1. Janitor. A floor-mounted shower-type sink with its low wall is preferred over the traditional wall-mounted sink for better functionality when placing the rack where the mops are attached so that they drain in the sink area and not on the floor. Furthermore, because environmental services personnel must exert a lot of force to carry the bucket and empty the water if the sink is wall-mounted, and often these personnel are female and have less brute strength.

   Define the janitor room for the exclusive use of the rehabilitation area.

2. Physical therapy gyn. It must have a staff handwashing station.

3. Ocupacional therapy. A handwashing station shall be provided in each room where therapy or teaching is conducted.

4. In individual therapy area (space mkd 3-093) each patient station shall permit an arrangement that provides a minimum clearance of 2 feet 8 inches on at least three sides of the therapy furniture (e.g., chairs recliners, tables, beds, or mats).

5. In occupational therapy (space mkd 3-065) each classroom room shall have 30 square feet per person plus and additional 30 square feet for the instructor and instructional resources. Each classroom shall have a minimum of 150 square feet.

6. Work areas and counters shall be suitable for wheelchairs access.

7. The therapy program should include speech and hearing service facilities.

8. Define the janitor room that will be for the exclusive use of the rehabilitation area.

9. Elevators 1, 2, 3 and 4 must be controlled only for authorized personnel.

10. Provide some type of control on the doors that give access to the unit only for authorized personnel.

Attachment D: SARPS Recommendations

FOURTH LEVEL

1. Ensure that all telemetry care rooms (spaces mkd 4-013, 4-016, 4-017, 4-020, 4-021, 4-025, 4-026, 4-029, 4-030, 4-032, 4-077, 4-080, 4-081, 4-084, 4-085, 4-089, 4-090, 4-093, 4-094 and 4-097) if the unit is to be considered as intermediate care at least meet the minimum space requirements required by FGI Guidelines for Design and Construction of Hospitals for intermediate care rooms.

    a. Area. Each single-patient room should have a minimum clear floor area of 150 square feet.

    b. Clearances. A minimum clearance of 4 feet shall be provided between the sides of the bed to walls or fixed obstructions.

2. Equipment Storage Room. Define this space because the equipment used in the unit cannot obstruct corridors or other spaces, nor be stored next to clean and sterile supplies; there is always medical equipment in a unit that needs to be stored or that has spare parts.

3. Elevators 1, 2, 3 and 4 must be controlled only for authorized personnel.

4. Consider some types of control on the doors (mkd 4-005 & mkd 4-085) that give access only for authorized personnel.

5. Janitor. A floor-mounted shower-type sink with its low wall is preferred over the traditional wall-mounted sink for better functionality when placing the rack where the mops are attached so that they drain in the sink area and not on the floor. Furthermore, because environmental services personnel must exert a lot of force to carry the bucket and empty the water if the sink is wall-mounted, and often these personnel are female and have less brute strength.

Attachment D: SARPS Recommendations

FIFTH LEVEL

1. Rooms. Ensure that intermediate care rooms and all rooms at least meet the minimum space requirements required by the FGI Guidelines for Design and Construction of Hospitals for intermediate care rooms, as applicable.

    a. Area. Each single-patient room should have a minimum clear floor area of 150 square feet.

    b. Clearances. A minimum clearance of 4 feet shall be provided between the sides of the bed to walls or fixed obstructions.

2. Equipment Storage Room. Define this space because the equipment used in the unit cannot obstruct corridors or other spaces, nor be stored next to clean and sterile supplies; there is always medical equipment in a unit that needs to be stored or that has spare parts.

3. Elevators 1, 2, 3 and 4 must be controlled only for authorized personnel.

4. Consider some types of control on the doors (mkd 5-005 & mkd 5-085) that give access only for authorized personnel.

5. Janitor. A floor-mounted shower-type sink with its low wall is preferred over the traditional wall-mounted sink for better functionality when placing the rack where the mops are attached so that they drain in the sink area and not on the floor. Furthermore, because environmental services personnel must exert a lot of force to carry the bucket and empty the water if the sink is wall-mounted, and often these personnel are female and have less brute strength.

Attachment D: SARPS Recommendations

SIXTH LEVEL

1. Rooms. Ensure that intermediate care rooms and all rooms at least meet the minimum space requirements required by FGI Guidelines for Design and Construction of Hospitals for intermediate care rooms, as applicable.

    a. Area. Each single-patient room should have a minimum clear floor area of 150 square feet.

    b. Clearances. A minimum clearance of 4 feet shall be provided between the sides of the bed to walls or fixed obstructions.

2. Equipment Storage Room. Define this space because the equipment used in the unit cannot obstruct corridors or other spaces, nor be stored next to clean and sterile supplies; there is always medical equipment in a unit that needs to be stored or that has spare parts.

3. Elevators 1, 2, 3 and 4 must be controlled only for authorized personnel.

4. Consider some types of control on the doors (mkd 6-005 & mkd 6-085) that give access only for authorized personnel.

5. Janitor. A floor-mounted shower-type sink with its low wall is preferred over the traditional wall-mounted sink for better functionality when placing the rack where the mops are attached so that they drain in the sink area and not on the floor. Furthermore, because environmental services personnel must exert a lot of force to carry the bucket and empty the water if the sink is wall-mounted, and often these personnel are female and have less brute strength.

Attachment D: SARPS Recommendations

SEVENTH LEVEL

1. Rooms. Ensure that intermediate care rooms and all rooms at least meet the minimum space requirements required by FGI Guidelines for Design and Construction of Hospitals for intermediate care rooms, as applicable.

    a. Area. Each single-patient room should have a minimum clear floor area of 150 square feet.

    b. Clearances. A minimum clearance of 4 feet shall be provided between the sides of the bed to walls or fixed obstructions.

2. Equipment Storage Room. Define this space because the equipment used in the unit cannot obstruct corridors or other spaces, nor be stored next to clean and sterile supplies; there is always medical equipment in a unit that needs to be stored or that has spare parts.

3. Elevators 1, 2, 3 and 4 must be controlled only for authorized personnel.

4. Consider some types of control on the doors (mkd 7-005 & mkd 7-071) that give access only for authorized personnel.

5. Janitor. A floor-mounted shower-type sink with its low wall is preferred over the traditional wall-mounted sink for better functionality when placing the rack where the mops are attached so that they drain in the sink area and not on the floor. Furthermore, because environmental services personnel must exert a lot of force to carry the bucket and empty the water if the sink is wall-mounted, and often these personnel are female and have less brute strength.

Attachment D: SARPS Recommendations

EIGHT LEVEL

1. Janitor. A floor-mounted shower-type sink with its low wall is preferred over the traditional wall-mounted sink for better functionality when placing the rack where the mops are attached so that they drain in the sink area and not on the floor. Furthermore, because environmental services personnel must exert a lot of force to carry the bucket and empty the water if the sink is wall-mounted, and often these personnel are female and have less brute strength.

2. Elevators 1, 2, 3 and 4 must be controlled only for authorized personnel.

3. Consider some types of control on the doors that give access only for authorized personnel.

Attachment D: SARPS Recommendations

NINTH LEVEL

1. Janitor. A floor-mounted shower-type sink with its low wall is preferred over the traditional wall-mounted sink for better functionality when placing the rack where the mops are attached so that they drain in the sink area and not on the floor. Furthermore, because environmental services personnel must exert a lot of force to carry the bucket and empty the water if the sink is wall-mounted, and often these personnel are female and have less brute strength.

2. Elevators must be controlled only for authorized personnel.

3. Consider some types of control on the doors that give access only for authorized personnel.

Attachment E: Owner's Requirements

The Designer will consider the following requirements for the continuity of the design:

Purpose: To ensure the continuous provision of advanced medical care for patients with major trauma, through the integration of diagnostic, therapeutic, surgical, critical support, and rehabilitation capabilities that allow for rapid stabilization, timely intervention, and optimization of functional and survival outcomes.

Clinical Mission: To operate as a Level I Trauma Center with 24/7 availability of specialized multidisciplinary teams, operating rooms prepared for emergency interventions, advanced imaging services (including CT, MRI, ultrasound, and interventional radiology), and intensive care units equipped for advanced life support. To ensure adherence to evidence-based protocols, maintain competencies through continuing education, promote trauma research, and coordinate the inter-institutional response for the comprehensive management of critical injuries in the population. To operate as a Level 1 Program validated by state and national standards.

Program Type: The program operating at this facility is defined as:

- Level 1 Comprehensive Trauma Program of the Puerto Rico and National Trauma System, recognized as the institution with the highest intervention capacity within the system. Maintaining the quality standards of both state and national accrediting agencies.
- Academic and Clinical Training Program.
- Coordination with the Medical Sciences Campus and other residency programs.
- Staff development program for the ASEM nursing division.
- Trauma Research, Education, and Prevention Program, responsible for continuing education initiatives, participation in clinical research, and injury prevention projects.
- Emergency and Disaster Preparedness and Response Program, given its essential role in mass casualty events and island-wide emergencies.

Their duties include:

- Communication with prehospital services and coordination of interhospital transfers.

- Triage, stabilization, and definitive treatment for complex trauma.
- Trauma registry for analysis and continuous improvement.
- Compliance with state regulations and federal regulations and accreditations.

Key Departments

Emergency Room - Essential in a Level I Trauma Center because it allows for the immediate assessment of critically ill patients, activation of the 24/7 trauma team, initial stabilization with emergency interventions, and rapid access to advanced diagnostics and operating rooms. Furthermore, it coordinates patient flow from EMS arrival to transfer to surgery, ICU, or interventional radiology, ensuring optimal response times and adherence to clinical standards.

Operating Room - Essential in trauma because they allow for immediate intervention in life-threatening injuries, such as uncontrolled bleeding, penetrating abdominal or thoracic trauma, and critical vascular injuries. Their 24/7 availability ensures rapid access to emergency surgery, minimizes delays in damage control, and meets established response standards for Level I Trauma Centers.

Imaging Center - An imaging center is essential in trauma because it allows for rapid and accurate diagnoses through studies such as CT scans, X-rays, FAST ultrasound, and, when required, MRI (existing area) or interventional radiology. Its 24/7 availability expedites the identification of internal bleeding, thoracic, abdominal, pelvic, and neurological injuries, guiding critical management decisions, reducing delays in transfer to surgery, and meeting the operational standards of Level I Trauma Centers.

Laboratory - A laboratory is essential in trauma care because it allows for the immediate acquisition of critical results, such as arterial blood gases, hemoglobin and hematocrit, coagulation studies, lactate (blood type and type), electrolytes, and metabolic markers. Its 24/7 availability expedites decisions regarding resuscitation, massive transfusions, hemorrhage control, and surgical management. The laboratory ensures turnaround times compatible with the standards of a Level I Trauma Center and optimizes the stabilization and prognosis of critically ill patients. The design will consider the integration of the new building with the existing Laboratory.

Blood Bank - A blood bank is essential in trauma because it allows for the immediate availability of critical blood products, including packed red blood cells, plasma, platelets, and products for massive transfusion protocols. Its 24/7 operation ensures response times compatible with the management of exsanguinating hemorrhage, hemostatic resuscitation, and damage control surgeries. Furthermore, it ensures blood typing, compatibility, and safe storage, preventing delays that could compromise patient survival. This is a fundamental requirement for meeting the clinical standards of a Level I Trauma Center. The design will consider the integration of the new building with the existing blood bank area.

Pharmacy - A pharmacy is essential in trauma because it ensures the immediate availability of critical medications 24/7, including agents for resuscitation, sedation, analgesics, hemodynamic management, anticoagulation, and broad-spectrum antibiotics. Its presence allows for rapid, accurate, and safe dispensing, reduces medication errors, and ensures that emergency, massive transfusion, and perioperative management protocols are followed without delay. This is fundamental for the stability of critically ill patients and for meeting the operational standards of a Level I Trauma Center. The design will consider the integration of the new building with the existing Pharmacy.

Helipad - A helipad is essential in a Trauma Center because it allows for the rapid and safe air transport of critically injured patients from remote scenes or institutions that lack advanced trauma capabilities. Its 24/7 availability significantly reduces transport times, facilitates immediate access to highly complex surgical and diagnostic services, and meets the operational standards of a Level I Trauma Center. This optimizes survival rates for time-dependent injuries and strengthens the response to regional emergencies or mass casualty incidents.

Note: To comply with FAA requirements for landing helicopters such as the EC135, EC145, AS350, UH-72, and MH-60, the rotor diameter of the largest helicopter must be taken into consideration. The platform should measure 100 x 100 ft and support a weight of at least 25 tons. Other safety features include perimeter lighting, windsock lighting, markings on the platform, adequate drainage, and a suppression system with a push-button activation near the building entrance.

Functional and Efficient Facility

A Level I Trauma Hospital must have the infrastructure, personnel, clinical services, and operating systems necessary to provide immediate, continuous, and highly specialized

care for patients with critical injuries. To be functional and efficient, it must meet the following requirements.

1. Essential Clinical Services (24/7)

    • Fully equipped emergency room with specialized resuscitation areas.

    • Trauma surgeon on-site or immediately available.

    • Complete surgical team available always.

    • Neurosurgery, orthopedics, and vascular surgery are available immediately.

    • 24/7 diagnostic services: CT, FAST ultrasound, X-ray.

    • Blood bank with mass transfusion capacity. (existing area of blood bank)

    • Continuous clinical laboratory with rapid results. (existing area of laboratory)

    • Operational Intensive Care Units with trauma-trained staff.

    • Complementary services: early rehabilitation, mental health, and social support.

2. Functional Infrastructure

    • Physical proximity between the emergency department, CT scanner, operating rooms, and ICU.

    • Direct and exclusive access for ambulances.

    • Operating rooms always available for trauma emergencies.

    • Fast and unobstructed circulation routes.

    • Adequate spaces to manage multiple critically ill patients simultaneously.

3. Trained and Available Personnel

- Trauma Director and Trauma Coordinator

- Clinical staff with ongoing trauma training (ATLS, ATCM, PHTLS, Initial Trauma Management Course, AHA Course, etc.)

- Sufficient staff to manage more than one critical case simultaneously

- Interdisciplinary teams for comprehensive care

4. Operational and Administrative Systems

   - Formal system for activating the Trauma Team.

   - Written protocols for trauma management, massive transfusion, and disaster response.

   - Active Trauma Committee and regular quality reviews.

   - Up-to-date Trauma Registry for analysis and continuous improvement.

   - Integrated communication with EMS, ambulances, and air transport.

   - Operational support services: 24/7 pharmacy, sterilization, biomedical engineering

5. Capacity and Performance

   - Adequate volume and severity of trauma patients to maintain competence and accreditation.

   - Capacity to receive and manage multiple victims simultaneously.

   - Sufficient ICU beds for critical trauma.

   - Operating rooms and equipment always available or prioritized for trauma

6. Academic and Community Role

   - Participation in clinical education and training programs.

- Trauma research activities.

- Injury prevention and community education programs

Size, capacity and ratio

The general rule is that each function of the program must have physical space that allows it to be executed with speed, accessibility, and efficiency.

1. Minimum Size (Physical Infrastructure) The hospital must have sufficient space to ensure rapid flow, simultaneous care, and immediate access to critical services. The following minimum functional areas are required:
   - Resuscitation rooms equipped for acute trauma intervention (minimum 4-8).

   - Operating rooms dedicated to acute trauma surgery (minimum 2; preferably 5).

   - Imaging area with immediate access from the emergency department (adjacent CT scan).

   - ICU with an adequate number of beds (see capacity below).

   - Integrated clinical and logistical support areas (existing area: laboratory, blood bank, sterilization, among others). The final size is determined by projected capacity, but it can never be less than sufficient to provide an immediate response to multiple critical cases simultaneously.

2. Minimum Capacity is defined by patient volume and available beds, ensuring the hospital can continuously manage complex cases. Common minimum requirements for Level I:

   - High volume of trauma patients per year.

   - 20–30 dedicated or available ICU beds for trauma.

   - 2–5 operating rooms available always.

   - Capacity to receive multiple victims simultaneously.

• Sufficient clinical and surgical staff to manage more than one critical case at a time

3. Relationship between Design and Program The physical design of the hospital must reflect and support the functions required by the clinical program. This means:

• Interventional flow: Emergency Department → CT → Operating Rooms → PACU → ICU must be connected without barriers or long distances.

• Rapid flow: Wide corridors, direct routes for stretchers, and separate access for ambulances.

• Capacity for expansion and the flow of multiple patients.

• Spatial distribution that prioritizes visibility, supervision, and rapid response.

• Design that allows for the execution of Trauma team protocols without delays.

• Strategic placement of the blood bank, laboratory, and pharmacy to minimize turnaround time. (existing areas)

• Spaces prepared for disasters or mass casualty events

Minimum functional requirements of the program

1. Availability of Specialists and Services (24/7)

• Trauma surgeon are always available at the hospital.

• General surgery staff with trauma experience.

• Neurosurgery, orthopedics, vascular surgery, plastic surgery, anesthesiology, intensive care, and other critical specialties always available.

• Clinical subspecialists available as needed (cardiology, gastroenterology, etc.)

2. Emergency Room and Operating Rooms

    • Fully equipped resuscitation area.

    • Operating rooms available and prepared for emergencies at all times.

    • Capacity to perform complex surgeries immediately

3. Diagnostic Services (24/7)

    • CT scan available immediately.

    • Ultrasound for FAST testing.

    • Fully functional blood bank (including mass transfusion, existing area).

    • Continuous clinical laboratory with rapid turnaround times. (existing area of laboratory)

    • X-ray available immediately

4. Critical Care Units

    • 24/7 operational adult ICU with qualified staff.

    • Staff trained in critical trauma.

5. Trauma Team Activation System

    • Coordination with EMS, paramedics, and helicopters.

    • Formal trauma activation protocol with defined criteria.

    • Immediate team response (leading surgeon arrives quickly).

6. Academic and Training Requirements

- Formal continuing education program for physicians, nurses, and technicians.

- Participation in resident training (if applicable).

- Certified training in ATLS, ATCM, PHTLS, Initial Trauma Management Course, AHA Course, etc.

- Active role in teaching, research, and prevention activities

7. Administration and Quality

   - Hospital Administrator

   - Medical Director of Trauma (experienced surgeon)

   - Administrative Manager

   - Clinical Manager

   - Head Nurse

   - Trauma Committee with monthly meetings

   - Quality System (PIPS)

   - Trauma Registry and TQIP

8. Capacity to Handle High Volumes

   - High annual volume of trauma patients, including critical cases

   - Capacity to receive transfers and coordinate trauma networks

9. Rehabilitation and Support Services

   - Physical, occupational, and post-trauma rehabilitation services

   - Mental health, stress management, and social support services for patients and families

10. Community Involvement and Prevention

    - Active injury prevention programs.
    - Collaboration with safety agencies, schools, and community organizations

Clinical Services and Operational Model

1. Minimum Clinical Services

    - 24/7 Emergency Department with resuscitation rooms.
    - Trauma surgeon on-site or immediately available 24/7.
    - Full surgical team available 24/7.
    - Neurosurgery, orthopedics, and vascular surgery are always available.
    - CT scan, FAST ultrasound, and conventional radiology.
    - 24/7 blood bank with mass transfusion capacity. (existing area)
    - 24/7 clinical laboratory. (existing area)
    - 24/7 Operational Intensive Care Units.
    - 24/7 intermediate care units.
    - Early rehabilitation services.
    - Mental health and psychosocial support.
    - Clinical social work services

2. Minimum Operational Services

    - Formal Trauma Team activation system.

- Trauma Director and Coordinator.
- Active Trauma Committee.
- Trauma Registry. • Quality Program
- Written protocols for trauma management and massive transfusion.
- Quality system with case reviews.
- Ongoing staff training.
- Direct communication with EMS and ambulances.
- Capacity to manage multiple victims simultaneously.
- 24/7 support services: pharmacy, sterilization, biomedical maintenance

Room and Department Requirements:

1. Minimum Rooms Required

- Resuscitation rooms (minimum 4-8).
- Additional emergency cubicles for non-critical patients (2-4).
- At least 2 operating rooms available for trauma always (preferably 5).
- Post-anesthesia care unit (PACU) nearby.
- ICU beds (minimum 30 dedicated to or available for critical trauma).
- General trauma inpatient beds (minimum 90).
- Computed tomography (CT) room accessible from the emergency department.
- X-ray and ultrasound room.

- Isolation rooms for critical patients (minimum 4).

- Mass transfusion room with capacity to provide universal blood, mass transfusion, and immediate access to a blood bank (existing area).

- Trauma team meeting room.

- Support services rooms: physicians, nursing, pharmacy, rehabilitation, and clinical break room

2. Minimum Required Departments – It should be noted that many of these services do not need to be located within the hospital but must be nearby and accessible.

    - Emergency Department, fully equipped and operational 24/7.

    - Surgery Department (with operating room and equipment available).

    - Intensive Care Unit.

    - Imaging Department: CT, X-ray, ultrasound.

    - Clinical Laboratory (existing area) and Pathology, 24/7.

    - Blood Bank with mass transfusion capacity. (existing area)

    - Anesthesia Department, available 24/7.

    - Orthopedics Department, available 24/7.

    - Neurosurgery Department, available 24/7.

    - Vascular Surgery Department, available 24/7.

    - Rehabilitation Services (physical and occupational).

    - Mental Health and Social Work Services.

    - Pharmacy Department, operational 24/7.

- Continuous sterilization.
- Biomedical Engineering and Maintenance.
- Engineering and Physical Plant Services
- Supply and Warehousing Services
- Sterile Supply Services
- Kitchen and Food Distribution Services
- Laundry Services
- 24/7 Security Services

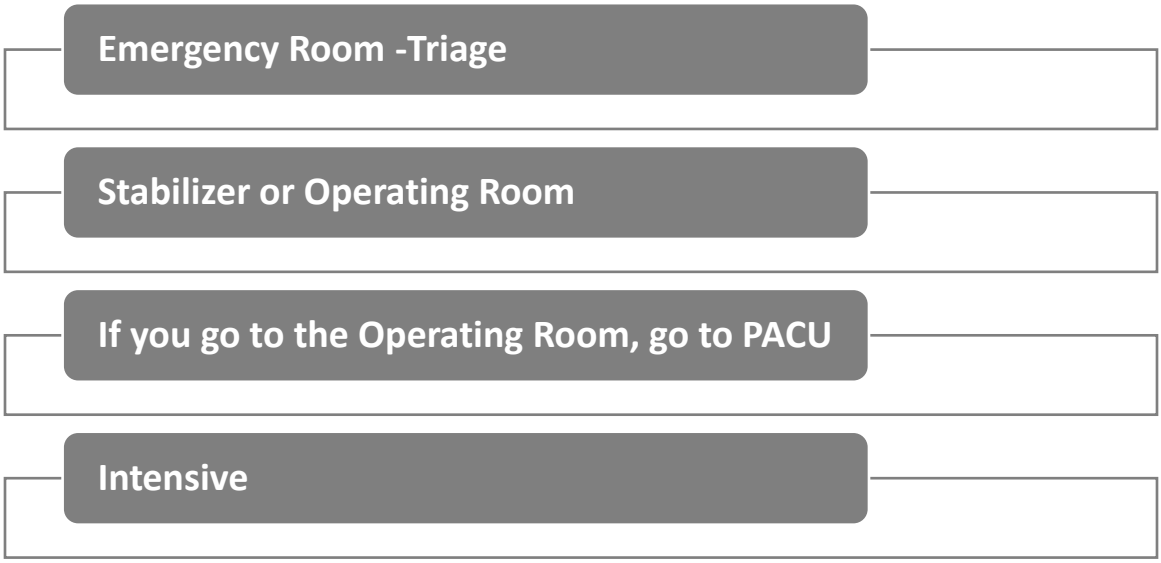
3. Minimum Functional Services and Spaces
   - Exclusive access for ground ambulances and areas
   - Triage areas
   - Stabilization area
   - Trauma areas for multiple victims
   - Rapid routes between Emergency Department → CT → Operating Rooms → PACU → ICU
   - Critical equipment preparation area
   - Trauma supply storage
4. Essential Administrative Elements
   - Hospital Administrator
   - Medical Director of Trauma (experienced surgeon)

- Administrative Manager
- Clinical Manager
- Head Nurse
- Trauma Committee with monthly meetings
- Quality System (PIPS)
- Trauma Registry and TQIP
- Trauma Committee Room
- Education and Training Areas

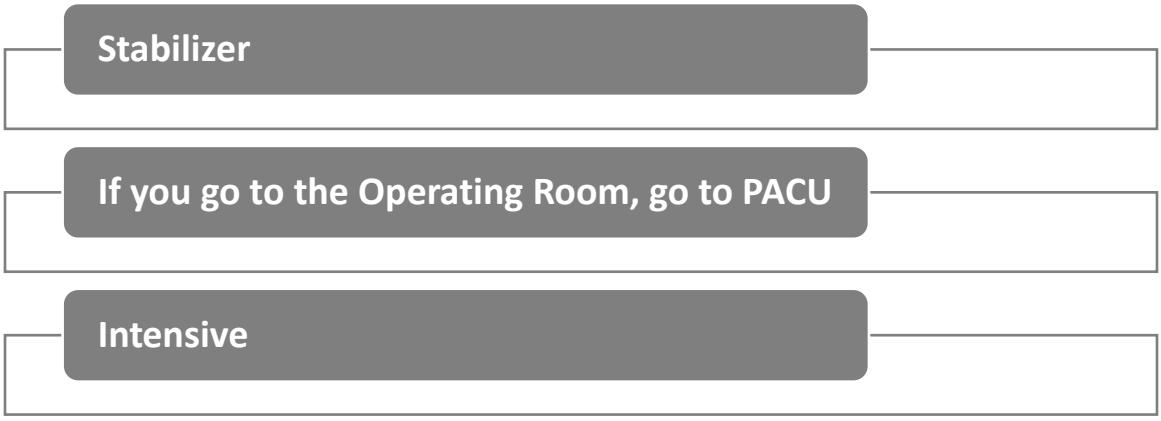
- Infection Control and Quality Service
- Care Environment and Emergency Management Service

Operational Flow

1. Ground ambulance flow



2. Area ambulance flow



Cleaning and disposal service for regulated (contaminated) biomedical waste and domestic (regular) waste

1. Cleaning and Disinfection Currently, this service is provided by a private company, and the contract is managed by the Maintenance Services Manager, who is an ASEM employee. In summary, the services required are:

   a. Cleaning and disinfection of clinical and administrative areas.

      • Application of disinfectants approved by the hospital and regulatory agencies.

      • Supply dispensers and replenish and dispense toilet paper, hand towels, and soap.

   b. Cleaning of patient rooms

      • Daily cleaning and disinfection of floors, surfaces, and bathrooms.

      • Terminal cleaning upon patient discharge or transfer.

   c. Infection control and health and safety

      • Compliance with cleaning protocols according to risk level (high, moderate, low).

      • Proper use of personal protective equipment (PPE).

      • Collaboration with the Office of Institutional Security and Infection Control.

   d. Cleaning of common areas

      • Hallways, lobbies, elevators, stairwells, and public restrooms.

      • Maintain a clean and presentable environment for visitors.

   e. Terminal or specialized cleaning

      • Control and removal of spills involving biological fluids according to established protocol.

• Cleaning and disinfection of areas with isolation (contact, droplet, or airborne).

• Enhanced processes during outbreaks or health emergencies. 6. Coordination and Reporting

• Coordination of shift work assignments and task supervision.

• Completion of required control sheets.

• Participation in internal cleaning audits.

f. Maintains, cleans, and tidies external common areas and green spaces.

Handling and Disposal of Regulated Biomedical Waste and Household Waste

This service is provided by a private company to private companies, and the contract is managed by the Maintenance Services Manager, who is an ASEM employee. In summary, the services required are:

1. Contaminated Waste or Regulated Biomedical Waste (contracted services) Services include:

   • Providing and disposing of red sharps containers.

   • Providing a red container for the storage and disposal of contaminated waste.

   • Secure off-site transportation.

   • Documentation and chain of custody (manifests according to regulations (EPA, OSHA, and Department of Health)).

2. Household Waste (Non-Hazardous Waste or regular trash) Services include:

   • Providing and distributing black bags for collection.

   • Collection, transportation, and disposal of trash in containers.

   • Daily collection in off-site green containers

Environmental Limitations

The utility system must operate in optimal condition, and for this, a preventive maintenance plan must be implemented. In addition, a series of tests required for environmental compliance must be included, such as:

- Electrical generators - % sulfur content
- Oxygen and medical gases - oxygen purity tests at the dispatch point and tests every two years on all valve panels and medical gas alarms in the building
- Diesel tanks - annual tank testing to measure composition and quality, and tank cleaning
- Potable water systems - monthly purity tests and annual tests for microorganisms and cistern cleaning
- HVAC - Annual tests must be performed on these areas to ensure compliance with negative and positive pressures, temperature, humidity, and air changes
- Maintenance, testing and certification of security systems: access controls, nurse call systems, security cameras, panic buttons and alarm systems, fire detection and suppression

Other Environmental Compliance Requirements

- Large storage areas for utensils, hazardous materials, and bins, as per regulations. A floor-mounted sink must be provided for easy disposal and washing.
- Strategically located handwashing stations and hygiene stations.
- Washable and antimicrobial materials and finishes.
- Access Restrictions to Areas
- Controlled access to operating rooms, ICU, laboratory (existing area), radiology, and other areas.
- Separate circulation routes for patients, staff, and materials.

- Noise, Vibration, and Lighting

- Operating rooms and imaging areas must be free of vibrations that could affect equipment (CT).

- Noise control in the ICU to avoid impacting patients.

- Adequate and redundant lighting for surgical emergencies

Location and surroundings

- Quick and safe access for ambulances.

- Protection from traffic, obstructions, and external hazards

Hazardous Waste and Materials Management

- Proper storage of biomedical waste, separate from household waste.

- Control of chemicals from laboratories, radiology, sterilization areas, pathology, and other areas.

- Safe waste disposal routes that do not cross clinical areas

Operational Limitations and Site Restrictions Compliance with Regulatory and Accrediting Agencies

1. Access Control

   - Limited access to critical areas such as trauma rooms, laboratory (existing area), pathology, operating rooms, intensive care unit, radiology, pharmacy, among others.

   - Access control to computer rooms, electrical rooms, and mechanical rooms.

   - Mandatory staff identification with ID cards.

   - Restricted visitor access during specific hours and in specific areas.

- Metal detectors
- Limitations on the number of companions and visitors.

2. Infection Control
   - Restricted access to contaminated waste areas.
   - Separate areas for contaminated waste and household waste.
   - Cleaning closets are large enough to store the required utensils.
   - Surveillance monitoring of temperature and humidity, negative pressure rooms, positive pressure rooms, and air exchange.
3. Handling of Medications and Medical-Surgical Supplies
   - Closed and controlled pharmacy areas.
   - Access restricted to authorized clinical personnel.
   - Electronic dispensing systems with access control (PYXIS) for medications and medical-surgical supplies.
4. Morgue and Laboratory Area (existing areas)
5. Physical Plant and Life Safety
   - Compliance with fire and smoke barriers such as doors, windows, and walls.
   - Compliance with all fire alarm, detection, and suppression systems.
   - Restrictions on the use of freight and patient elevators.
   - Safe evacuation ramps and stairs
6. Quality Services Program – Patient Safety

7. Occupational Health and Safety

8. Radiation Safety.

Areas Adjacent to the Site

1. Nearby places to buy food or food and water dispensers

2. Accessible OPD pharmacies near the hospital

3. Nearby places to buy clothing, medical devices, or essential items such as blankets, urinals, sandals, soap, toothpaste, sanitary napkins, and others

4. Accessible areas for public transportation

5. Accessible areas with ATMs for cash withdrawals

6. Parking for employees, patients, and visitors

7. Construction areas near the site

Life Safety Diagrams

To comply with life safety codes and regulatory and accrediting agencies, we must have life safety plans for the building that demonstrate and comply with the International Fire Code, NFPA 101 (Life Safety Code), adopted by the Puerto Rico Fire Department. These plans must include the fire resistance of fire barriers, smoke barriers, compartments, evacuation distances, sprinklers, hazardous areas, and other relevant information.

1. Fire and smoke barriers stop the spread of a fire or toxic smoke and help us make quick decisions in critical situations.

2. During inspections (Joint Commission, OSHA, fire department, etc.), these plans are required to demonstrate:

   • That the building is properly segmented.

   • That all penetrations are sealed.

- That the hospital meets life safety standards.

3. When contractors drill through walls or install cables, it is necessary to know:
   - If that wall is a fire or smoke barrier.
   - What type of sealant should be applied.
   - What materials are permitted by regulations.
   - Without plans, there is a risk of breaching a barrier and compromising safety.
4. These plans are consulted when creating evacuation plans, as they help define safe evacuation areas.
5. During inspections, they are used to identify and correct penetrations or damage to barriers and hazardous areas where there may be a risk of smoke or fire leakage, or doors and windows that do not meet the barrier's strength requirements.

Concepts of emergency exits or egress

Emergency exits (also called egress routes) are access points designed to allow the rapid, safe, and continuous evacuation of people from a facility during an emergency. They are regulated by standards such as NFPA 101 (Life Safety Code) and the International Fire Code, which is adopted by the Puerto Rico Fire Department.

Their primary function is to provide an unobstructed evacuation route, with a safe distance as applicable to the hospital area and protected until the exit point is outside the building.

Emergency exits must comply with the following:

- Clearly identified and marked routes.
- Continuous emergency lighting.
- Exit doors that open in the direction of evacuation.

- Corridors and passageways free of obstructions.
- Direct access to an external assembly point or safe area.
- Compliance with appropriate width, capacity, and construction requirements.

An emergency exit may include:

- Designated exit doors
- Protected passageways
- Internal or external staircases
- Ramps

Automatic Sprinkler System

Automatic fire sprinklers are a protective system that automatically discharges water when it detects high temperatures generated by a fire. Their use and maintenance are primarily regulated by the standards of NFPA 13, NFPA 25, and the International Fire Code, adopted by the Puerto Rico Fire Department.

Automatic sprinklers have three main functions:

- Each sprinkler has a temperature-sensitive element that activates when a specific temperature is reached.
- To control or extinguish the fire to prevent its spread with the help of fire or smoke barriers.

The sprinkler heads discharge water onto the area where the fire is located, reducing its spread and damage. For a sprinkler system to be compliant (according to NFPA 13 and 25), it must meet the following requirements:

- Annual inspection and testing of the sprinkler system and valves
- Pressure testing underload on its pump system

- Functional testing to ensure that the main valve, alarms, and pressure are working correctly.

- Documented maintenance (cleaning, lubrication, parts replacement).

- Up-to-date labeling and records.

- Installation of spray nozzles, as required by code. In areas with equipment that could obstruct the equipment, these nozzles must be strategically positioned; this includes fixed x-ray machines, CT scanners, and operating rooms.

- Unobstructed access to main and control valves, among others

Resilience requirements

The Trauma Hospital must maintain a high level of resilience to ensure the continuity of essential services in the event of any emergency that affects its operations. Institutional resilience encompasses mitigation, preparedness, response, and rapid recovery from natural, technological, or man-made disasters.

Key requirements include 24/7 operational continuity with redundant power, water, fuel, oxygen, communications, and IT systems to support vital clinical services. The hospital must fully comply with life safety standards, including functional sprinkler systems, alarms, clear egress routes, and regular inspections as required by regulatory and accrediting agencies.

A robust Hospital Incident Command System, updated emergency and mass casualty event management plans, adequate inventories of critical supplies, medical equipment, food, potable water, and direct coordination with state and federal agencies and other hospitals are also required.

Resilience also includes cybersecurity and ongoing training programs for all staff. These components ensure that the Trauma Hospital can maintain operations, protect the lives of patients and employees, and quickly restore services even in high-impact scenarios.

Emergency Surge Preparedness

The hospital maintains a comprehensive emergency surge preparedness strategy to ensure the continuity and stability of essential services in the event of a sudden increase

in demand for care during major emergencies or disasters. This preparedness allows for a rapid, coordinated, and effective response to incidents such as natural, technological, or man-made disasters that result in mass casualties, infrastructure failures, or other critical situations.

The institution has a Hospital Incident Command System (HICS) for emergency management and decision-making, updated plans, and the capacity to increase beds, staff, and clinical resources as needed. Adequate inventories of critical supplies, equipment, food, and medications are maintained for seven days, and infrastructure is prepared to operate sustainably for extended periods.

Preparedness includes active coordination with internal and external agencies, including Emergency Management, Emergency Medical Services, providers, and network hospitals. All staff receive ongoing training and participate in tabletop exercises, operational drills, and regular simulations to strengthen skills and validate established plans.

These efforts enable the hospital to preserve the safety of patients and employees, maintain critical services operating without interruption, and respond effectively to emergencies of any scale.

In addition, ASEM has two mobile units which, in an emergency or disaster situation, supplement the Trauma Hospital by expanding medical care if necessary. These units are transported from their storage location to a fixed location in the plaza in front of the hospital. However, they do not have negative pressure for handling highly infectious disease events.

Strengthening security

Strengthening security and surveillance in a hospital requires a comprehensive strategy that combines clear policies, modern technology, and effective operational practices. To ensure the protection of patients, visitors, and staff, it is essential to implement access control systems, camera monitoring in critical areas, and robust incident response protocols. Ongoing security personnel training, risk identification, and effective communication contribute to an organizational culture focused on prevention. Likewise, regular audits, adverse event analysis, and collaboration with external agencies help maintain a safe and resilient environment. With these practices, the hospital can ensure reliable, efficient healthcare services that meet quality and safety standards.

Life Safety Plan - ASEM requires the Contractor to assist in integrating the new building into its Life Safety Plan. The provision of medical services by the Puerto Rico Medical Services Administration (ASEM) requires that the use and handling of medical and construction equipment, machinery, and hazardous materials that could result in physical harm to people using these facilities, to property, or to the environment be carried out with care and knowledge.

Several factors can contribute to the start of a fire: electrical faults (splices, equipment maintenance, electrical connections, etc.), hot surfaces (stoves, ovens), spontaneous combustion (cloths contaminated with grease and/or oil), gases (propane, oxygen, acetylene), surgical procedures, lighting, and others.

To ensure the protection of human life, property, and the environment, the established Life Safety Plan provides information on the facility, fire suppression, detection, and alarm systems, procedures for controlling small and large-scale fires, partial or total evacuation procedures, and assistance and coordination with government response and support agencies, among other things.

The main objectives are:

- To always comply with the requirements of accrediting and regulatory agencies.
- To implement preventive measures and continuously monitor them to help minimize risks that could cause harm to human life, property, and/or the environment.
- To provide annual training and guidance to employees, or as needed, so they can manage and respond to unexpected and/or foreseeable events, carry out a proper evacuation, and know how to use the different types of portable fire extinguishing equipment.
- To provide information on the different fire alarm, detection, and suppression systems through system descriptions, inventories, and written procedures and/or guides, and to review them annually or as needed.

This Plan includes the following appendices:

- Appendix A: Hydrant Location Map

- Appendix B: Facility Evacuation Diagrams
- Appendix C: Fire and Smoke Barriers
- Appendix D: Fire Lane Location Map
- Appendix E: Flow System Location Map
- Appendix F: Preventive Maintenance Plan for Systems
- Appendix G: Alarm Panels
- Appendix H: Activation Identification Guide for Alarm Systems
- Appendix I: Guide for Real Small/Large Fire Alarms and False Alarms
- Appendix J: Evacuation Plan and Designation of Alternate Locations
- Appendix K: Fire Drill Evaluation Sheet
- Appendix L: Fire Prevention Standard
- Appendix M: Fire Prevention Measures in the Operations Room
- Appendix N: Classes of Fire Extinguishers
- Appendix O: Emergency Notification System
- Appendix P: Emergency Codes
- Appendix Q: Fire Classes
- Appendix R: Elevator Safety in Case of Fire
- Annex S: Evacuation for Persons with Disabilities
- Annex T: Operational Standard for Drills and Evacuations
- Annex U: Diagram of Alarm System Devices

- Annex V: Firefighting Procedures and How to Use a Fire Extinguisher
- Annex W: Fire Pump and Riser System of the Main Building

Life Safety Plan - ASEM requires the Contractor to assist in integrating the new building into its Safety Management Plan.

The Safety Management Plan is based on the recognition and responsibility of the Puerto Rico Medical Services Administration (ASEM) to provide and guarantee the safety and health of its patients, visitors, and employees.

It guarantees safe and healthy working conditions and physical facilities free from recognized hazards that cause or may cause illness, physical injury, or death to employees through daily visual inspections, documented general inspections: clinical areas every six (6) months, non-clinical areas annually, and emergency inspections.

Promote, provide, and supervise the use of safe and appropriate personal protective equipment (PPE) for all employees who require it on each work shift. Establish safe work methods and practices for all employees and contractors on each work shift. Train and guide employees and contractors on the use of safety equipment, PPE, and safety standards on each work shift.

Create, direct, support, and ensure the continuity of the various committees within the Administration, according to their annual work schedules.

Comply with all regulations, laws, rules, and standards always adopted by regulatory and accrediting agencies.

This Plan includes the following appendices:

- Appendix A: Health and Safety Committee Regulations
- Appendix B: Institutional Safety Inspection Checklist
- Appendix C: Physical Security and Access Control Standard
- Appendix D: Risk Notification Standard

Attachment E: Owner's Requirements

- Appendix E: Occupational Accident and Incident Notification
- Appendix F: Patient and Visitor Accident and Incident Notification
- Appendix G: Facility Maintenance and Security
- Appendix H: General Summary of Health and Safety Standards
- Appendix I: General Summary of Health and Safety Standards for Patients and Visitors
- Appendix J: No Smoking Regulations
- Appendix K: Vector and Pest Control Program
- Appendix L: Field Medicine
- Appendix M: Health and Safety Program
- Appendix N: Ergonomics Program
- Appendix O: Noise Conservation Program
- Appendix P: Institutional Program for the Use of Personal Protective Equipment
- Appendix Q: Institutional Standard for the Use of Eyewash Equipment
- Appendix R: Institutional Safety Respiratory Protection Program
- Appendix S: Personal Protective Equipment Protocol for Portable C-Arms
- Appendix T: Protocol for the Use of Personal Dosimeters (Film Badge)
- Appendix U: Institutional Security Service Sheet
- Appendix V: Access Permit Form for Entry to Areas Protected by Electronic Access Control

- Appendix W: Authorization Form to Receive, Possess, and Use the Electronic System Card

Trauma Logistics and Life Safety Systems

Trauma Logistics

• Must ensure a rapid and coordinated response to emergencies.

• This includes the strategic placement of emergency vehicles and equipment to provide advanced patient care and first aid to visitors in accessible areas.

• All personnel must be trained in basic and advanced cardiopulmonary resuscitation (CPR).

• Rapid routes must be established to allow emergency teams to reach the affected area without obstruction.

• Maintain an up-to-date plan for internal and external communication with emergency services.

• Conduct regular drills to ensure personnel know how to act and where to find resources, including functional exercises.

• Develop and maintain a continuing education program

Life Safety Systems

• Integrate active and passive measures to protect occupants during an emergency.

• This includes:

- Fire detection and alarm system.
- Automatic sprinklers.
- Emergency lighting.
- Smoke control and pressurization systems where applicable.

- Clearly marked and unobstructed evacuation routes.
- Compartmentalization using fire-resistant walls and doors.
- Full-to-ceiling walls in hazardous rooms.
- Fire-resistant doors, windows, fittings, and glass.
- Portable fire extinguishing system (fire extinguishers).
- Safe evacuation ramps and stairways.
- Stairwell pressurization systems.

- Their design must aim to create sufficient time for evacuation, reduce the spread of smoke and fire, and allow for fire department intervention.

Attachment E: Owner's Requirements

Information Technology Department data

DESCRIPTION	INFORMATION STORAGE LOCATION	MAINTENANCE FREQUENCY	CURRENT METHOD OF PROTECTION	RECOMMENDATIONS FOR ADDITIONAL PROTECTION METHODS (if necessary)	PROVIDER
Meditech System	Local hosting in Puerto Rico (Neptuno) under an infrastructure and hosting services agreement with CloudWave. The service includes the rental of the technological infrastructure and services necessary for the operation of MEDITECH's applications.	Daily	Redundant infrastructure with high availability and disaster recovery mechanisms. Backup via BridgeHead Backup.	Maintain current hosting, support, and backup contract. Perform regular disaster recovery tests.	Cloudwave
Computers, communication equipment and peripherals	Servers managed by the ASEMNet infrastructure	Daily and others as needed or upon request	Backup via Veeam for servers, Dorado for Dell communications equipment, and endpoint protection with CrowdStrike. Disaster	Maintain continuous monitoring, update patches and firmware, and renew security licenses. Perform periodic disaster recovery tests.	Information Technology Department (ITD)

			recovery with VMware AWS.		
PACS (Radiology)	Servers located in ITD	Daily	Backup via Veeam and image archiving in the Philips cloud. Disaster recovery with VMware AWS.	Periodically validate clinical image recovery and storage growth. Maintain current support contracts and validate backups periodically. Perform periodic disaster recovery tests.	Philips
PYXIS (Pharmacy & Supply)	Servers located in ITD	Daily	Backup via VEEAM. Disaster Recovery with VMware-AWS.	Maintain current support contracts and validate backups regularly. Perform regular disaster recovery tests.	Cardinal Health
Internet - System of communicati on with the outside world	Logs stored in the security infrastructure	Daily	FortiGate antivirus, application filtering, web filtering, IPS, and traffic inspection. Annual renewal of certificates, licenses, and domains.	Maintain interagency protection and periodically review security policies.	Fortinet
Kronos and HRSense (Human Resources)	Servers located in ITD	Daily	Backup via VEEAM. Disaster Recovery with Vmware-AWS.	Maintain current support contracts and validate backups regularly. Perform regular disaster recovery tests.	UKG / Evertec
Email (Microsoft 365)	Microsoft 365 tenant managed by the Department of Health	Daily / Continuous	Antispam protection, antimalware, email filtering, and authenticatio	Retention policies implemented, MFA implemented, phishing protection and continuous monitoring.	Microsoft 365 / Fortinet

			n via Microsoft 365 Defender.		

Compliance with clinical and regulatory requirements

- American College of Surgeons
- Joint Commission
- Medicare
- Department of Health

END OF DOCUMENT

Attachment F: Hospitaller and Medical Equipment

MEDICAL EQUIPMENT			
EQUIPMENT	**USAGE DESCRIPTION**	**EQUIPMENT SPECIFICATIONS**	**AMOUNT**
Surgical Table	The surgical table in trauma is used for quick and safe access to the patient.	Electro-hydraulic surgical table, suitable for surgical procedures and C-arm imaging. Capacity: 1,000 lb minimum lifting; 600lb minimum articulation. Motorized height and positioning: Trendelenburg, reverse Trendelenburg, lateral tilt, and minimum 210° tabletop rotation. Removable leg section and accessory rails. Rechargeable battery with hand and foot controls. Power:110 to 120 VAC at 50 t0 60Hz. 2-year warranty on parts and labor.	5
Surgical Lamp	The surgical light provides intense, uniform, and shadow-free illumination of the surgical field, allowing for precise visibility during procedures. It is adjustable in position, height, and intensity, and is	Ceiling-mounted dual LED lighting surgical system with two light heads, approximately 24" diameter each. Minimum illumination of 160,000 lux, with adjustable focus and intensity. Vertical movement of approximately 110° and continuous 360° rotation. CRI ≥95 and color temperature of 4,100-	5

	designed to prevent heat and glare.	4,500 K. Sterilizable center handle for positioning and control. LED life expectancy of approximately 40,000 hours. Electrical:110 to 120 VAC at 50 t0 60Hz. 2-year warranty on parts and labor.	
Anesthesia System	The anesthesia machine is the equipment that administers anesthetic gases and oxygen, controls the patient's ventilation, and allows monitoring of their respiratory functions during surgery.	Anesthesia workstation for adult and pediatric patients. Integrated ventilator with VCV, PCV, PCV-VG, SIMV-vC, SIMV-PG, SIMV-VG CPAP/PS and APRV modes. Tidal volume capability from 5 to 1,500 ml, with automatic compliance and leak compensation. Integrated HFNC up to 60L/min. Integrated monitoring of FiO_2, $ETCO_2$, N_2O and anesthetic gases, with automatic agent identification. 18.5" capacitive color touchscreen, with approximately 360° rotation. Integrated breathing system, electronic PEEP, automatic pre-use system check, and anesthetic gas scavenging system. Electrical: 120 VAC, 60HZ, hospital grade connection, with rechargeable battery backup.	5

Attachment F: Hospitaller and Medical Equipment

		5-year warranty on parts and labor.	
IV Pump (Intravenous Infusion Machines)	An IV pump is an infusion pump that delivers fluids and medications precisely and in a controlled manner intravenously. It allows for adjustments to volume, rate, and time, reduces dosing errors, and maintains a constant flow, making it essential in hospital wards, emergency departments, and trauma centers.	Includes: Wireless Battery, one-screen barcode technology, author-reprogramming workflows, line check notification. Dose error reduction software, Time check alert and Keypad Lock.	332
Transport Stretchers	Transport stretchers are used to move patients safely and stably within the hospital.	Hydraulic patient transport stretcher with integrated weighing scale, accuracy ≤ 0.5 kg and bed exit function. Safe working load: minimum 705 lb. Height approximately 55-89 cm (22-35in). Backrest adjustment 0-90° Trendelenburg/ reverse Trendelenburg ±18°. Four-section platform with adjustable things and calf sections. Retractable/folding side rails, minimum height	35

		approximately 36cm (14 in). 20cm (*in) casters with fifth steering caster for maneuverability. Integrated hydraulic controls, IV pole/push handles, and central braking system. Easy to clean construction suitable for hospital patient transport. 2-year warranty on parts and labor.	
Fixed Physiological Monitors	Fixed physiological monitors are devices installed in clinical areas that record and display vital parameters in real time, such as heart rate, blood pressure, oxygen saturation, respiration, and temperature.	Multiparameter patient monitor for adult and pediatric patients. Minimum monitoring: 12-lead ECG, SPO_2, NIBP, temperature, respiration, $EtCO_2$, and invasive pressure. Minimum capacity of 8 waveforms and 24 parameters. 12" or large color touchscreen with clinical alarms and trend storage. Rechargeable battery system suitable for patient transport. Wireless and wired network connectivity for central monitoring. Includes all required patient cables, sensors, probes, cuffs, leads, power cables, and	114

		accessories for the specified monitoring parameters. Includes clinical software license, all required software, and necessary connectivity for integration with the hospital monitoring system. Includes bedside mounting plate/bracket and all required mounting hardware. Electrical: 120 VAC, 60Hz, hospital grade connection. 5-year warranty on parts and labor.	
Nursing Monitoring Stations (Central Station 30 CH)	Central Station 30 CH is a fixed station where nursing staff can view, monitor, and analyze, in real time, the vital signs of up to 30 patients connected to monitors. It allows for the viewing of trends, alarms, and critical events, and facilitates continuous, centralized monitoring.	Central monitoring station capable of monitoring minimum 30 patients channel simultaneously. Support for up to four high resolution touchscreen displays, with real time surveillance, waveforms, trends, and patient demographics. Integrated clinical access for review of retrospective patient data. Network access to hospital information systems and clinical data sources. Includes single user clinical software license and all required software	3 monitors per station (total 9) 3 printers

		for central monitoring. Includes 21.5" or large high-resolution touchscreen displays, as required for the configured system. Includes network laser printer for printing reports and patient monitoring data. Includes all required licenses, cables, network accessories, mounting hardware, and components for a complete operational system. Electrical:120 VAC, 60Hz, hospital grade power connection. 5-year warranty on parts and labor.	
Nursing Monitoring Stations (Central Station 19 CH)	The Central Station 19 CH is a fixed station where nursing staff can view, monitor, and analyze, in real time, the vital signs of up to 30 patients connected to monitors. It allows for the viewing of trends, alarms, and critical events, and facilitates continuous, centralized monitoring.	Central monitoring station capable of monitoring minimum 19 patients channel simultaneously. High resolution display with real time patient surveillance, waveforms, trends, and patient demographics. Clinical software for retrospective patient review. Network connectivity for integration with hospital information systems and central monitoring. Includes all required	2 monitors 2 printers

		software licenses, cables, network, accessories, and components for a complete operational system. Includes high-resolution touchscreen display, minimum 21". Includes laser printer for reports and monitoring data. Electrical:120 VAC, 60Hz, hospital grade power connection. 5-year warranty on parts and labor.	
Nursing Monitoring Station 19 CH	The Central Station 19 CH is a fixed station where nursing staff can view, monitor, and analyze, in real time, the vital signs of up to 30 patients connected to monitors. It allows for the viewing of trends, alarms, and critical events, and facilitates continuous, centralized monitoring.	Central monitoring station capable of monitoring minimum 19 patients channel simultaneously. High resolution display with real time patient surveillance, waveforms, trends, and patient demographics. Clinical software for retrospective patient review. Network connectivity for integration with hospital information systems and central monitoring. Includes all required software licenses, cables, network, accessories, and components for a	2 monitors & 1 printer

		complete operational system. Includes high-resolution touchscreen display, minimum 21". Includes laser printer for reports and monitoring data. Electrical:120 VAC, 60Hz, hospital grade power connection. 5-year warranty required	
Portable Physiological Monitors	Portable physiological monitors are devices that allow monitoring of vital parameters such as blood pressure, heart rate, oxygen saturation and respiration during the transport or transfer of patients.	4 complete Multiparameter patient monitor for adult and pediatric patients. Minimum monitoring: 12-lead ECG, SPO_2, NIBP, temperature, respiration, $EtCO_2$, and invasive pressure. Minimum capacity of 8 waveforms and 24 parameters. 12" or large color touchscreen with clinical alarms and trend storage. Rechargeable battery system suitable for patient transport. Wireless and wired network connectivity for central monitoring. Includes all patient cables, ECG leads, SPO_2 sensors, Temperature probes, NIBP cuffs, $EtCO_2$ accessories, power cables, and accessories. Includes	4

		bedside mounting plate/bracket and all required mounting hardware for each monitor. Electrical: 120 VAC, 60Hz, hospital grade connection. 5-year warranty on parts and labor.	
Portable Defibrillators	Mobile defibrillators are portable devices used to treat serious arrhythmia and cardiac arrest by delivering controlled electrical shocks. They are lightweight, easy to carry, battery-operated, and feature an ECG monitor, automatic or manual modes, and alarms.	ALS defibrillator with manual/AED defibrillation, synchronized cardioversion, and external pacing. Integrated 3/5-leand ECG, SpO_2, $EtCO_2$, NIBP, and CPR quality feedback. CPR quality feedback. CPR monitoring with compression rate/depth and artifact filtering. NIBP and SpO_2monitoring for adult and pediatric patients. Sidestream $EtCO_2$ monitoring for intubated and non-intubated patients. Includes required ECG, SpO_2, NIBP, $EtCO_2$, pacing cables/sensors and accessories Wi-Fi/USB connectivity, rechargeable battery, and data storage. Electrical: 120 VAC, 60 Hz.	21

Attachment F: Hospitaller and Medical Equipment

		5-year warranty on parts and labor.	
Fixed Defibrillators	Fixed defibrillators are devices permanently installed in critical hospital areas to treat serious arrhythmia and cardiac arrest using controlled electrical shocks. They offer greater power, stability, and advanced features, including ECG monitoring, transcutaneous pacing, manual/automatic modes, and event logging.	Semi-automatic AED, English/Spanish language with voice and visual prompts and integrated real-time CPR feedback. Rectilinear biphasic waveform with automatic adult energy selection of 120J, 150J, and 200J. CPR feedback for compression depth and rate, with a minimum recommended compression depth of 2 inches (5 cm). Adult CPR/defibrillation electrodes with integrated CPR sensor and minimum 5-year shelf life; pediatric capability with compatible pediatric electrodes. Includes 10 lithium batteries system with approximately 5-year standby life and capacity for extended operation. Includes wall-mounted metal cabinet with audible alarm and AED identification signage compliant with applicable Puerto Rico requirements. AED and accessories shall be supplied as a complete, ready-to-use system. 5-	3

		year warranty on parts and labor.	
Transport Monitors	Transport monitors are portable devices that allow monitoring of the patient's vital signs during transport within or outside the hospital.	High-acuity transport patients monitor for adult and pediatric patients. 8" or large touchscreen display with visible alarm indicator. Supports minimum 11 clinical parameters, including 12-lead ECG, SpO_2, NIBP, temperature, respiration, and sidestream $EtCO_2$. Integrated rechargeable battery provides minimum 5 hours of continuous operation. Wireless Wi-Fi connectivity and compatibility with the hospital central monitoring system and electronic medical record. Storage of graphical and tabular trends and patient data. Compact, lightweight design with integrated carrying handle and mounting capability for IV pole or bed rail. Impact-resistant construction capable of withstanding a minimum 1- meter drop. Includes all required patient cables, sensors, probes, cuffs, and mounting hardware for a complete operational system. Electrical: 120VAC, 60Hz. 5-year warranty on parts and labor.	39

Attachment F: Hospitaller and Medical Equipment

Computer Tomography	The CT scanner uses X-rays and advanced computing to obtain detailed cross-sectional images of the body. It allows for the visualization of organs, bones, and tissues with high precision, making it essential for diagnosing trauma, bleeding, fractures, internal injuries, and complex pathologies.	Multi-slice CT System for full-body diagnostic imaging. High-performance X- ray generator and tube with advance thermal management. Solid-state detector with high spatial resolution and extended coverage. Gantry aperture ≥ 70cm. Gantry rotation time ≤ 0.35 seconds. High-pitch helical acquisition capability. Motorized patient table with minimum load capacity of 500 lb. Automatic patient positioning with laser alignment system. Dose reduction technologies including automatic tube current modulation. Iterative reconstruction and AI-based image reconstruction. ECG-gated acquisition for cardiac imaging. High-speed acquisition and reconstruction for emergencies and routine use. GPU-accelerated reconstruction system. Advance workstation with MPR, 3D and volumetric	1

		analysis tools. Full DICOM compliance with PACS/RIS integration. Patient communication system(audio/Visual) Integrated operator console for acquisition and post-processing. Electrical compatibility with site configuration 480V/208 V, (3-phase power) UPS compatibility with minimum 7-10 minutes autonomy. Designed for continuous high-volume hospital operations. 5-year warranty on parts and labor.	
Fixed X-Ray Machine	A fixed X-ray machine is a permanently installed piece of equipment used to obtain radiographic images of the body using X-rays. It produces rapid studies of bones, the chest, and internal structures, essential for diagnosing fractures, traumatic injuries, infections, and acute conditions.	Ceiling-Mounted digital radiography system for general, trauma, pediatric, INCU, chest, spine, and full-body examinations. X-ray generator: minimum 150kW and 65kW. Digital Flat-panel detector: 35x43 cm (14"x 17") pixel size ≤160µm. Motorized height-adjustable table with minimum 825 lb patient capacity. Motorized ceiling tube suspension with integrated collimation, positioning controls, and	1

		live positioning camera. Automatic Exposure control with manual and automatic exposure techniques. Advanced image processing, dose optimization, and stitching for full-spine/full-leg imaging. Operator workstation with 21" or large color display, image acquisition, processing, storage, and review. DICOM connectivity for PACS/RIS and hospital network integration. Includes complete installation, calibration, testing, commissioning, software, detector, accessories, and required system components. 480V/208 V, (3-phase power) UPS compatibility with minimum 7-10 minutes autonomy. Designed for continuous high-volume hospital operations. 5-year warranty on parts and labor.	
Portable X-Ray Machine	The portable X-ray machine is a mobile device that allows X-rays to be taken directly at the patient's bedside.	Mobile digital X-ray system for bedside, ICU, emergency, Trauma, OR and general radiography. Generator with 10-500 mA, 0.1-500 mAs, and	1

		exposure times of 0.001-1.25 seconds. Wireless digital flat-panel detector, suitable for general radiography. 21.5" or larger color display with DICOM-compatible image acquisition and review. Motorized drive system with precise tube positioning and compact maneuverability. Rechargeable lithium-ion battery, providing minimum 8 hours of operation/ mobility and rapid charging. Advanced image processing with scatter correction and nose/artifact reduction. Wireless connectivity and DICOM/ PACS integration. Includes all required detectors, cables, batteries, chargers, software, accessories, installation, calibration, and commissioning. Electrical 120VAC, 60 Hz. 5-year warranty on parts and labor.	
Intermediate beds	Intermediate care beds are used for patients requiring continuous	Electrical critical care bed with integrated patient weighing system, accuracy ≤0.5 Kg. Safe	85

	monitoring, but not at the level of intensive care. They allow for basic and advanced monitoring, have safety rails, height and position adjustments, and facilitate the care of stable patients at moderate risk.	working load: minimum (550 lb.) patient capacity. Electrical height adjustment approximately 16-32in. Motorized Trendelenburg/Reverse Trendelenburg ±14°, backrest and thing adjustment. Adjustable split side rails, bed extension, and patient positioning functions. Integrated patient controls, caregiver controls, and bed-exit/position safety features. Heavy-duty casters with central braking system and fifth steering wheel/caster for enhanced maneuverability and directional control. Easy-to-clean, corrosion-resistant construction suitable for critical care. Includes integrated scale, mattress platform, all required controls, cables, battery, accessories, and mounting components. Electrical 120 VAC, 50/60 Hz. 3-year warranty on parts and labor.	
Intensive Care Beds	Intensive care beds are designed for critically ill patients	Electric critical care bed with automatic lateral tilt/ therapy up to ±30° and	38

	requiring continuous monitoring and advanced support. They offer multiple positions, electric adjustments, secure side rails, integrated weighing, compatibility with monitoring equipment, and easy access for procedures.	programmable lateral therapy. Minimum safe working load: 550lb. 8" or large touchscreen with integrated patient/caregiver controls. Electric positioning including Trendelenburg/ reverse Trendelenburg, vascular position, and one-touch full chair position. Electronic and manual CPR, electronic braking system, and multi-zone bed-exit alarm. C-arm compatible radiolucent mattress platform for bedside imaging. Integrated sit-to-stand mobilization system and foot-pedal controls. Fifth steering caster for enhanced maneuverability and central braking system. Dual accessory outlets: 120 VAC. Includes required battery, cables, controls, accessories, and mounting components. Electrical 120 VAC, 50/60 Hz. 3-year warranty on parts and labor.	
Ventilator	Mechanical ventilators are devices that assist or	ICU ventilator for adult and pediatric patients with advanced invasive,	43

	replace the patient's breathing, administering air and oxygen with controlled volume, pressure, and frequency.	non-invasive, and high-flow oxygen therapies. Advance ventilation modes including ASV, pressure/volume control, SIMV, APRV, NIV, and high-flow o_2. Tidal volume range of 20-2,000 ml and high inspiration flow capability. 17" or large detachable touchscreens with real-time waveforms, loops, trends, alarms, and advance lung mechanics monitoring. Integrated humidification system with H 900- equivalent humidifier, including required support and controls. Integrated turbine, leak compensation, oxygen monitoring, and automatic pre-use checks. Rechargeable battery system providing minimum 1.5 hours operation, expandable to approximately 3 hours with additional battery. Includes trolley, power cord, oxygen DISS connector, tubing support arm, communication interfaces, sensors, cables, and all required accessories. Electrical 120	

		VAC, 60 Hz. 2-year warranty on parts and labor.	
MRI Ventilator Fans	MRI-compatible ventilators are devices designed to operate safely within the magnetic resonance imaging (MRI) environment, where extremely strong magnetic fields are present. They are constructed from non-ferromagnetic materials, use remote control systems, and enable advanced ventilation modes for critically ill patients requiring respiratory support during MRI scans.	High acuity ventilator for adult, pediatric, and Neonatal patients, suitable for intrahospital transport and MRI procedures. MR conditional for 1.5 T and 3.0 T MRI systems, with integrated magnetic field monitoring and safety alarms. Advanced ventilation including volume/pressure control, ASV, DuoPAP/APRV, NIV/NIV-ST, and high-flow o_2. Integrated turbine with no compressed air requirement and automatic leak compensation. 8" or large color display with waveforms, loops, trends, monitoring, and alarms. Rechargeable lithium-ion battery providing minimum 3 hours continuous operation; extended operation with additional battery capacity. Includes trolley, oxygen hose, high pressure O, connector, power cord, batteries, expiratory valve,	2

		HEPA/dust filters, oxygen cell, breathing circuit support, and required software and all accessories. Electrical 120 VAC, 60 Hz. 2-year warranty on parts and labor.	
Multi-parameter beds with lateral rotation	Multiparameter beds with side rotation are designed for critically ill patients requiring continuous, effortless mobilization. They feature automatic side turns, help prevent pressure ulcers, improve pulmonary ventilation, reduce respiratory complications, and facilitate patient care.	Advance electric ICU bed with minimum 650 lb safe working load. Powered therapeutic surface with pressure redistribution, microclimate management, and pulmonary therapy. Integrated continuous lateral rotation and percussion vibration therapy. Full electric positioning including Trendelenburg, reverse Trendelenburg, cardiac chair, and sit-to-stand. Automatic lateral positioning, head of bed angle monitoring, and 3 mode bed exit alarm. C-arm compatible radiolucent sleep deck with unrestricted imaging access. Early mobility system with assisted sit to stand and patient mobilization. Powered transport system with fifth wheel steering and	3

		central braking. Integrated patient caregiver controls with battery backup and accessory outlets. Includes mattress surface, battery, cables, controls, IV pole accessories, and all components required for full ICU configuration. Electrical 120 VAC, 60 Hz. 2-year warranty on parts and labor.	
Enteral Feeding Machine	An enteral feeding machine is a device that delivers liquid nutrition in a controlled manner through feeding tubes (nasogastric, gastrostomy, or jejunostomy). It regulates rate and volume, ensures a safe and continuous supply, prevents flow variations, and is essential for patients who cannot feed orally.	Volumetric enteral feeding pump for continuous and intermittent feeding, hydration, and thick formulas. Feed rate: 1-400mL/he, think formula: 1-200mL/hr, programmable feed and flush volumes. Automatic Feed & Flush with programmable intervals and auto-priming. Accuracy of ±5% or better with standard formula. Compatible with think, homogenized and blenderzed formulas, including IDDSI levels 2-4. Attitude independent operation with no drip chamber 20-hour minimum battery life and rechargeable battery. 30	43

		days feeding and flushing history, with interruption monitoring and audible and visual alarms. IPX6 Water resistant design, suitable for cleaning under running water. Includes pole clamp, AC power adapter, rechargeable battery, feeding sets with ENFit™ connections, and all required accessories for operation. Electrical 120 VAC, 60 Hz. 1-year warranty on parts and labor.	
Warming Unit for Blanket	Patient warming machines are devices that deliver controlled warm air to special heated blankets to maintain or raise a patient's body temperature. They help prevent hypothermia, improve hemodynamic stability, and reduce complications during surgery, trauma, and recovery.	Force-air patient warming unit for adult and pediatric patients, with rolling cart. Four temperature settings: ambient, 32°C, 38°C, and 43°C, with temperature accuracy of ±3°. Airflow up to 44 CFM (20.8 L/S) with quiet operation, approximately 50dBA. Audible and visual alarms for over temperature, and system faults. Detachable flexible hose, filter-change indicator, and MERV 14 filtration. Compatible with force-air warming blankets and gowns; suitable for surgical and	53

		clinical environments. Includes rolling cart, hose, power cord, filter, temperature test accessory, and required mounting and accessories. Electrical 120 VAC, 60 Hz. Comply with applicable IEC 60601-1 electrical safety requirements and IPX1 protection. 1-year warranty on parts and labor.	
Automated device for delivering compressions	The Mechanical CPR is an automated device that performs continuous, high-quality mechanical chest compressions during cardiopulmonary resuscitation (CPR). It maintains ideal rhythm, depth, and rate, reduces staff fatigue, allows CPR to continue during patient transfers or procedures, and improves safety and effectiveness in cardiac arrest, emergency, and trauma situations.	Automated mechanical CPR system for adult patients, providing patient-customized circumferential chest compressions. Compression rate: 80 ±5 compressions/min, with 30:2 and continuous compression modes. Automatic patient sizing for chest circumferences of 30-56in (76-142 cm) and patient weight up to 400lb. Chest compression depth equivalent to approximately 20% reduction in anterior-posterior chest depth. Radiolucent platform suitable for imagining and fluoroscopy during CPR.	32

		Dual-sided control panels for operation in confined spaces and during patient transport. Rechargeable Li-ion battery system, including spare battery and dual-bay charger. Includes platform, compression band, batteries, charger, and all required accessories for operation. USB data transfer and performance report capability. IP44 or higher protection and compliance with applicable IEC 60601-1 requirements. 3-year warranty on parts and labor.	
Vital Signs Monitor with Cart	The vital signs monitor with cart is a portable device mounted on a mobile base that allows for the monitoring of vital parameters such as blood pressure, pulse, oxygen saturation, temperature, and respiration. The cart facilitates mobility, stability, and quick access, enabling its use in emergency,	Vital Signs monitor with SpO_2, NIBP, pulse rate, and predictive oral temperature. 8" color capacitive touchscreen, with hard keys, control knob, and 360° visual alarm indicator. NIBP with manual, automatic, and continuous measurement modes. SpO_2monitoring with reusable adult sensor and extension cable. Predictive temperature measurement with	48

	hospital, trauma, and procedures where continuous monitoring and easy transport of the equipment are required.	accuracy ±0.1°C or better. Rechargeable lithium-ion battery with minimum 3.5 hours of operation. Built-in Wi-Fi, USB, network connectivity, and nurse-call interface for clinical data integration. Includes rolling stand with mounting plate, adult SpO_2 sensor, NIBP cuff and tubing, temperature probe/accessories, battery, power cord, and all required cables. Electrical: 120 VAC, 50/60 Hz operation. 3-year warranty on parts and labor.	
Fetal and Maternal Monitor	The fetal and maternal monitor is a device that records fetal heart rate, uterine contractions, and maternal signs such as pulse and blood pressure.	Fetal and Maternal monitor with dual FHR monitoring for twin pregnancies. Monitoring of FHR, TOCO, fetal movement, maternal ECG/HR, SpO_2, NIBP, and temperature, Supports DECG and IUP monitoring for advanced labor assessment. 12.1" color touchscreen with simultaneous wave form and numeric display. Integrated thermal recorder with selectable	1

		speeds of 1, 2, and 3 cm/min, and 25mm/sec for ECG/history data. Internal rechargeable Li-ion battery, minimum 14.8 V/ 4.4 Ah. USB and RS-232 connectivity with clinical data/software capability. Includes twin FHR/TOCO transducer, maternal SpO_2 Sensor, NIBP cuff and tubing, temperature accessories, ECG cables, DECG/IUP accessories, printer supplies, battery, power cord, and all required accessories. Includes rolling stand and /or wall-mount configuration. Electrical 120 VAC, 60 Hz. 2-year warranty on parts and labor.	
MRI-compatible intravenous infusion pump	The MRI-compatible intravenous infusion pump is a device designed to operate safely within the magnetic resonance imaging (MRI) environment, where magnetic fields are very strong. Constructed from non-ferromagnetic materials, it does not	Non-magnetic IV infusion system specifically designed for use during MRI procedures from 0.2T to 3.0T, operational up to 10,000 gauss. Infusion rate range: 0.1-1,400mL/hr, suitable for neonatal, pediatric, and adult patients. Non-magnetic ultrasonic motor with accurate fluid delivery and dose-rate calculator	2

	interfere with the image and maintains precise and continuous infusions during MRI scans of critically ill patients.	and programmable bolus. Integrated safety features including inlet/outlet occlusion detection, and free-flow prevention. Rechargeable lithium battery providing approximately 12 hours of operation. Numeric keypad with audible and visual alarms and infusion status indicators. Includes non-magnetic mobile IV pole, battery, charger, power cord, and MRI compatible disposable IV tubing sets. System shall be latex-free and DEHP-free. Electrical 120 VAC, 60 Hz. 1-year warranty on parts and labor.	
MRI Compatible Cardiac Monitor	The MRI-compatible cardiac monitor is a device designed to operate safely within the magnetic resonance imaging environment, where very strong magnetic fields exist. It is constructed of non-ferromagnetic materials, does not interfere with the images, and allows for the recording of	Portable, non-magnetic patient monitor specifically designed for MRI Zone IV, operating safely in magnetic fields up to 30,000 gauss. Continuous monitoring of ECG, SpO_2, NIBP, $EtCO_2$, temperature, and invasive blood pressure (IBP). Wireless ECG with dynamic gradient filtering and wireless patient parameter modules. 360° visual severity-based	2

	ECG, heart rate, respiration, and oxygen saturation during the scan.	alarms. High-resolution touchscreen display with real-time waveforms, trends, alarms, and patient data. Extended-range wireless communication between the patient monitor and MRI control room. Rechargeable battery system with integrated charging for monitor and wireless modules. Compatible with remote control/ viewing station for monitoring inside MRI Zones III and IV. HL7 and RS-232 connectivity for EMR/clinical information system integration. Includes all required ECG, SpO_2, NIBP, $EtCO_2$, cables, sensors, modules, batteries, chargers, mounting hardware, and accessories. Includes non-magnetic mounting/roll stand suitable for MRI-ready and fully operational, including installation, configuration, testing, and user training. Electrical 120 VAC, 60 Hz. 2-year warranty on parts and labor.	

Hemodynamic Monitors	Hemodynamic monitors are advanced devices that assess the cardiovascular status of critically ill patients in real time. They measure parameters such as invasive blood pressure, cardiac output, venous oxygen saturation, central venous pressure, and other variables that allow for the determination of cardiac perfusion and function.	Non-invasive continuous hemodynamic monitoring using bioreactance technology. Measure displays Cardiac output (CO_2), Stroke Volume (SV), Stroke Volume Index (SVI), and Total peripheral Resistance (TPR). Provides dynamic fluid-responsiveness assessment using Passive Leg Raise (PLR) and fluid bolus testing. NIBP and SpO_2 monitoring integrated. Real-time monitoring with trends and hemodynamic assessment reports. Patient sensors positioned on the chest/back; minimum 25 disposable sensors included. Passive Leg Raise lift capable of positioning the patient's legs at approximately 45°. Includes patient cable, NIBP cuff and tubing, SpO_2 accessories, power cord cable, rechargeable battery, and all required cables and accessories. Includes rolling stand with five caster wheels and locking brakes. Compatible with connectivity to external	4

		patient monitors through appropriate interfaces. Including installation, calibration, and user training. Electrical: 120 VAC, 60Hz. 1-year warranty on parts and labor.	
ECMO	ECMO (Extracorporeal Membrane Oxygenation) is an advanced life support system that oxygenates the blood and partially replaces the function of the heart and/or lungs. It removes blood from the patient, oxygenates it using an artificial membrane, and returns it to the body. It is used in severe respiratory failure, cardiogenic shock, cardiac arrest, and severe trauma, providing time for recovery while maintaining perfusion and oxygenation.		2
Equipment for high-frequency oscillation of the chest wall (Oxilator)	The high-frequency chest wall oxystrator is a device that applies rapid vibrations and	High-frequency oscillatory (HFOV) for adult and pediatric patients, including patients ≤35 Kg.	4

	external compressions to the chest to help loosen and mobilize pulmonary secretions. It uses a pneumatic vest connected to a machine that generates high-frequency air pulses. It is essential for patients with thick mucus, lung diseases, chest trauma, and difficulty expectorating, improving ventilation and airway clearance.	Active inspiration and active expiration for lung-protective ventilation. Adjustable frequency: 3-15 Hz (180-900 breaths/min) Adjustable mean airway pressure, oscillatory amplitude/ power, inspiratory time and bias flow. Continuous airway-pressure monitoring with audible and of visual alarm for pressure, gas supply, power and system faults. Dedicated patient circuits available for adult and pediatric patients, including appropriate circuit configurations for different patient weights. Complete heated humidification system, including humidifier, chamber, temperature probe and mounting hardware. Include air/O_2 bender, medical air and oxygen hoses with DISS connections. Includes complete patient circuits, circuit support arm/cradle, water trap, filters and all required pressure-sensing components. Includes rolling base cart and all	

		required mounting accessories. Includes power cord, gas hose, initial patient circuits, filters and consumables required for initial operation. Medical air and oxygen supply compatible with hospital DISS outlets. Electrical: 120 VAC, 60Hz, hospital grade power connection. Includes installation, calibration, preventive maintenance documentation, operational testing and user training. 1-year warranty on parts and labor.	
Thromboelastogram	A thromboelastogram is a test that evaluates the entire coagulation process in real time: how a clot forms, strengthens, and dissolves. It analyzes the function of platelets, fibrinogen, coagulation factors, and fibrinolysis, providing a comprehensive view of hemostatic status. It is essential in	Automated viscoelastic whole-blood hemostasis analyzer using single-use microfluidic cartridges. Ability to perform up to four assays simultaneously without manual reagent mixing or pipetting. Provides comprehensive assessment of clot strength, fibrin contribution, clot stability/lysis, and platelet function. Supports global hemostasis and platelet function testing, including	2

	trauma, major surgery, massive bleeding, and anticoagulation management, helping to make accurate decisions about transfusions.	ADP and AA platelet response. Results available rapidly, with automated analysis and graphical/numerical results. Integrated quality control and self-monitoring functions. Touchscreen interface with patient identification, test status, results and graphical interpretation. Ability to store and retrieve patient results and graphical interpretation. Ability to store and retrieve patient results and connect to hospital network/software for remote results viewing and data management. Compatible with barcode scanner and USB printer. Includes analyzer, power supply, required cables, barcode scanner, printer, and initial supply of hemostasis and platelet-function cartridges, including QC materials. Electrical: 120 VAC, 60Hz. Includes installation, configuration, calibration, verification, user training and documentation. 1-year warranty on parts and labor.	

Attachment F: Hospitaller and Medical Equipment

Machine for heating fluids and blood (Ranger)	The Ranger is a system that warms intravenous fluids and blood to a safe temperature before administering them to the patient. It uses a rapid and controlled heating mechanism, preventing hypothermia associated with transfusions or massive infusions.	Blood and fluid warming system using dry-heat technology, without water reservoir Designed to warm blood products, and IV fluids during administration. Adjustable flow capability from KVO to 500mL/min, with pediatric, standard, and high-flow disposable sets. Fluid output temperature maintained approximately 33-41 °C, with 41°C set point and warm-up time of less than 2 minutes. Audible and visual alarms for over-temperature and system faults, with automatic temperature monitoring and safety cutoff. Sterile, single-use warming sets, latex-free and DEHP-free, capable of handling pressure up to 300 mmHg. Includes warming unit, IV-pole mounting capability, power cord, cleaning tool, temperature verification accessory, and initial warming sets for pediatric, standard, and high-flow applications.	5

		Electrical: 120 VAC, 60Hz, maximum heating power approximately 900W. Compliable with applicable IEC/EN 60601-1 medical electric safety requirements. 1-year warranty on parts and labor.	
Electrocautery	Electrocautery is a surgical device that uses electrical energy to cut tissues and control bleeding through coagulation.	Advanced electrosurgical energy platform for monopolar, bipolar, vessel sealing, and bipolar resection. 7" or large color touchscreen with intuitive controls, procedure information, instrument recognition, and system status. Monopolar modes for cut and coagulation. Bipolar modes for cut and coagulation, including bipolar resection. Advance bipolar vessel sealing technology for sealing and dividing vessels and tissue bundles according to the validated specifications of the proposed instruments. Automatic tissue sensing and energy modulation to optimize energy delivery according to tissue	5

		characteristics and provide constituent sealing performance. Return- electrode monitoring with automatic interruption of energy delivery when unsafe conditions are detected. Audible and visual alarms for system faults, improper connections, instrument incompatibility, and safety conditions. Multiple connections for monopolar and bipolar instruments. Includes monopolar, footswitch, bipolar/resection footswitch, universal mounting/ transport cart, power cord, required cables, accessories necessary for complete operation. Electrical: 120 VAC, 60Hz. Maximum power consumption approximately 950VA. Compliance with applicable IEC 60601-1 and IEC 60601-2-2 standards, Includes installation, operational verification, user training, and technical support. 1-year warranty on parts and labor.	

QNRG+ Metabolic Monitor Calorimeter	The QNRG+ is a metabolic monitor that measures the patient's actual energy expenditure using indirect calorimetry.	Indirect calorimetry system for measurement of Resting Energy Expenditure (REE) in mechanically ventilated and spontaneously breathing patients. Measures VO_2, VCO_2, Respiratory Quotient (RQ), REE/RMR, and substrate utilization (%fat, % carbohydrate, % protein). Measurement range: VO_2 and VCO_2 10-1,000mL/min. REE range: 0-7,200 Kcal/day. Accuracy: VO_2/VCO_2±3% or 5mL/min; REE± or 36 Kcal/day. Integrates O_2 and CO_2 gas analyzers with automatic calibration. Ventilator mode with disposable flow measure and compatibility with mechanical ventilators. Capable of testing with canopy hood and face mask for spontaneously breathing patients. 10" or large color capacitive touchscreen with real-time metabolic data and graphical display. Internal rechargeable Li-ion battery, minimum 3 Hours	4

		operation. Data export formats: USB, PDF, CSV and XML. Includes metabolic monitor, rolling cart with cylinder holder, power cable, USB cable, required tubing/adapters and accessories. Includes certified calibration gas: 16% O_2, 5% CO_2, balance N_2, with regulator/cylinder connection as required. Includes required single-use flow measurement and gas sampling components for initial operation. Electrical: 120 VAC, 60Hz. 1-year warranty on parts and labor.	
Gradual compression pumps for anti-embolism stockings	Graduated compression pumps are devices that apply sequential and automatic pressure to the legs using special stockings or sleeves. Their purpose is to improve venous return and prevent deep vein thrombosis.	Sequential pneumatic compression system for DVT prophylaxis. Patient detection to verify proper garment application and therapy. Vascular refl detection (VRD) with automatic adjustment of compression cycle. Graduated sequential compression for thing, calf, and foot therapy Unilateral or bilateral therapy. LCD display with audible/visual alarms.	143

Attachment F: Hospitaller and Medical Equipment

		Rechargeable battery with minimum 8 hours operation. Includes controller, tubing, battery/ charger, power cord, and required compression garments battery, charge, power cord and all required accessories. Electrical: 120 VAC, 60Hz. 1-year warranty on parts and labor.	
Portable Bronchoscope	It is used to assess and manage the airway in trauma situations, especially when there is a difficult airway, suspected tracheobronchial injury, or internal bleeding.		1
PCA Pumps	They are used for acute pain when continuous and safe analgesia is required.		4
BIS Monitors	It estimates the level of sedation/anesthesia by analyzing brain electrical activity using EEG.		1
CRRT Machine	It is a machine for continuous renal replacement therapy used in critically ill patients with acute		10

	kidney failure, especially when they are hemodynamically unstable and cannot tolerate intermittent hemodialysis.		
C Arm	It is a mobile fluoroscopy unit used to obtain real-time radiographic images during surgical or interventional procedures.		2
I-Stat Laboratory	The I-STAT is a portable point-of-care (POC) analyzer that provides rapid results in minutes from blood samples without sending them to a laboratory. It uses disposable cartridges specific to each type of test (arterial blood gases, electrolytes, BUN, creatinine, lactate, troponin, coagulation, etc.).		4

Table A: Medical Equipment

GENERAL CONDITIONS FOR MEDICAL EQUIPMENT

1. Equipment Demonstration: If required, the Contractor will bring a demonstration unit of the equipment to be quoted or coordinate a visit to a facility within Puerto Rico that has it in use. The date and time of the demonstrations will be communicated by the Purchasing Division. The evaluation of the presented equipment is a mandatory requirement and will be used as part of the evaluation of the quote submitted as part of the execution of the Allowance.

2. Electrical Requirements:

    a. In the event of a low voltage event, the equipment must be protected by an uninterruptible power supply (UPS) designed to meet the equipment's electrical requirements.
    b. All proposed equipment must comply with all applicable medical and electrical safety standards.
    c. Applicable electrical risk classifications for direct patient care areas must be met.
    d. The equipment must clearly specify its voltage, current, phase, frequency, and required power.
    e. The supplier must indicate if the equipment requires dedicated circuits, special grounding systems, or additional protection through suitable switches and include these in their quotation.
    f. The equipment must have protection against voltage fluctuations, overload, transient voltage, and electrical spikes.
    g. It must be ensured that the equipment can safely restart after a power outage or power transfer.

3. IT Connectivity and Network Requirements:

    a. The supplier must specify the network requirements (Ethernet, ports, connection type, minimum speeds, IP addresses, VLANs, etc.).
    b. When the equipment requires connection to the HIS, PACS, EMR, or other hospital systems, it must comply with standard protocols (HL7, DICOM, FHIR, etc.).
    c. The supplier must include all cables, adapters, network modules, or interfaces necessary for proper connection.
    d. The Contractor shall ensure that all cabling meets hospital standards (medical grade cabling, labeling, separation of power and data lines).

4. Information Security:

    a. The equipment must comply with the institution's cybersecurity policies.
    b. It must have protection mechanisms against unauthorized access, malware, and common vulnerabilities.
    c. Security-related software updates must be provided free of charge for the equipment's lifetime. d. Transmitted data must be encrypted according to security standards.

5. The Contractor shall submit to ASEM electrical installation and IT configuration manuals; provide plans, connection diagrams, network profiles, UPS specifications and required electrical parameters, including any additional requirements at ASEM's request.

6. The Contractor will be responsible for properly integrating and verifying all electrical and network connections necessary for the operation of the equipment. The Contractor will also be responsible for coordinating with the Engineering and IT Departments to ensure compatibility and proper operation.

7. Compliance with Applicable Standards and Regulations:

    a. All proposed equipment must be FDA-approved.
    b. All medical equipment must comply with HIPAA, if applicable.
    c. All equipment that records patient information and images must use the latest version of HL7 and DICOM, as applicable.

8. When the equipment requires cooling, ventilation, humidity control, or special environments for electrical or IT components, this must be considered in your quote.

9. Quotation: As part of the Allowance execution process, the Contractor must include manufacturer literature, diagrams, drawings, and related documents containing all explicitly detailed information regarding each of the requested specifications or conditions (referring the specification number being addressed). The quotation price must include FOB/CIF ASEM freight and transportation costs, as well as all applicable state taxes.

10. Safety: The Contractor shall be responsible for maintaining and monitoring all safety precautions and programs during the transportation, delivery, installation and testing of the equipment.

11. The equipment must comply with EMC standards to avoid interference with other sensitive medical devices. b. The supplier must certify that the equipment does not emit electromagnetic radiation levels outside of regulated limits.

12. It is the Contractor's responsibility to submit all structural, mechanical, electrical, HVAC, and lighting drawings, as well as any related specifications for the pre-installation and/or preparation of the designated installation area, to ASEM for approval.

All submitted drawings, specifications, and other documents must comply with all applicable state and federal regulations. Approved and final drawings must be submitted to ASEM at least three (3) weeks prior to the scheduled installation date. Failure to comply with this requirement will make the Contractor responsible for completing the necessary work.

13. Installation: The Contractor shall be responsible for providing all materials and/or miscellaneous items necessary for the installation and complete operation of the system and/or equipment. Installation includes the transport or relocation of all parts and/or materials to the designated installation area. It also includes all accessories and/or parts necessary for the optimal functioning of the system offered. Finally, the Contractor shall install all safety and security measures, including signs, notices, and other warning announcements, during installation and testing to promote safety and alert patients and employees in adjacent areas.

14. Operation and Service Manuals: The Contractor must provide ASEM with two (2) sets of operational manuals and two (2) sets of service manuals (theoretical and schematic) for all system and/or equipment components. These must be submitted before system and/or equipment certification. These manuals must contain the following: schematic diagrams, installation drawings, information on calibration procedures, spare parts lists, system views with properly numbered parts, and safety precautions, among other related aspects.

15. Certification: Certification will be performed by ASEM's Biomedical Instrumentation Division personnel, who will be present during the system installation, calibration, and optimization phases (which may include clinical trials). This certification will not be issued until: (1) the Contractor delivers all system components and/or equipment to ASEM, (2) the Contractor has completed the necessary tests, and (3) ASEM has received the corresponding certificates.

16. Operational Training: The Contractor shall be responsible for providing all operational training to designated ASEM personnel (including clinical trials). This training shall be provided at ASEM facilities for a minimum period of two (2) years. It shall include the use, operation, and applications of the system, as well as the safety rules for the equipment. If required, the company should provide further training sessions free of charge. Each participant shall receive a certificate of completion of training.

17. The Contractor will provide factory-trained technical service and repair training to a minimum of two (2) Biomedical Technicians selected by ASEM. The quoted cost of the training will include all related expenses (including training, transportation, and meals). Topics to be covered must include troubleshooting, maintenance, calibration, and repair of each system component. Each participant will receive a certificate of completion of the training.

18. All equipment, accessories, and parts will be guaranteed for a minimum period of two (2) years. This period will begin ten (10) calendar days after the certification of the entire system. The warranty will include parts, labor, service, and maintenance.

19. Equipment or system maintenance will include attention to the physical aspects of the equipment (corrosion, paint, and aesthetics), as well as all electrical and mechanical parts and components, piping, and other elements related to the proposed system(s). Furthermore, it must cover the complete operational functioning of the equipment.

    The supplier must guarantee the availability of preventive and corrective maintenance services throughout the equipment's lifespan. This includes inspections, calibrations, adjustments, parts replacement, and operational verification of all components.

20. Any equipment problems or malfunctions during the term of the contract must be addressed and corrected within a period of no more than twenty-four (24) hours. The supplier will be responsible for maintaining a complete inventory of the most frequently requested spare parts in Puerto Rico in order to minimize equipment downtime. The service will include all electrical and mechanical parts and components, piping, and other elements necessary for all parts of the proposed system(s).

    Repairs must be carried out by trained biomedical personnel with experience in the particular system or equipment.

21. Updates:

    a. All mandatory updates or those required by regulatory agencies must be made available to ASEM immediately and free of charge for the entire lifespan of the equipment.

b. All updates that add new options or modes and do not require new hardware must be made available to ASEM immediately and free of charge for the lifespan of the equipment.

c. Operational training on these updates must be provided free of charge to all personnel designated by ASEM at ASEM facilities.

22. Certificates of compliance or other evidence demonstrating compliance with the conditions and specifications set forth in the RFP documents may be required.

23. All medical equipment, accessories, components, and biomedical services must comply with all applicable state and federal laws, regulations, and standards, including but not limited to those of the FDA, OSHA, NFPA, EPA, and any other relevant regulatory agencies. The Supplier or Contractor must provide evidence of compliance when requested.

24. The Supplier or Contractor will be responsible for the complete installation of the equipment, including site preparation, provision of all necessary materials, and verification of initial operation. All installations must be performed by certified technical personnel and in accordance with the manufacturer's specifications.

25. The supplier shall maintain an adequate inventory of critical or high-demand spare parts in Puerto Rico in order to minimize equipment downtime and ensure operational continuity.

26. Any equipment that uses, processes, or stores sensitive information must comply with applicable privacy and security regulations. The supplier must guarantee data protection, data backups, and measures against unauthorized access.

27. The supplier will be responsible for any damage to equipment, property, or third parties caused by installation errors, improper maintenance, inadequate training, or failure to comply with specifications.

HOSPITALLER			
EQUIPMENT	**USAGE DESCRIPTION**	**EQUIPMENT SPECIFICATIONS**	**AMOUNT**
Surgical Table	The surgical table in trauma is used for quick and safe access to the patient.	Electro-hydraulic surgical table, suitable for surgical procedures and C-arm imaging. Capacity: 1,000	5

		lb minimum lifting; 600lb minimum articulation. Motorized height and positioning: Trendelenburg, reverse Trendelenburg, lateral tilt, and minimum 210° tabletop rotation. Removable leg section and accessory rails. Rechargeable battery with hand and foot controls. Power:110 to 120 VAC at 50 t0 60Hz. 2-year warranty on parts and labor.	
Surgical Lamp	The surgical light provides intense, uniform, and shadow-free illumination of the surgical field, allowing for precise visibility during procedures. It is adjustable in position, height, and intensity, and is designed to prevent heat and glare.	Ceiling-mounted dual LED lighting surgical system with two light heads, approximately 24" diameter each. Minimum illumination of 160,000 lux, with adjustable focus and intensity. Vertical movement of approximately 110° and continuous 360° rotation. CRI ≥95 and color temperature of 4,100-4,500 K. Sterilizable center handle for positioning and control. LED life expectancy of approximately 40,000 hours. Electrical:110 to 120 VAC at 50 t0 60Hz. 2-year warranty on parts and labor.	5

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Anesthesia System	The anesthesia machine is the equipment that administers anesthetic gases and oxygen, controls the patient's ventilation, and allows monitoring of their respiratory functions during surgery.	Anesthesia workstation for adult and pediatric patients. Integrated ventilator with VCV, PCV, PCV-VG, SIMV-vC, SIMV-PG, SIMV-VG CPAP/PS and APRV modes. Tidal volume capability from 5 to 1,500 ml, with automatic compliance and leak compensation. Integrated HFNC up to 60L/min. Integrated monitoring of $Fi0_2$, $ETCO_2$, N_2O and anesthetic gases, with automatic agent identification. 18.5" capacitive color touchscreen, with approximately 360° rotation. Integrated breathing system, electronic PEEP, automatic pre-use system check, and anesthetic gas scavenging system. Electrical: 120 VAC, 60HZ, hospital grade connection, with rechargeable battery backup. 5-year warranty on parts and labor.	5
Nurse/Doctor Counter Printer	The patient document printer is used to generate and deliver clinical information such as medical orders,	Laser Printer w/Wireless Network and Duplex Printing	29

	results, labels, consents, and forms.		
Laptop Computer for Nursing	The nursing laptop is used to document care, access the patient's electronic record, record vital signs, administer medical orders, and facilitate communication with the healthcare team.	Intel Core Ultra 7 up to 3.8 Ghz GEN-16GB RAM DDDR5-512GB SSD M2-15.6" LCD FULL HD.	50
Counter Medical Desktop Computer	The desktop computer for physicians is used to consult and document clinical information, access the patient's electronic record, review results, order medications, and coordinate the care plan.	Gen Tower- Intel-Core i7-13700-16 Core- 5.2 Ghz 16 GB RAM 512 GB SSD - Slim DVD Rambo. Keyboard, Mouse, USB Optical Power. Aditional: Wireless Card tipe N and Monitor 12 Nagar 1 US Tiny-in-one 24 Gen5 Flat-23.8"	52
Pyxis Drug Systems First Floor (Ticu-N and OR Trauma)	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers medications. It allows access with identification, reduces errors, improves traceability, records each withdrawal in real time, and facilitates inventory	Includes: The main double and single towers with all their drawers for organizing materials, the auxiliary double and single towers with their drawers, and the Medium Round Offset for all areas.	1

	control in clinical areas.		
Pyxis Drug Systems First Floor (Stabilizer)	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers medications. It allows access with identification, reduces errors, improves traceability, records each withdrawal in real time, and facilitates inventory control in clinical areas.	Includes: The main double and single towers with all their drawers for organizing material, the auxiliary double and single towers with their drawers and the Med Round off set of all areas.	1
Pyxis Second Floor Medication System (Ticu-Sur)	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers medications. It allows access with identification, reduces errors, improves traceability, records each withdrawal in real time, and facilitates inventory control in clinical areas.	Includes: The main double and single towers with all their drawers for organizing material, the auxiliary double and single towers with their drawers and the Med Round off set of all areas.	1
Pyxis Third Floor Medication System (Rehabilitation)	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers	Includes: The main double and single towers with all their drawers for organizing material, the auxiliary double and single	1

	medications. It allows access with identification, reduces errors, improves traceability, records each withdrawal in real time, and facilitates inventory control in clinical areas.	towers with their drawers and the Med Round off set of all areas.	
Pyxis Fourth Floor Medication System (Telemetry)	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers medications. It allows access with identification, reduces errors, improves traceability, records each withdrawal in real time, and facilitates inventory control in clinical areas.	Includes: The main double and single towers with all their drawers for organizing material, the auxiliary double and single towers with their drawers and the Med Round off set of all areas.	1
Pyxis Medication System Fifth, Sixth and Seventh Floors (Intermediate Care)	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers medications. It allows access with identification, reduces errors, improves traceability, records each withdrawal in real time, and	Includes: The main double and single towers with all their drawers for organizing materials, the auxiliary double and single towers with their drawers, and the Medium Round Offset for all areas.	3

	facilitates inventory control in clinical areas.		
Installation of the Pyxis Drug System	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers medications. It allows access with identification, reduces errors, improves traceability, records each withdrawal in real time, and facilitates inventory control in clinical areas	Installation and connection of the systems with the pharmacy central office.	1
Pixys Medical-Surgical Systems First Floor (Ticu-N)	PYXIS Medical-Surgical Supplies is an automated system that stores, controls, and dispenses supplies such as gauze, sutures, instruments, and sterile devices. It uses identification-based access, records each withdrawal in real time, reduces losses, improves traceability, and facilitates inventory control in clinical areas.	Includes: Main Stations, Double and Single Auxiliary Stations with Bio-ID and Scanner.	1
Pyxis Medical-Surgical Stabilizing	PYXIS Medical-Surgical Supplies is an	It includes: Main Stations, Auxiliary Stations, and the	1

System (Trauma and Corridor) and OR	automated system that stores, controls, and dispenses supplies such as gauze, sutures, instruments, and sterile devices. It uses identification-based access, records each withdrawal in real time, reduces losses, improves traceability, and facilitates inventory control in clinical areas.	rolling systems for the Intensive and Intermediate Care Units of the Hospital. It also includes the storage towers.	
Pyxis Medical-Surgical System Second Floor (Ticu-S)	PYXIS Medical-Surgical Supplies is an automated system that stores, controls, and dispenses supplies such as gauze, sutures, instruments, and sterile devices. It uses identification-based access, records each withdrawal in real time, reduces losses, improves traceability, and facilitates inventory control in clinical areas	Includes: Main Stations, 4 Double Auxiliary Stations, and the rolling systems for the Intensive and Intermediate Care Units of the Hospital. Also includes the storage towers.	1
Pyxis Medical-Surgical System Third Floor Rehabilitation	PYXIS Medical-Surgical Supplies is an automated system that stores, controls, and dispenses	Includes: Main Stations, Double and Single Auxiliary Stations with Bio-ID and Scanner.	1

	supplies such as gauze, sutures, instruments, and sterile devices. It uses identification-based access, records each withdrawal in real time, reduces losses, improves traceability, and facilitates inventory control in clinical areas		
Pyxis Medical-Surgical System Fourth Floor (Telemetry)	PYXIS Medical-Surgical Supplies is an automated system that stores, controls, and dispenses supplies such as gauze, sutures, instruments, and sterile devices. It uses identification-based access, records each withdrawal in real time, reduces losses, improves traceability, and facilitates inventory control in clinical areas	Includes: Main Stations, Double and Single Auxiliary Stations. Also includes storage towers (4).	1
Pyxis Medical-Surgical System for Intermediate Care Floors: Fifth, Sixth and Seventh	PYXIS Medical-Surgical Supplies is an automated system that stores, controls, and dispenses supplies such as gauze, sutures, instruments, and	Includes: Main Stations, Double and Single Auxiliary Stations, with Bio-ID and Scanner. (Rolling system is included in the Roller section).	3

	sterile devices. It uses identification-based access, records each withdrawal in real time, reduces losses, improves traceability, and facilitates inventory control in clinical areas		
Installation of the Pyxis Medical-Surgical System and connection to the Hospital's inventory system	PYXIS Medical-Surgical Supplies is an automated system that stores, controls, and dispenses supplies such as gauze, sutures, instruments, and sterile devices. It uses identification-based access, records each withdrawal in real time, reduces losses, improves traceability, and facilitates inventory control in clinical areas.	Installation and connection of the systems with the hospital's inventory area.	1
IV Pump (Intravenous Infusion Machines)	An IV pump is an infusion pump that delivers fluids and medications precisely and in a controlled manner intravenously. It allows for adjustments to volume, rate, and time, reduces dosing errors, and maintains	Includes: Wireless Battery, one-screen barcode technology, author-reprogramming workflows, line check notification. Dose error reduction software, Time check alert and Keypad Lock.	332

	a constant flow, making it essential in hospital wards, emergency departments, and trauma centers.		
Transport Stretchers	Transport stretchers are used to move patients safely and stably within the hospital.	Hydraulic patient transport stretcher with integrated weighing scale, accuracy ≤ 0.5 kg and bed exit function. Safe working load: minimum 705 lb. Height approximately 55-89 cm (22-35in). Backrest adjustment 0-90° Trendelenburg/ reverse Trendelenburg ±18°. Four-section platform with adjustable things and calf sections. Retractable/folding side rails, minimum height approximately 36cm (14 in). 20cm (*in) casters with fifth steering caster for maneuverability. Integrated hydraulic controls, IV pole/push handles, and central braking system. Easy to clean construction suitable for hospital patient transport. 2-year warranty on parts and labor.	35

Fixed Physiological Monitors	Fixed physiological monitors are devices installed in clinical areas that record and display vital parameters in real time, such as heart rate, blood pressure, oxygen saturation, respiration, and temperature.	Multiparameter patient monitor for adult and pediatric patients. Minimum monitoring: 12-lead ECG, SPO_2, NIBP, temperature, respiration, $EtCO_2$, and invasive pressure. Minimum capacity of 8 waveforms and 24 parameters. 12" or large color touchscreen with clinical alarms and trend storage. Rechargeable battery system suitable for patient transport. Wireless and wired network connectivity for central monitoring. Includes all required patient cables, sensors, probes, cuffs, leads, power cables, and accessories for the specified monitoring parameters. Includes clinical software license, all required software, and necessary connectivity for integration with the hospital monitoring system. Includes bedside mounting plate/bracket and all required mounting hardware. Electrical: 120 VAC, 60Hz, hospital grade connection.	114

		5-year warranty on parts and labor.	
Nursing Monitoring Stations (Central Station 30 CH)	Central Station 30 CH is a fixed station where nursing staff can view, monitor, and analyze, in real time, the vital signs of up to 30 patients connected to monitors. It allows for the viewing of trends, alarms, and critical events, and facilitates continuous, centralized monitoring.	Central monitoring station capable of monitoring minimum 30 patients channel simultaneously. Support for up to four high resolution touchscreen displays, with real time surveillance, waveforms, trends, and patient demographics. Integrated clinical access for review of retrospective patient data. Network access to hospital information systems and clinical data sources. Includes single user clinical software license and all required software for central monitoring. Includes 21.5" or large high-resolution touchscreen displays, as required for the configured system. Includes network laser printer for printing reports and patient monitoring data. Includes all required licenses, cables, network accessories, mounting hardware, and components for a	3 monitors per station (total 9) 3 printers

		complete operational system. Electrical:120 VAC, 60Hz, hospital grade power connection. 5-year warranty on parts and labor.	
Nursing Monitoring Stations (Central Station 19 CH)	The Central Station 19 CH is a fixed station where nursing staff can view, monitor, and analyze, in real time, the vital signs of up to 30 patients connected to monitors. It allows for the viewing of trends, alarms, and critical events, and facilitates continuous, centralized monitoring.	Central monitoring station capable of monitoring minimum 19 patients channel simultaneously. High resolution display with real time patient surveillance, waveforms, trends, and patient demographics. Clinical software for retrospective patient review. Network connectivity for integration with hospital information systems and central monitoring. Includes all required software licenses, cables, network, accessories, and components for a complete operational system. Includes high-resolution touchscreen display, minimum 21". Includes laser printer for reports and monitoring data. Electrical:120 VAC, 60Hz, hospital grade power connection. 5-year warranty on parts and labor.	2 monitors 2 printers

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Nursing Monitoring Station 19 CH	The Central Station 19 CH is a fixed station where nursing staff can view, monitor, and analyze, in real time, the vital signs of up to 30 patients connected to monitors. It allows for the viewing of trends, alarms, and critical events, and facilitates continuous, centralized monitoring.	Central monitoring station capable of monitoring minimum 19 patients channel simultaneously. High resolution display with real time patient surveillance, waveforms, trends, and patient demographics. Clinical software for retrospective patient review. Network connectivity for integration with hospital information systems and central monitoring. Includes all required software licenses, cables, network, accessories, and components for a complete operational system. Includes high-resolution touchscreen display, minimum 21". Includes laser printer for reports and monitoring data. Electrical:120 VAC, 60Hz, hospital grade power connection. 5-year warranty required	2 monitors & 1 printer
Portable Physiological Monitors	Portable physiological monitors are devices that allow monitoring	4 complete Multiparameter patient monitor for adult and	4

	of vital parameters such as blood pressure, heart rate, oxygen saturation and respiration during the transport or transfer of patients.	pediatric patients. Minimum monitoring: 12-lead ECG, SPO_2, NIBP, temperature, respiration, $EtCO_2$, and invasive pressure. Minimum capacity of 8 waveforms and 24 parameters. 12" or large color touchscreen with clinical alarms and trend storage. Rechargeable battery system suitable for patient transport. Wireless and wired network connectivity for central monitoring. Includes all patient cables, ECG leads, SPO_2 sensors, Temperature probes, NIBP cuffs, $EtCO_2$ accessories, power cables, and accessories. Includes bedside mounting plate/bracket and all required mounting hardware for each monitor. Electrical: 120 VAC, 60Hz, hospital grade connection. 5-year warranty on parts and labor.	
Emergency Cart	The emergency cart is a mobile unit designed to respond quickly to cardiac	Tall Emergency Cart with MD30-EMG3 Emergency Package. M Series Cart - Standard width tall	23

	and respiratory emergencies.	cabinet with 30" of vertical drawer space, Breakaway lock, 6 drawers 3-3, 2-6, 1-9	
Portable Defibrillators	Mobile defibrillators are portable devices used to treat serious arrhythmias and cardiac arrest by delivering controlled electrical shocks. They are lightweight, easy to carry, battery-operated, and feature an ECG monitor, automatic or manual modes, and alarms.	ALS defibrillator with manual/AED defibrillation, synchronized cardioversion, and external pacing. Integrated 3/5-leand ECG, SpO_2, $EtCO_2$, NIBP, and CPR quality feedback. CPR quality feedback. CPR monitoring with compression rate/depth and artifact filtering. NIBP and SpO_2monitoring for adult and pediatric patients. Sidestream $EtCO_2$ monitoring for intubated and non-intubated patients. Includes required ECG, SpO_2, NIBP, $EtCO_2$, pacing cables/sensors and accessories Wi-Fi/USB connectivity, rechargeable battery, and data storage. Electrical: 120 VAC, 60 Hz. 5-year warranty on parts and labor.	21
Fixed Defibrillators	Fixed defibrillators are devices permanently installed in critical	Semi-automatic AED, English/Spanish language with voice and visual	3

	hospital areas to treat serious arrhythmia and cardiac arrest using controlled electrical shocks. They offer greater power, stability, and advanced features, including ECG monitoring, transcutaneous pacing, manual/automatic modes, and event logging.	prompts and integrated real-time CPR feedback. Rectilinear biphasic waveform with automatic adult energy selection of 120J, 150J, and 200J. CPR feedback for compression depth and rate, with a minimum recommended compression depth of 2 inches (5 cm). Adult CPR/defibrillation electrodes with integrated CPR sensor and minimum 5-year shelf life; pediatric capability with compatible pediatric electrodes. Includes 10 lithium batteries system with approximately 5-year standby life and capacity for extended operation. Includes wall-mounted metal cabinet with audible alarm and AED identification signage compliant with applicable Puerto Rico requirements. AED and accessories shall be supplied as a complete, ready-to-use system. 5-year warranty on parts and labor.	
Transport Monitors	Transport monitors are portable devices that allow monitoring of	High-acuity transport patients monitor for adult and pediatric patients. 8" or large touchscreen	39

	the patient's vital signs during transport within or outside the hospital.	display with visible alarm indicator. Supports minimum 11 clinical parameters, including 12-lead ECG, SpO_2, NIBP, temperature, respiration, and sidestream $EtCO_2$. Integrated rechargeable battery providing minimum 5 hours of continuous operation. Wireless Wi-Fi connectivity and compatibility with the hospital central monitoring system and electronic medical record. Storage of graphical and tabular trends and patient data. Compact, lightweight design with integrated carrying handle and mounting capability for IV pole or bed rail. Impact-resistant construction capable of withstanding a minimum 1- meter drop. Includes all required patient cables, sensors, probes, cuffs, and mounting hardware for a complete operational system. Electrical: 120VAC, 60Hz. 5-year warranty on parts and labor.	
Computer Tomography	The CT scanner uses X-rays and advanced computing to obtain detailed cross-sectional images of	Multi-slice CT System for full-body diagnostic imaging. High-performance X- ray generator and tube with	1

	the body. It allows for the visualization of organs, bones, and tissues with high precision, making it essential for diagnosing trauma, bleeding, fractures, internal injuries, and complex pathologies.	advance thermal management. Solid-state detector with high spatial resolution and extended coverage. Gantry aperture ≥ 70cm. Gantry rotation time ≤ 0.35 seconds. High-pitch helical acquisition capability. Motorized patient table with minimum load capacity of 500 lb. Automatic patient positioning with laser alignment system. Dose reduction technologies including automatic tube current modulation. Iterative reconstruction and AI-based image reconstruction. ECG-gated acquisition for cardiac imaging. High-speed acquisition and reconstruction for emergency and routine use. GPU-accelerated reconstruction system. Advance workstation with MPR, 3D and volumetric analysis tools. Full DICOM compliance with PACS/RIS integration. Patient communication system(audio/Visual) Integrated operator	

		console for acquisition and post-processing. Electrical compatibility with site configuration 480V/208 V, (3-phase power) UPS compatibility with minimum 7-10 minutes autonomy. Designed for continuous high-volume hospital operations. 5-year warranty on parts and labor.	
Fixed X-Ray Machine	A fixed X-ray machine is a permanently installed piece of equipment used to obtain radiographic images of the body using X-rays. It produces rapid studies of bones, the chest, and internal structures, essential for diagnosing fractures, traumatic injuries, infections, and acute conditions.	Ceiling-Mounted digital radiography system for general, trauma, pediatric, INCU, chest, spine, and full-body examinations. X-ray generator: minimum 150kW and 65kW. Digital Flat-panel detector: 35x43 cm (14"x 17") pixel size ≤160µm. Motorized height-adjustable table with minimum 825 lb patient capacity. Motorized ceiling tube suspension with integrated collimation, positioning controls, and live positioning camera. Automatic Exposure control with manual and automatic exposure techniques. Advanced image processing, dose	1

		optimization, and stitching for full-spine/full-leg imaging. Operator workstation with 21" or large color display, image acquisition, processing, storage, and review. DICOM connectivity for PACS/RIS and hospital network integration. Includes complete installation, calibration, testing, commissioning, software, detector, accessories, and required system components. 480V/208 V, (3-phase power) UPS compatibility with minimum 7-10 minutes autonomy. Designed for continuous high-volume hospital operations. 5-year warranty on parts and labor.	
Portable X-Ray Machine	The portable X-ray machine is a mobile device that allows X-rays to be taken directly at the patient's bedside.	Mobile digital X-ray system for bedside, ICU, emergency, Trauma, OR and general radiography. Generator with 10-500 mA, 0.1-500 mAs, and exposure times of 0.001-1.25 seconds. Wireless digital flat-panel detector, suitable for general radiography. 21.5" or larger color	1

		display with DICOM-compatible image acquisition and review. Motorized drive system with precise tube positioning and compact maneuverability. Rechargeable lithium-ion battery, providing minimum 8 hours of operation/ mobility and rapid charging. Advanced image processing with scatter correction and nose/artifact reduction. Wireless connectivity and DICOM/ PACS integration. Includes all required detector, cables, batteries, chargers, software, accessories, installation, calibration, and commissioning. Electrical 120VAC, 60 Hz. 5-year warranty on parts and labor.	
Intermediate beds	Intermediate care beds are used for patients requiring continuous monitoring, but not at the level of intensive care. They allow for basic and advanced monitoring, have safety rails, height	Electrical critical care bed with integrated patient weighing system, accuracy ≤0.5 Kg. Safe working load: minimum (550 lb.) patient capacity. Electrical height adjustment approximately 16-32in. Motorized Trendelenburg/Reverse	85

	and position adjustments, and facilitate the care of stable patients at moderate risk.	Trendelenburg ±14°, backrest and thing adjustment. Adjustable split side rails, bed extension, and patient positioning functions. Integrated patient controls, caregiver controls, and bed-exit/position safety features. Heavy-duty casters with central braking system and fifth steering wheel/caster for enhanced maneuverability and directional control. Easy-to-clean, corrosion-resistant construction suitable for critical care. Includes integrated scale, mattress platform, all required controls, cables, battery, accessories, and mounting components. Electrical 120 VAC, 50/60 Hz. 3-year warranty on parts and labor.	
Intensive Care Beds	Intensive care beds are designed for critically ill patients requiring continuous monitoring and advanced support. They offer multiple positions, electric adjustments, secure	Electric critical care bed with automatic lateral tilt/ therapy up to ±30° and programmable lateral therapy. Minimum safe working load: 550lb. 8" or large touchscreen with integrated patient/caregiver	38

	side rails, integrated weighing, compatibility with monitoring equipment, and easy access for procedures.	controls. Electric positioning including Trendelenburg/ reverse Trendelenburg, vascular position, and one-touch full chair position. Electronic and manual CPR, electronic braking system, and multi-zone bed-exit alarm. C-arm compatible radiolucent mattress platform for bedside imaging. Integrated sit-to-stand mobilization system and foot-pedal controls. Fifth steering caster for enhanced maneuverability and central braking system. Dual accessory outlets: 120 VAC. Includes required battery, cables, controls, accessories, and mounting components. Electrical 120 VAC, 50/60 Hz. 3-year warranty on parts and labor.	
Ventilator	Mechanical ventilators are devices that assist or replace the patient's breathing, administering air and oxygen with controlled volume,	ICU ventilator for adult and pediatric patients with advanced invasive, non-invasive, and high-flow oxygen therapies. Advance ventilation modes including ASV, pressure/volume control, SIMV, APRV, NIV, and	43

	pressure, and frequency.	high-flow o_2. Tidal volume range of 20-2,000 ml and high inspiration flow capability. 17" or large detachable touchscreens with real-time waveforms, loops, trends, alarms, and advance lung mechanics monitoring. Integrated humidification system with H 900- equivalent humidifier, including required support and controls. Integrated turbine, leak compensation, oxygen monitoring, and automatic pre-use checks. Rechargeable battery system providing minimum 1.5 hours operation, expandable to approximately 3 hours with additional battery. Includes trolley, power cord, oxygen DISS connector, tubing support arm, communication interfaces, sensors, cables, and all required accessories. Electrical 120 VAC, 60 Hz. 2-year warranty on parts and labor.	
MRI Ventilator Fans	MRI-compatible ventilators are devices designed to	High acuity ventilator for adult, pediatric, and Neonatal patients,	2

	operate safely within the magnetic resonance imaging (MRI) environment, where extremely strong magnetic fields are present. They are constructed from non-ferromagnetic materials, use remote control systems, and enable advanced ventilation modes for critically ill patients requiring respiratory support during MRI scans.	suitable for intrahospital transport and MRI procedures. MR conditional for 1.5 T and 3.0 T MRI systems, with integrated magnetic field monitoring and safety alarms. Advanced ventilation including volume/pressure control, ASV, DuoPAP/APRV, NIV/NIV-ST, and high-flow o_2. Integrated turbine with no compressed air requirement and automatic leak compensation. 8" or large color display with waveforms, loops, trends, monitoring, and alarms. Rechargeable lithium-ion battery providing minimum 3 hours continuous operation; extended operation with additional battery capacity. Includes trolley, oxygen hose, high pressure O, connector, power cord, batteries, expiratory valve, HEPA/dust filters, oxygen cell, breathing circuit support, and required software and all accessories. Electrical 120 VAC, 60 Hz. 2-year	

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		warranty on parts and labor.	
IV Stand	The IV stand is a mobile stand with hooks that allows you to hang bags of intravenous fluids and medications to ensure adequate flow to the patient. It is height-adjustable, lightweight, stable, and easy to move.	Five Legs 25" 4 Hook Top	99
Examination Lamps	Medical examination lamps provide focused, clear, and shadow-free illumination for patient evaluation during clinical procedures. They are adjustable, portable, or fixed, with high-quality LED light, low heat generation, and excellent precision for examinations.	With Mobile Stand White Led 20,000 Lux Touchless Control	51
May	A small, height-adjustable table that is placed nearby to keep sterile instruments and materials within immediate reach of the doctor or nurse.		53
Medical Surgical Roller	The surgical roller is a mobile cart used to	Main Single Scanner - System for distributing	24

	transport sterile instruments, equipment, and materials within the surgical area. It is lightweight, easy to move, has smooth, durable surfaces, and helps organize and streamline workflow in surgery and trauma care.	medical and surgical materials to different areas (mobile). They are part of the central Pyxis system.	
Medication carts with nurse monitor	Nursing medication carts are mobile units organized into drawers and compartments that allow for the safe storage, preparation, and transport of medications.	Include: Monitor touchscreen display, Keyboard, 8 bin 4", 5" caster with lock, electronic access in all drawers with automatic relocking.	16
Multi-parameter beds with lateral rotation	Multiparameter beds with side rotation are designed for critically ill patients requiring continuous, effortless mobilization. They feature automatic side turns, help prevent pressure ulcers, improve pulmonary ventilation, reduce respiratory complications, and facilitate patient care.	Advance electric ICU bed with minimum 650 lb safe working load. Powered therapeutic surface with pressure redistribution, microclimate management, and pulmonary therapy. Integrated continuous lateral rotation and percussion vibration therapy. Full electric positioning including Trendelenburg, reverse Trendelenburg, cardiac chair, and sit-to-stand. Automatic lateral	3

		positioning, head of bed angle monitoring, and 3 mode bed exit alarm. C-arm compatible radiolucent sleep deck with unrestricted imaging access. Early mobility system with assisted sit to stand and patient mobilization. Powered transport system with fifth wheel steering and central braking. Integrated patient caregiver controls with battery backup and accessory outlets. Includes mattress surface, battery, cables, controls, IV pole accessories, and all components required for full ICU configuration. Electrical 120 VAC, 60 Hz. 2-year warranty on parts and labor.	
Enteral Feeding Machine	An enteral feeding machine is a device that delivers liquid nutrition in a controlled manner through feeding tubes (nasogastric, gastrostomy, or jejunostomy). It regulates rate and volume, ensures a safe and continuous	Volumetric enteral feeding pump for continuous and intermittent feeding, hydration, and thick formulas. Feed rate: 1-400mL/he, think formula: 1-200mL/hr, programmable feed and flush volumes. Automatic Feed & Flush with programmable intervals	43

	supply, prevents flow variations, and is essential for patients who cannot feed orally.	and auto-priming. Accuracy of ±5% or better with standard formula. Compatible with think, homogenized and blenderzed formulas, including IDDSI levels 2-4. Attitude independent operation with no drip chamber 20-hour minimum battery life and rechargeable battery. 30 days feeding and flushing history, with interruption monitoring and audible and visual alarms. IPX6 Water resistant design, suitable for cleaning under running water. Includes pole clamp, AC power adapter, rechargeable battery, feeding sets with ENFit™ connections, and all required accessories for operation. Electrical 120 VAC, 60 Hz. 1-year warranty on parts and labor.	
Warming Unit for Blanket	Patient warming machines are devices that deliver controlled warm air to special heated blankets to maintain or raise a patient's body temperature. They	Force-air patient warming unit for adult and pediatric patients, with rolling cart. Four temperature settings: ambient, 32°C, 38°C, and 43°C, with temperature accuracy of ±3°. Airflow	53

	help prevent hypothermia, improve hemodynamic stability, and reduce complications during surgery, trauma, and recovery.	up to 44 CFM (20.8 L/S) with quiet operation, approximately 50dBA. Audible and visual alarms for over temperature, and system faults. Detachable flexible hose, filter-change indicator, and MERV 14 filtration. Compatible with force-air warming blankets and gowns; suitable for surgical and clinical environments. Includes rolling cart, hose, power cord, filter, temperature test accessory, and required mounting and accessories. Electrical 120 VAC, 60 Hz. Complies with applicable IEC 60601-1 electrical safety requirements and IPX1 protection. 1-year warranty on parts and labor.	
Night table	The patient bedside table is a compact piece of furniture located next to the hospital bed that allows for the storage of personal items, basic medical equipment, and	Bedside Cabinet	148

	frequently used materials.		
Dining tables	The patient's dining table is an adjustable and mobile table that is placed over the hospital bed to facilitate meals, reading, and basic activities.	Overbed table	148
Wardrobe	The patient wardrobe is a piece of furniture located in the hospital room that allows the patient to store clothing, personal items, and essential belongings in an organized and secure manner.	Closet with two doors Black-Brown	138
Patient seat	The patient chair is a comfortable, sturdy, and stable chair designed to seat the patient safely during assessments, therapies, or rest out of bed.	Fold down, flush mount side tables, Soft, wide armrest, tente casters, removable side panel, rear push handle, integrated leg and footrest	148
Family seat	The patient family member chair is a comfortable and sturdy chair located in the hospital room to allow the family member to accompany, support,	Steel and Wood Construction, Multiple Positions, Open Design and Caster Wheels	148

	and remain close to the patient.		
TV with wall mount	The patient wall-mount television is a device installed on the wall of the hospital room to provide entertainment, information, and comfort during the stay.	32", Full Led HD Smart Tizen TV with Sanus Elite Wall Mount	138
Whiteboard for patient notes	The patient note board is a tool placed in the hospital room to communicate essential information, such as the patient's name, medical team, daily schedule, times, and reminders. It facilitates communication between staff, the patient, and family, improves organization, and contributes to patient safety.	3M - Porcelain Magnetic Dry-erase White Board 96" x 48" aluminum frame with silver finish	10
Automated device for delivering compressions	The Mechanical CPR is an automated device that performs continuous, high-quality mechanical chest compressions during cardiopulmonary	Automated mechanical CPR system for adult patients, providing patient-customized circumferential chest compressions. Compression rate: 80 ±5 compressions/min, with	32

	resuscitation (CPR). It maintains ideal rhythm, depth, and rate, reduces staff fatigue, allows CPR to continue during patient transfers or procedures, and improves safety and effectiveness in cardiac arrest, emergency, and trauma situations.	30:2 and continuous compression modes. Automatic patient sizing for chest circumferences of 30-56in (76-142 cm) and patient weight up to 400lb. Chest compression depth equivalent to approximately 20% reduction in anterior-posterior chest depth. Radiolucent platform suitable for imagining and fluoroscopy during CPR. Dual-sided control panels for operation in confined spaces and during patient transport. Rechargeable Li-ion battery system, including spare battery and dual-bay charger. Includes platform, compression band, batteries, charger, and all required accessories for operation. USB data transfer and performance report capability. IP44 or higher protection and compliance with applicable IEC 60601-1 requirements. 3-year warranty on parts and labor.	

Patient Label Printers	Patient label printers generate identification labels for wristbands, lab samples, medications, and clinical documents. They ensure accuracy, legibility, and traceability, reduce identification errors, and integrate with the hospital system to print data automatically and in real time.	Thermal Desktop Printer	10
Negative pressure wound therapy system (vac)	The VAC system is a device that applies controlled negative pressure to a wound to improve healing, reduce edema, increase perfusion, and remove exudate. It uses a special sponge, an airtight seal, and a vacuum pump that maintains constant suction. It is essential for complex, traumatic, surgical, and chronic wounds, accelerating recovery and reducing the risk of infection.	Active fluid elimination and edema reduction.	12

Vital Signs Monitor with Cart	The vital signs monitor with cart is a portable device mounted on a mobile base that allows for the monitoring of vital parameters such as blood pressure, pulse, oxygen saturation, temperature, and respiration. The cart facilitates mobility, stability, and quick access, enabling its use in emergency, hospital, trauma, and procedures where continuous monitoring and easy transport of the equipment are required.	Vital Signs monitor with SpO_2, NIBP, pulse rate, and predictive oral temperature. 8" color capacitive touchscreen, with hard keys, control knob, and 360° visual alarm indicator. NIBP with manual, automatic, and continuous measurement modes. SpO_2monitoring with reusable adult sensor and extension cable. Predictive temperature measurement with accuracy ±0.1°C or better. Rechargeable lithium-ion battery with minimum 3.5 hours of operation. Built-in Wi-Fi, USB, network connectivity, and nurse-call interface for clinical data integration. Includes rolling stand with mounting plate, adult SpO_2 sensor, NIBP cuff and tubing, temperature probe/accessories, battery, power cord, and all required cables. Electrical: 120 VAC, 50/60 Hz operation. 3-year warranty on parts and labor.	48

Fetal and Maternal Monitor	The fetal and maternal monitor is a device that records fetal heart rate, uterine contractions, and maternal signs such as pulse and blood pressure.	Fetal and Maternal monitor with dual FHR monitoring for twin pregnancies. Monitoring of FHR, TOCO, fetal movement, maternal ECG/HR, SpO_2, NIBP, and temperature, Supports DECG and IUP monitoring for advanced labor assessment. 12.1" color touchscreen with simultaneous wave form and numeric display. Integrated thermal recorder with selectable speeds of 1, 2, and 3 cm/min, and 25mm/sec for ECG/history data. Internal rechargeable Li-ion battery, minimum 14.8 V/ 4.4 Ah. USB and RS-232 connectivity with clinical data/software capability. Includes twin FHR/TOCO transducer, maternal SpO_2 Sensor, NIBP cuff and tubing, temperature accessories, ECG cables, DECG/IUP accessories, printer supplies, battery, power cord, and all required accessories. Includes rolling stand and /or wall-mount configuration. Electrical 120 VAC, 60 Hz. 2-year	1

		warranty on parts and labor.	
Intraosseous	The intraosseous system is a device used to quickly access the inside of the bone and administer medications, fluids, and blood when an intravenous line cannot be obtained.		4
MRI-compatible intravenous infusion pump	The MRI-compatible intravenous infusion pump is a device designed to operate safely within the magnetic resonance imaging (MRI) environment, where magnetic fields are very strong. Constructed from non-ferromagnetic materials, it does not interfere with the image and maintains precise and continuous infusions during MRI scans of critically ill patients.	Non-magnetic IV infusion system specifically designed for use during MRI procedures from 0.2T to 3.0T, operational up to 10,000 gauss. Infusion rate range: 0.1-1,400mL/hr, suitable for neonatal, pediatric, and adult patients. Non-magnetic ultrasonic motor with accurate fluid delivery and dose-rate calculator and programmable bolus. Integrated safety features including inlet/outlet occlusion detection, and free-flow prevention. Rechargeable lithium battery providing approximately 12 hours of operation. Numeric keypad with audible and visual alarms and infusion	2

		status indicators. Includes non-magnetic mobile IV pole, battery, charger, power cord, and MRI compatible disposable IV tubing sets. System shall be latex-free and DEHP-free. Electrical 120 VAC, 60 Hz. 1-year warranty on parts and labor.	
MRI Compatible Cardiac Monitor	The MRI-compatible cardiac monitor is a device designed to operate safely within the magnetic resonance imaging environment, where very strong magnetic fields exist. It is constructed of non-ferromagnetic materials, does not interfere with the images, and allows for the recording of ECG, heart rate, respiration, and oxygen saturation during the scan.	Portable, non-magnetic patient monitor specifically designed for MRI Zone IV, operating safely in magnetic fields up to 30,000 gauss. Continuous monitoring of ECG, SpO_2, NIBP, $EtCO_2$, temperature, and invasive blood pressure (IBP). Wireless ECG with dynamic gradient filtering and wireless patient parameter modules. 360° visual severity-based alarms. High-resolution touchscreen display with real-time waveforms, trends, alarms, and patient data. Extended-range wireless communication between the patient monitor and MRI control room. Rechargeable battery system with integrated	2

		charging for monitor and wireless modules. Compatible with remote control/ viewing station for monitoring inside MRI Zones III and IV. HL7 and RS-232 connectivity for EMR/clinical information system integration. Includes all required ECG, SpO_2, NIBP, $EtCO_2$, cables, sensors, modules, batteries, chargers, mounting hardware, and accessories. Includes non-magnetic mounting/roll stand suitable for MRI-ready and fully operational, including installation, configuration, testing, and user training. Electrical 120 VAC, 60 Hz. 2-year warranty on parts and labor.	
Hemodynamic Monitors	Hemodynamic monitors are advanced devices that assess the cardiovascular status of critically ill patients in real time. They measure parameters such as invasive blood pressure, cardiac output, venous oxygen	Non-invasive continuous hemodynamic monitoring using bioreactance technology. Measure displays Cardiac output (CO_2), Stroke Volume (SV), Stroke Volume Index (SVI), and Total peripheral Resistance (TPR). Provides dynamic fluid-responsiveness assessment using Passive	4

	saturation, central venous pressure, and other variables that allow for the determination of cardiac perfusion and function.	Leg Raise (PLR) and fluid bolus testing. NIBP and SpO_2 monitoring integrated. Real-time monitoring with trends and hemodynamic assessment reports. Patient sensors positioned on the chest/back; minimum 25 disposable sensors included. Passive Leg Raise lift capable of positioning the patient's legs at approximately 45°. Includes patient cable, NIBP cuff and tubing, SpO_2 accessories, power cord cable, rechargeable battery, and all required cables and accessories. Includes rolling stand with five caster wheels and locking brakes. Compatible with connectivity to external patient monitors through appropriate interfaces. Including installation, calibration, and user training. Electrical: 120 VAC, 60Hz. 1-year warranty on parts and labor.	
ECMO	ECMO (Extracorporeal Membrane		2

	Oxygenation) is an advanced life support system that oxygenates the blood and partially replaces the function of the heart and/or lungs. It removes blood from the patient, oxygenates it using an artificial membrane, and returns it to the body. It is used in severe respiratory failure, cardiogenic shock, cardiac arrest, and severe trauma, providing time for recovery while maintaining perfusion and oxygenation.		
Equipment for high-frequency oscillation of the chest wall (Oxilator)	The high-frequency chest wall oxystrator is a device that applies rapid vibrations and external compressions to the chest to help loosen and mobilize pulmonary secretions. It uses a pneumatic vest connected to a machine that generates high-frequency air pulses. It is essential for patients with thick mucus, lung diseases, chest	High-frequency oscillatory (HFOV) for adult and pediatric patients, including patients ≤35 Kg. Active inspiration and active expiration for lung-protective ventilation. Adjustable frequency: 3-15 Hz (180-900 breaths/min) Adjustable mean airway pressure, oscillatory amplitude/ power, inspiratory time and bias flow. Continuous airway-pressure monitoring with audible	4

	trauma, and difficulty expectorating, improving ventilation and airway clearance.	and of visual alarm for pressure, gas supply, power and system faults. Dedicated patient circuits available for adult and pediatric patients, including appropriate circuit configurations for different patient weights. Complete heated humidification system, including humidifier, chamber, temperature probe and mounting hardware. Include air/O_2 bender, medical air and oxygen hoses with DISS connections. Includes complete patient circuits, circuit support arm/cradle, water trap, filters and all required pressure-sensing components. Includes rolling base cart and all required mounting accessories. Includes power cord, gas hose, initial patient circuits, filters and consumables required for initial operation. Medical air and oxygen supply compatible with hospital DISS outlets. Electrical: 120 VAC, 60Hz, hospital grade power connection.	

		Includes installation, calibration, preventive maintenance documentation, operational testing and user training. 1-year warranty on parts and labor.	
Thromboelastogram	A thromboelastogram is a test that evaluates the entire coagulation process in real time: how a clot forms, strengthens, and dissolves. It analyzes the function of platelets, fibrinogen, coagulation factors, and fibrinolysis, providing a comprehensive view of hemostatic status. It is essential in trauma, major surgery, massive bleeding, and anticoagulation management, helping to make accurate decisions about transfusions.	Automated viscoelastic whole-blood hemostasis analyzer using single-use microfluidic cartridges. Ability to perform up to four assays simultaneously without manual reagent mixing or pipetting. Provides comprehensive assessment of clot strength, fibrin contribution, clot stability/lysis, and platelet function. Supports global hemostasis and platelet function testing, including ADP and AA platelet response. Results available rapidly, with automated analysis and graphical/numerical results. Integrated quality control and self-monitoring functions. Touchscreen interface with patient identification, test status, results and graphical interpretation.	2

		Ability to store and retrieve patient results and graphical interpretation. Ability to store and retrieve patient results and connect to hospital network/software for remote results viewing and data management. Compatible with barcode scanner and USB printer. Includes analyzer, power supply, required cables, barcode scanner, printer, and initial supply of hemostasis and platelet-function cartridges, including QC materials. Electrical: 120 VAC, 60Hz. Includes installation, configuration, calibration, verification, user training and documentation. 1-year warranty on parts and labor.	
Machine for heating fluids and blood (Ranger)	The Ranger is a system that warms intravenous fluids and blood to a safe temperature before administering them to the patient. It uses a rapid and controlled heating mechanism, preventing hypothermia associated with	Blood and fluid warming system using dry-heat technology, without water reservoir Designed to warm blood products, and IV fluids during administration. Adjustable flow capability from KVO to 500mL/min, with pediatric, standard, and high-flow disposable sets.	5

	transfusions or massive infusions.	Fluid output temperature maintained approximately 33-41 °C, with 41°C set point and warm-up time of less than 2 minutes. Audible and visual alarms for over-temperature and system faults, with automatic temperature monitoring and safety cutoff. Sterile, single-use warming sets, latex-free and DEHP-free, capable of handling pressure up to 300 mmHg. Includes warming unit, IV-pole mounting capability, power cord, cleaning tool, temperature verification accessory, and initial warming sets for pediatric, standard, and high-flow applications. Electrical: 120 VAC, 60Hz, maximum heating power approximately 900W. Compliable with applicable IEC/EN 60601-1 medical electric safety requirements. 1-year warranty on parts and labor.	
Electrocautery	Electrocautery is a surgical device that uses electrical energy	Advanced electrosurgical energy platform for monopolar, bipolar, vessel	5

	to cut tissues and control bleeding through coagulation.	sealing, and bipolar resection. 7" or large color touchscreen with intuitive controls, procedure information, instrument recognition, and system status. Monopolar modes for cut and coagulation. Bipolar modes for cut and coagulation, including bipolar resection. Advance bipolar vessel sealing technology for sealing and dividing vessels and tissue bundles according to the validated specifications of the proposed instruments. Automatic tissue sensing and energy modulation to optimize energy delivery according to tissue characteristics and provide constituent sealing performance. Return- electrode monitoring with automatic interruption of energy delivery when unsafe conditions are detected. Audible and visual alarms for system faults, improper connections, instrument incompatibility, and	

		safety conditions. Multiple connections for monopolar and bipolar instruments. Includes monopolar, footswitch, bipolar/resection footswitch, universal mounting/ transport cart, power cord, required cables, accessories necessary for complete operation. Electrical: 120 VAC, 60Hz. Maximum power consumption approximately 950VA. Compliance with applicable IEC 60601-1 and IEC 60601-2-2 standards, Includes installation, operational verification, user training, and technical support. 1-year warranty on parts and labor.	
QNRG+ Metabolic Monitor Calorimeter	The QNRG+ is a metabolic monitor that measures the patient's actual energy expenditure using indirect calorimetry.	Indirect calorimetry system for measurement of Resting Energy Expenditure (REE) in mechanically ventilated and spontaneously breathing patients. Measures VO_2, VCO_2, Respiratory Quotient (RQ), REE/RMR, and substrate utilization (%fat, % carbohydrate, % protein).	4

		Measurement range: VO_2 and VCO_2 10-1,000mL/min. REE range: 0-7,200 Kcal/day. Accuracy: VO_2/VCO_2±3% or 5mL/min; REE± or 36 Kcal/day. Integrates O_2 and CO_2 gas analyzers with automatic calibration. Ventilator mode with disposable flow measure and compatibility with mechanical ventilators. Capable of testing with canopy hood and face mask for spontaneously breathing patients. 10" or large color capacitive touchscreen with real-time metabolic data and graphical display. Internal rechargeable Li-ion battery, minimum 3 Hours operation. Data export formats: USB, PDF, CSV and XML. Includes metabolic monitor, rolling cart with cylinder holder, power cable, USB cable, required tubing/adapters and accessories. Includes certified calibration gas: 16% O_2, 5% CO_2, balance N_2, with regulator/cylinder connection as required. Includes required single-	

Attachment F: Hospitaller and Medical Equipment

		use flow measurement and gas sampling components for initial operation. Electrical: 120 VAC, 60Hz. 1-year warranty on parts and labor.	
Ice Machines	Ice machines in hospitals produce clean, safe ice for clinical and operational use. They are used for cold therapy in injuries, managing inflammation and pain, preparing cold packs, temporarily preserving specimens, and supporting procedures that require controlled cooling.		7
IV Pole Treatment Chairs	IV pole treatment chairs are comfortable, reclining chairs designed for patients receiving intravenous therapies, such as hydration and medication.	pound weight capacity Clinical Care Recliner, Fold down, flush mount side tables, Soft, wide armrest, tente casters, removable side panel, rear push handle, integrated leg and footrest	16
Gradual compression pumps for anti-embolism stockings	Graduated compression pumps are devices that apply sequential and	Sequential pneumatic compression system for DVT prophylaxis. Patient detection to verify proper	143

	automatic pressure to the legs using special stockings or sleeves. Their purpose is to improve venous return and prevent deep vein thrombosis.	garment application and therapy. Vascular refl detection (VRD) with automatic adjustment of compression cycle. Graduated sequential compression for thing, calf, and foot therapy Unilateral or bilateral therapy. LCD display with audible/visual alarms. Rechargeable battery with minimum 8 hours operation. Includes controller, tubing, battery/ charger, power cord, and required compression garments battery, charge, power cord and all required accessories. Electrical: 120 VAC, 60Hz. 1-year warranty on parts and labor.	
Portable Bronchoscope	It is used to assess and manage the airway in trauma situations, especially when there is a difficult airway, suspected tracheobronchial injury, or internal bleeding.		1
PCA Pumps	They are used for acute pain when continuous and safe analgesia is required.		4

Attachment F: Hospitaller and Medical Equipment

BIS Monitors	It estimates the level of sedation/anesthesia by analyzing brain electrical activity using EEG.		1
CRRT Machine	It is a machine for continuous renal replacement therapy used in critically ill patients with acute kidney failure, especially when they are hemodynamically unstable and cannot tolerate intermittent hemodialysis.		10
C Arm	It is a mobile fluoroscopy unit used to obtain real-time radiographic images during surgical or interventional procedures.		2
I-Stat Laboratory	The I-STAT is a portable point-of-care (POC) analyzer that provides rapid results in minutes from blood samples without sending them to a laboratory. It uses disposable cartridges specific to each type of test (arterial blood gases, electrolytes, BUN, creatinine,		4

	lactate, troponin, coagulation, etc.).		

EQUIPMENT	USAGE DESCRIPTION	EQUIPMENT SPECIFICATIONS	AMOUNT
Nurse/Doctor Counter Printer	The patient document printer is used to generate and deliver clinical information such as medical orders, results, labels, consents, and forms.	Laser Printer w/Wireless Network and Duplex Printing	29
Laptop Computer for Nursing	The nursing laptop is used to document care, access the patient's electronic record, record vital signs, administer medical orders, and facilitate communication with the healthcare team.	Intel Core Ultra 7 up to 3.8 Ghz GEN-16GB RAM DDDR5-512GB SSD M2-15.6" LCD FULL HD.	50
Counter Medical Desktop Computer	The desktop computer for physicians is used to consult and document clinical information, access the patient's electronic record, review results, order medications, and coordinate the care plan.	Gen Tower- Intel-Core i7-13700-16 Core- 5.2 Ghz 16 GB RAM 512 GB SSD - Slim DVD Rambo. Keyboard, Mouse, USB Optical Power. Additional: Wireless Card tipe N and Monitor 12 Nagar 1 US Tiny-in-one 24 Gen5 Flat-23.8"	52

Attachment F: Hospitaller and Medical Equipment

Pyxis Drug Systems First Floor (Ticu-N and OR Trauma)	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers medications. It allows access with identification, reduces errors, improves traceability, records each withdrawal in real time, and facilitates inventory control in clinical areas.	Includes: The main double and single towers with all their drawers for organizing materials, the auxiliary double and single towers with their drawers, and the Medium Round Offset for all areas.	1
Pyxis Drug Systems First Floor (Stabilizer)	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers medications. It allows access with identification, reduces errors, improves traceability, records each withdrawal in real time, and facilitates inventory control in clinical areas.	Includes: The main double and single towers with all their drawers for organizing material, the auxiliary double and single towers with their drawers and the Med Round off set of all areas.	1
Pyxis Second Floor Medication System (Ticu-Sur)	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers medications. It allows access with	Includes: The main double and single towers with all their drawers for organizing material, the auxiliary double and single towers with their drawers	1

	identification, reduces errors, improves traceability, records each withdrawal in real time, and facilitates inventory control in clinical areas.	and the Med Round off set of all areas.	
Pyxis Third Floor Medication System (Rehabilitation)	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers medications. It allows access with identification, reduces errors, improves traceability, records each withdrawal in real time, and facilitates inventory control in clinical areas.	Includes: The main double and single towers with all their drawers for organizing material, the auxiliary double and single towers with their drawers and the Med Round off set of all areas.	1
Pyxis Fourth Floor Medication System (Telemetry)	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers medications. It allows access with identification, reduces errors, improves traceability, records each withdrawal in real time, and facilitates inventory	Includes: The main double and single towers with all their drawers for organizing material, the auxiliary double and single towers with their drawers and the Med Round off set of all areas.	1

	control in clinical areas.		
Pyxis Medication System Fifth, Sixth and Seventh Floors (Intermediate Care)	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers medications. It allows access with identification, reduces errors, improves traceability, records each withdrawal in real time, and facilitates inventory control in clinical areas.	Includes: The main double and single towers with all their drawers for organizing materials, the auxiliary double and single towers with their drawers, and the Medium Round Offset for all areas.	3
Installation of the Pyxis Drug System	The PYXIS system is an automated electronic dispensing system that securely stores, controls, and delivers medications. It allows access with identification, reduces errors, improves traceability, records each withdrawal in real time, and facilitates inventory control in clinical areas	Installation and connection of the systems with the pharmacy central office.	1
Pixys Medical-Surgical Systems First Floor (Ticu-N)	PYXIS Medical-Surgical Supplies is an automated system that stores, controls, and dispenses	Includes: Main Stations, Double and Single Auxiliary Stations with Bio-ID and Scanner.	1

	supplies such as gauze, sutures, instruments, and sterile devices. It uses identification-based access, records each withdrawal in real time, reduces losses, improves traceability, and facilitates inventory control in clinical areas.		
Pyxis Medical-Surgical Stabilizing System (Trauma and Corridor) and OR	PYXIS Medical-Surgical Supplies is an automated system that stores, controls, and dispenses supplies such as gauze, sutures, instruments, and sterile devices. It uses identification-based access, records each withdrawal in real time, reduces losses, improves traceability, and facilitates inventory control in clinical areas.	It includes Main Stations, Auxiliary Stations, and the rolling systems for the Intensive and Intermediate Care Units of the Hospital. It also includes storage towers.	1
Pyxis Medical-Surgical System Second Floor (Ticu-S)	PYXIS Medical-Surgical Supplies is an automated system that stores, controls, and dispenses supplies such as gauze, sutures, instruments, and	Includes: Main Stations, 4 Double Auxiliary Stations, and the rolling systems for the Intensive and Intermediate Care Units of the Hospital. Also includes the storage towers.	1

	sterile devices. It uses identification-based access, records each withdrawal in real time, reduces losses, improves traceability, and facilitates inventory control in clinical areas		
Pyxis Medical-Surgical System Third Floor Rehabilitation	PYXIS Medical-Surgical Supplies is an automated system that stores, controls, and dispenses supplies such as gauze, sutures, instruments, and sterile devices. It uses identification-based access, records each withdrawal in real time, reduces losses, improves traceability, and facilitates inventory control in clinical areas	Includes: Main Stations, Double and Single Auxiliary Stations with Bio-ID and Scanner.	1
Pyxis Medical-Surgical System Fourth Floor (Telemetry)	PYXIS Medical-Surgical Supplies is an automated system that stores, controls, and dispenses supplies such as gauze, sutures, instruments, and sterile devices. It uses identification-based access, records each	Includes: Main Stations, Double and Single Auxiliary Stations. Also includes storage towers (4).	1

	withdrawal in real time, reduces losses, improves traceability, and facilitates inventory control in clinical areas		
Pyxis Medical-Surgical System for Intermediate Care Floors: Fifth, Sixth and Seventh	PYXIS Medical-Surgical Supplies is an automated system that stores, controls, and dispenses supplies such as gauze, sutures, instruments, and sterile devices. It uses identification-based access, records each withdrawal in real time, reduces losses, improves traceability, and facilitates inventory control in clinical areas	Includes: Main Stations, Double and Single Auxiliary Stations, with Bio-ID and Scanner. (Rolling system is included in the Roller section).	3
Installation of the Pyxis Medical-Surgical System and connection to the Hospital's inventory system	PYXIS Medical-Surgical Supplies is an automated system that stores, controls, and dispenses supplies such as gauze, sutures, instruments, and sterile devices. It uses identification-based access, records each withdrawal in real time, reduces losses, improves traceability,	Installation and connection of the systems with the hospital's inventory area.	1

	and facilitates inventory control in clinical areas.		
Emergency Cart	The emergency cart is a mobile unit designed to respond quickly to cardiac and respiratory emergencies.	Tall Emergency Cart with MD30-EMG3 Emergency Package. M Series Cart - Standard width tall cabinet with 30" of vertical drawer space, Breakaway lock, 6 drawers 3-3, 2-6, 1-9	23
IV Stand	The IV stand is a mobile stand with hooks that allow you to hang bags of intravenous fluids and medications to ensure adequate flow to the patient. It is height-adjustable, lightweight, stable, and easy to move.	Five Legs 25" 4 Hook Top	99
Examination Lamps	Medical examination lamps provide focused, clear, and shadow-free illumination for patient evaluation during clinical procedures. They are adjustable, portable, or fixed, with high-quality LED light, low heat generation, and excellent precision for examinations.	With Mobile Stand White Led 20,000 Lux Touchless Control	51

May	A small, height-adjustable table that is placed nearby to keep sterile instruments and materials within immediate reach of the doctor or nurse.		53
Medical Surgical Roller	The surgical roller is a mobile cart used to transport sterile instruments, equipment, and materials within the surgical area. It is lightweight, easy to move, has smooth, durable surfaces, and helps organize and streamline workflow in surgery and trauma care.	Main Single Scanner - System for distributing medical and surgical materials to different areas (mobile). They are part of the central Pyxis system.	24
Medication carts with nurse monitor	Nursing medication carts are mobile units organized into drawers and compartments that allow for the safe storage, preparation, and transport of medications.	Include: Monitor touchscreen display, Keyboard, 8 bin 4", 5" caster with lock, electronic access in all drawers with automatic relocking.	16
Night table	The patient bedside table is a compact piece of furniture located next to the hospital bed that allows for the storage of personal items,	Bedside Cabinet	148

	basic medical equipment, and frequently used materials.		
Dining tables	The patient's dining table is an adjustable and mobile table that is placed over the hospital bed to facilitate meals, reading, and basic activities.	Overbed table	148
Wardrobe	The patient wardrobe is a piece of furniture located in the hospital room that allows the patient to store clothing, personal items, and essential belongings in an organized and secure manner.	Closet with two doors Black-Brown	138
Patient seat	The patient chair is a comfortable, sturdy, and stable chair designed to seat the patient safely during assessments, therapies, or rest out of bed.	Fold down, flush mount side tables, Soft, wide armrest, tente casters, removable side panel, rear push handle, integrated leg and footrest	148
Family seat	The patient family member chair is a comfortable and sturdy chair located in the hospital room to allow the family member to	Steel and Wood Construction, Multiple Positions, Open Design and Caster Wheels	148

	accompany, support, and remain close to the patient.		
TV with wall mount	The patient wall-mount television is a device installed on the wall of the hospital room to provide entertainment, information, and comfort during the stay.	32", Full Led HD Smart Tizen TV with Sanus Elite Wall Mount	138
Whiteboard for patient notes	The patient note board is a tool placed in the hospital room to communicate essential information, such as the patient's name, medical team, daily schedule, times, and reminders. It facilitates communication between staff, the patient, and family, improves organization, and contributes to patient safety.	3M - Porcelain Magnetic Dry-erase White Board 96" x 48" aluminum frame with silver finish	10
Patient Label Printers	Patient label printers generate identification labels for wristbands, lab samples, medications, and clinical documents. They	Thermal Desktop Printer	10

	ensure accuracy, legibility, and traceability, reduce identification errors, and integrate with the hospital system to print data automatically and in real time.		
Negative pressure wound therapy system (vac)	The VAC system is a device that applies controlled negative pressure to a wound to improve healing, reduce edema, increase perfusion, and remove exudate. It uses a special sponge, an airtight seal, and a vacuum pump that maintains constant suction. It is essential for complex, traumatic, surgical, and chronic wounds, accelerating recovery and reducing the risk of infection.	Active fluid elimination and edema reduction.	12
Intraosseous	The intraosseous system is a device used to quickly access the inside of the bone and administer medications, fluids, and blood when an		4

	intravenous line cannot be obtained.		
Ice Machines	Ice machines in hospitals produce clean, safe ice for clinical and operational use. They are used for cold therapy in injuries, managing inflammation and pain, preparing cold packs, temporarily preserving specimens, and supporting procedures that require controlled cooling.		7
IV Pole Treatment Chairs	IV pole treatment chairs are comfortable, reclining chairs designed for patients receiving intravenous therapies, such as hydration and medication.	pound weight capacity Clinical Care Recliner, Fold down, flush mount side tables, Soft, wide armrest, tente casters, removable side panel, rear push handle, integrated leg and footrest	16

Table B: Hospitaller Equipment

GENERAL CONDITIONS FOR HOSPITALLER EQUIPMENT

This section applies to all hospitaller equipment included in this RFP, such as hospital beds, chairs, IV stands, cabinets, wardrobes, and similar furnishings. All conditions set forth herein form an integral part of the proposal.

1. Warranty Requirements

a. Mandatory Minimum Warranty

The Contractor shall provide a minimum one (1) year warranty against manufacturing defects for all equipment offered. The warranty must include repair or replacement at no cost to the institution.

b. Mandatory Warranty Coverage

The warranty must cover, at a minimum: (1) Structural defects in the equipment; (2) Failures in wheels, brakes, bases, or mobility systems; (3) Problems with adjustment mechanisms or height; and (4) Imperfections in materials, welds, joints, or finishes resulting from the manufacturing process.

c. Permitted Exclusions Warranty exclusions are limited to: (1) Damage due to misuse or negligence by the user; (2) Technical interventions performed by unauthorized third parties; and (3) Normal wear and tear from continuous use. No additional exclusions will be accepted without technical justification.

d. Warranty Certificate

The contractor shall include in their proposal a copy of the official warranty certificate, clearly indicating the duration, coverage, and claims procedure.

2. Supplier Responsibilities

a. Delivery and Installation The selected supplier must: (1) Deliver all equipment in optimal condition; (2) Perform installation and assembly when applicable; and (3) Provide user and maintenance manuals.

b. Technical Service During the Warranty Period The supplier must offer: (1) Free diagnostics; (2) Repair or replacement of defective parts; and (3) Labor included.

c. Response and Resolution Times The supplier must meet the following timeframes: (1) Initial response to claims: 24 to 72 hours; and (2) Resolution of defects: 7 to 15 business days from the equipment evaluation.

d. Availability of Spare Parts The bidder must certify the availability of spare parts throughout the estimated useful life of the equipment, including a parts list and costs.

3. Required Documentation for Execution of the "Hospital and Medical Equipment" Allowance

   The Contractor shall submit: (1) A complete list of equipment with technical specifications that meet all requirements; (2) Warranty certificates; (3) Technical and maintenance manuals; (4) Spare parts inventory information; and (5) A statement regarding estimated delivery and installation times.

4. Quality Requirements and Certifications

   The Contractor shall provide evidence of: (1) Materials suitable for hospital use (stainless steel, electrostatic paint, antibacterial laminate, etc.); (2) Compliance with applicable standards (ANSI/BIFMA for chairs, structural safety standards, etc.); and (3) Compatibility with disinfectants used in hospitals.

5. Assembly and Construction Specifications

   The Contractor shall submit a narrative to ASEM describing the following for each piece of equipment: (1) Type of welding used and anti-corrosion treatment; (2) Tube dimensions, thicknesses, and materials; (3) Wheel type and resistance level; (4) Maximum load capacity per piece of equipment; and (5) Actual photographs of the offered model (not from a generic catalog).

6. Demonstration and Testing Requirements By submitting their proposal, the Contractor acknowledges and agrees that ASEM may request: (1) Functional demonstration of the equipment; (2) Physical samples before awarding the contract (if the purchase is significant); and (3) Technical inspection prior to final delivery.

7. Electrical and IT Requirements

    a. All electrical and information technology (IT) infrastructure requirements must comply with applicable codes and standards, including the National Electrical Code (NEC), NFPA 99, NFPA 70, IEEE, critical power hospital standards, and relevant local and federal regulations. Evidence of compliance may be required.
    b. The Contractor will be responsible for properly integrating and verifying all electrical and network connections necessary for the operation of the equipment. The Contractor will also be responsible for coordinating with the Engineering and IT Departments to ensure compatibility and proper operation.
    c. The supplier and contractor shall provide plans, connection diagrams and technical documentation related to the electrical and network installation.

8. Packaging and Transportation

    The Contractor shall guarantee: (1) Sturdy packaging to protect the equipment during transport; (2) Additional protection for moving or delicate parts; and (3) Transport handled by trained supplier personnel.

9. Insurance and Liability

    Prior to delivery and installation of the equipment, the Contractor must provide: (1) Proof of current liability insurance; and (2) Guarantee of coverage for property damage during delivery or installation.

10. Training and Maintenance

    The Contractor shall provide basic training to assigned personnel on the use, assembly, cleaning, and care of the equipment. In addition, the Contractor shall be responsible for developing and submitting a Preventive Maintenance Plan for each piece of equipment. This Preventive Maintenance Plan shall include: (1) List of recommendations; (2) Parts requiring periodic inspection; (3) Suggested maintenance frequency.

11. Substitution and Compliance Policies

a. ASEM reserves the right to accept or reject substitutions for products of equal or higher quality that meet the minimum specifications and descriptions established in the documents of this RFP.

b. The Contractor is responsible for providing ASEM with technical evidence of equivalence or any other information that ASEM deems necessary for its consideration.

c. Any equipment that does not fully comply with the specifications, as required by ASEM, will be rejected outright.

d. If the Contractor purchases, delivers, and installs equipment that does not meet the project specifications, the contractor shall assume all costs related to its removal, return, transportation, and replacement, without any additional expense to the client.

e. The Contractor shall be fully responsible for any impact that the installation of non-conforming equipment may have on the schedule, the quality of the project, or the operation of related systems.

f. The Contractor may not claim time extensions, additional costs, lost productivity, or any other impact associated with the removal, correction, or replacement of nonconforming equipment.

g. If the removal and replacement of nonconforming equipment cause project delays, the contractor will be subject to the delay penalties stipulated in the contract, including daily charges, loss of performance bonuses, and impact on compliance metrics.

h. ASEM may withhold payments related to the equipment, associated subcontractors, or affected activities until the compliant replacement is installed and verified.

i. Non-compliance may be documented in the Contractor's performance record, affecting future evaluations, eligibility for new contracts, or the withholding of additional work on the same project.

j. The Contractor must submit a corrective action plan to prevent recurrence, including internal controls, specification reviews, and validation processes prior to purchase and installation.

END OF DOCUMENT

Attachment G: Utilities Plan

- Boring Data Site - 1960

- Central Plaza Lighting - 1996

- Potable Water Line - 1900

- Stormwater Drainage System

- Primary Electrical System - 1987

- 4160 Volt Primary - 1984

- Plumbing and Electrical - 1960

- Water Supply to Plaza and Central Building - 1960

- Site Improvement and Utilities - 1960

BORING #1

EL. 57.0'

		W	qu
0	(STONES, FILL)		
5'	REDDISH BROWN, TAN MOTTLED SANDY CLAYEY SILT	17.1	4.87
9.5		25.1	9.08
11'		26.0	9.83
11.5	RDSH BROWN, LT GREY MOTTLED SILT TR CLAY	31.4	1.69
15.5	RDSH, OCCASIONALLY TAN AND GREY MOTTLED SILT, TRACE (+) CLAY	41.3	
16.5		31.6	
19.5		34.	
19.6		40.6	
23.5		45.6	
27.5		40.1	
31.6		45.6	
35.5		38.8	1.90

BORING #2

EL. 47'5'

		W	qu
0	REDDISH BROWN SANDY CLAY	28.0	5.6
		27.0	9.4
7'		36.0	
	BROWN GREY MOTTLED SILT TRACE CLAY	27.0	7.5
		28.0	2.1
		29.0	
21'		27.0	8.1

BORING #3

EL. 45.0'

		W	qu
0	LT. GRAY TAN, MOTTLED SANDY CLAYEY SILT (SOFT)	29.3	
5'		9.1	
7'	LT. GRAY TAN MOTTLED SILTY SAND (VERY HARD TILL) (SOME WEATHERED ROCK)	30.0	
10'		27.4	
	DO (Medium Loose)		
19'	TAN AND GRAY MOTTLED CLAYEY SILT (VERY STIFF)	43.8	
20'		30.8	3.00
25'	TAN SAND AND SILT (DENSE)	29.5	
	TAN AND GREEN MOTTLED CLAYEY SILT (Hard)		
30'		29.8	2.45

BORING #4

EL. 81.0'

		W	qu
1'	TOP SOIL	22.7	2.78
2'	REDDISH BRN, SANDY CLAYEY SILT	26.3	
5'		26.2	
7'	TANNISH BROWN LIGHT GREY, MOTTLED SANDY SILT TRACE CLAYEY	24.1	0.82
9'		21.6	1.12
11'		20.9	
15'		22.8	
15'	TAN, FINE SAND & SILT	24.9	
17'		24.3	
19'	TAN, LIGHT GREY MOTTLED SILT, TRACE CLAY	27.3	2.24
25'	LT. GREY, OCCASIONALLY TAN SANDY SILT	24.1	
30'		21.1	

BORING #5

EL. 82.0'

		W	qu
0	REDDISH BROWN SILTY CLAY	35.0	2.90
		28.0	3.60
		27.0	2.50
		26.0	2.60
11'		21.0	1.60
	BROWNISH GRAY CLAYEY SILT		
		42.0	0.50
		51.0	1.20
20'		54.0	

BORING #6

EL. 82.5'

		W	qu
0	REDDISH BROWN SILTY CLAY	26.0	1.90
		31.0	2.60
		29.0	2.30
		29.0	2.60
		34.0	2.50
		28.0	2.60
		30.0	2.20
16'	BROWNISH GRAY CLAYEY SILT	26.0	1.90
20'		26.0	1.00

BORING #7

EL. 57.5'

		W	qu
0	BROWN CLAYEY SILT	36.0	
		41.0	0.80
12'		37.0	2.40
	TANNISH BROWN SANDY SILT TRACE CLAY	28.0	2.20
		26.0	1.20
		27.0	
32'		26.0	1.40
	LIGHT GRAY SILT	48.0	
40'		26.0	
	LIGHT BROWN SANDY SILT (DECOMPOSED BEDROCK)	26.0	1.60
91'		27.0	9.80

SYMBOLS:

- ⊕ DENOTES BORING LOCATION
- W DENOTES PERCENT, MOISTURE CONTENT
- qu DENOTES UNCONFINED COMPRESSIVE STRENGTH IN TONS PER SQUARE FOOT.

TEST BORING DATA

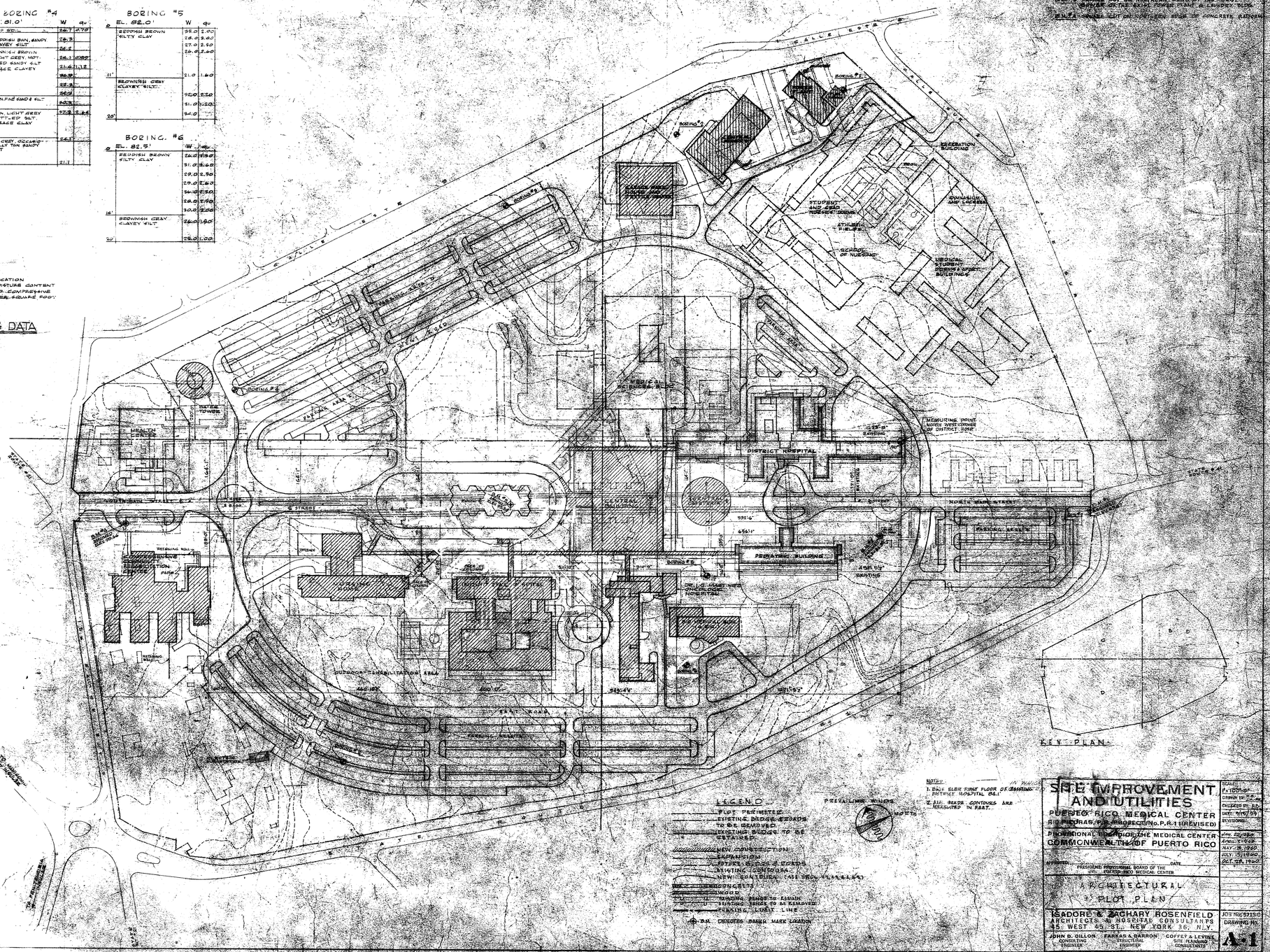
BENCH MARKS

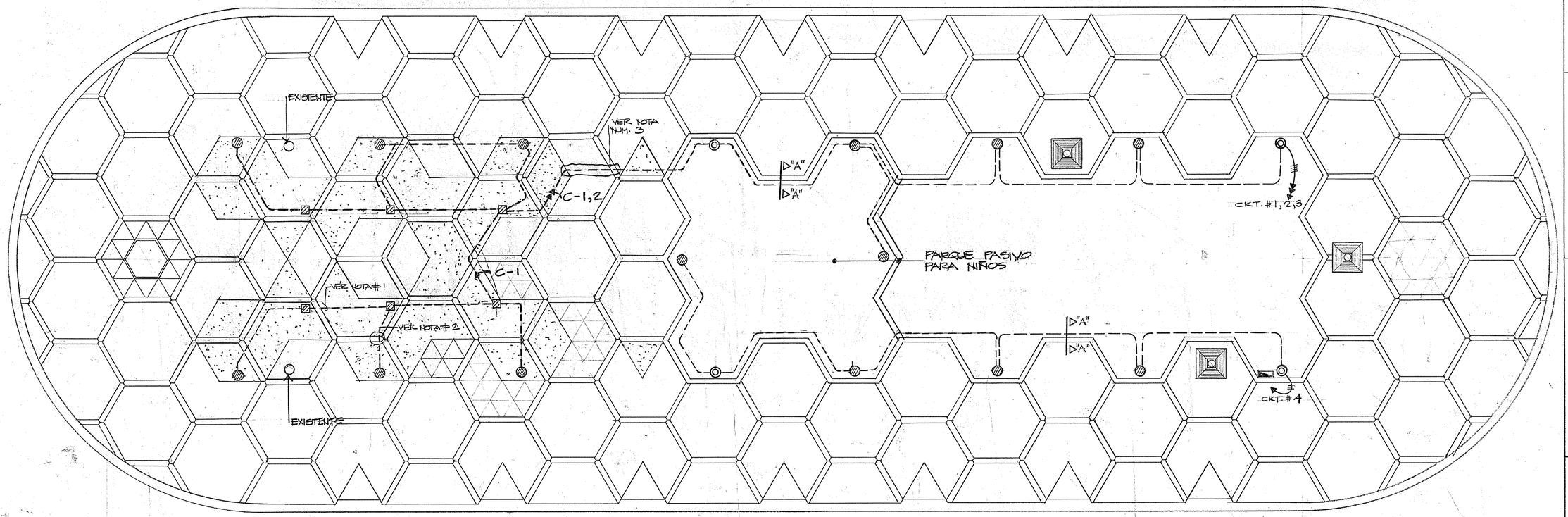
BM #1 - SQUARE CUT ON CONCRETE BUTTRESS ALONG FROM, LEFT SIDEWALK, EAST SIDE.

BM #2 - SQUARE CUT ON SOUTH SIDE OF ENTRY BASE TO LAMP STANDARD.

BM #3 - SQUARE CUT ON NORTHERN SIDE OF THE EAST ENTRY ON THE FRONT FACE OF LAUNDRY BLDG.

BM #4 - SQUARE CUT ON NORTHERN SIDE OF CONCRETE RAILING


BORING #1
BORING #2
BORING #3
BORING #4
BORING #5
BORING #6
WATER TOWER
HEALTH CENTER
DISTRICT HOSPITAL
PEDIATRIC BUILDING
RECREATION BUILDING
STUDENT AND STAFF RESIDENCE BUILDING
GYMNASIUM AND LAUNDRY
ATHLETIC FIELDS
SCHOOL OF NURSING
MEDICAL STUDENT RESIDENCE & ADMIN. BUILDINGS
PARKING AREA
PARKING AREA
PARKING AREA



PLAZOLETA CENTRAL
ESCALA: 1/16" = 1'-0"

LEYENDA:

- POSTE EXISTENTE A SER REMOVIDO
- POSTE EXISTENTE A SER REMOVIDO Y REEMPLAZADO (L-1)
- POSTE NUEVO CON LUMINARIA (L1)
- LUMINARIA DE 4'-0" (L2)
- B BANCOS
- PANEL DE DISTRIBUCION EXISTENTE

HPS SODIO ALTA PRESIÓN

---- CONDUCTO DE 1" PVC SCH. 40 - 3 CONDUCTORES #10 RHH POR CIRCUITO (VIVO, NEUTRAL, GROUND) CUANDO HAYA MAS DE UN (1) CIRCUITO POR CONDUCTO, EL CONDUCTOR DE GROUND PODRA SER COMUN A TODOS LOS CIRCUITOS.

ILUMINACION PLAZOLETA CENTRAL
CENTRO MEDICO DE PUERTO RICO

TABLA DE LUMINARIA

LUMINARIA NUM.	MANUFACTURERO	NUMERO DE CATALOGO	BOMBILLA TYPO	BOMBILLA VATIOS	LUMINARIA	BALASTRO	COMENTARIOS
L1	STERNBERG	A850-SR/503/4410-FP/150 HPS/120 V.	HPS.	150	TYPO III SIMETRICO	HPF	LUMINARIA CON LENTE DE POLICARBONATO CONTRA VANDALISMO, POSTE 10' NO. 4410-F.P. DE STERNBERG.
L2	STERNBERG	4455-LB-48"HEIGHT 100 WHPS/120 V.	HPS.	100	SIMETRICO	HPF	LUMINARIA TIPO "BOLARDO" DE 4'-0" ALTURA PATRON DE LUZ SIMETRICO

NOTAS:

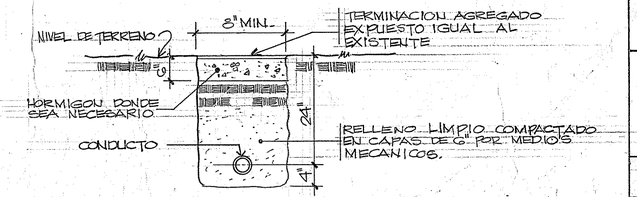
1. **La ruta a seguir por los conductos ha sido trazada cuidadosamente tomando en consideración que la misma ocurra en las áreas verdes siempre que sea posible.**

2. **Cuando sea necesario cruzar de una área a otra , se hará pasando por debajo del muro blanco que divide las áreas. Este muro tiene 10" de profundidad.**

3. **En esta área el contratista demolerá el pavimento existente y lo reparará con una terminación igual a la existente en el resto de la plazoleta con la misma forma y el mismo color. El corte se hará con sierra. El pavimento tiene 6" de espesor.**

4. **El contratista tendrá sumo cuidado al realizar las excavaciones para no averiar las utilidades existentes y será responsable de reparar cualquier rotura.**

5. EL PROYECTO SE ENTREGARA TERMINADO. INCLUIRA SUPLIR E INSTALAR TODO EL MATERIAL. EL CONSTRATISTA SERA RESPONSABLE DE INCLUIR TODO EL MATERIAL Y LOS EQUIPOS NECESARIOS PARA QUE AL TERMINAR EL CONTRATO TODOS LOS POSTES Y LUMINARIAS QUEDEN INSTALADAS Y FUNCIONANDO.



SECCION A-A

REVISIONES

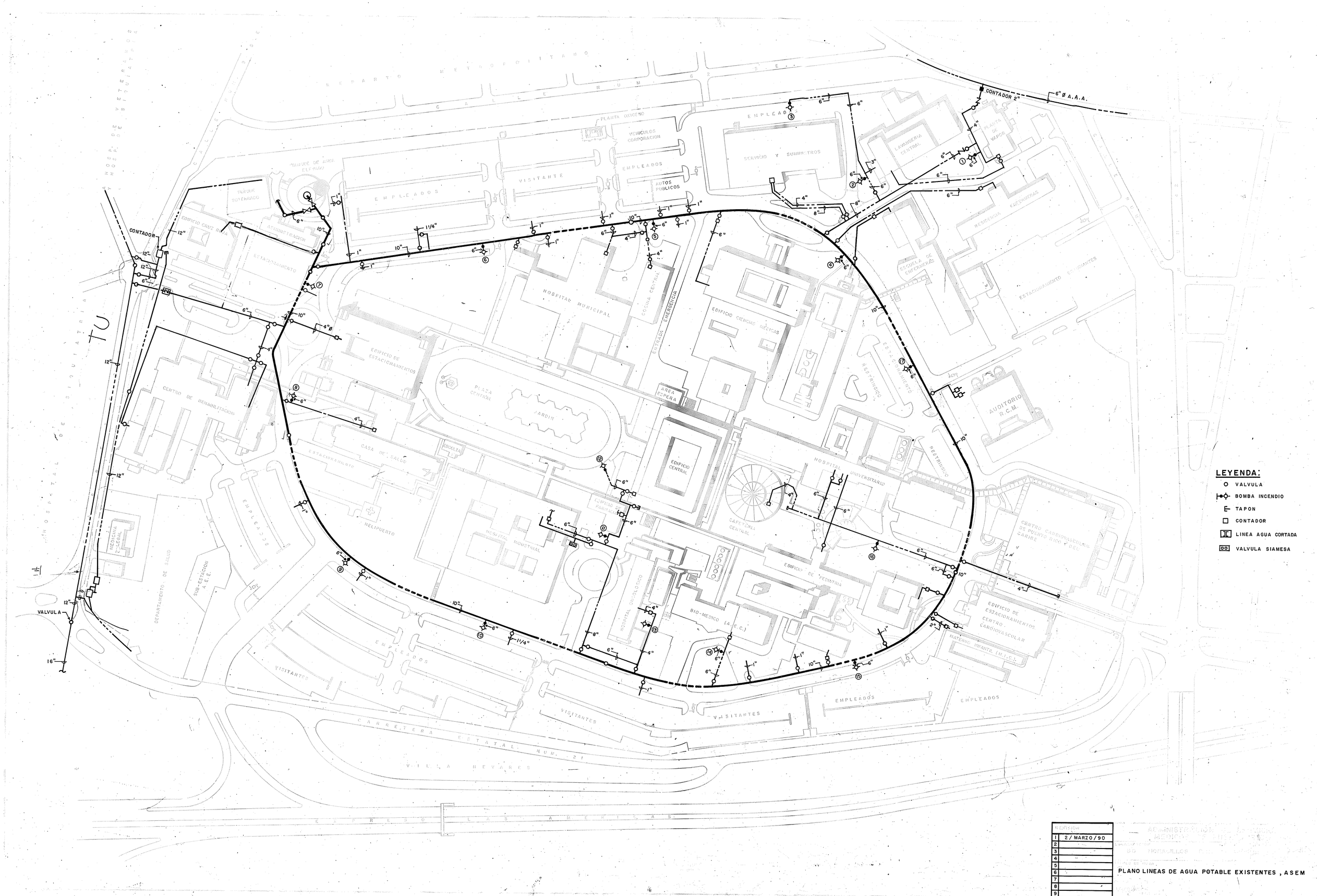
FECHA	REVISION
10/15/91	ORIGINAL
12/11/91	RELOCALIZACION LUMINARIAS
5/MAY/92	SPECS. DE LAMPARAS, LEYENDA Y NOTAS.

PROYECTO DE ILUMINACION PLAZOLETA CENTRAL CENTRO MEDICO

ADMINISTRACION DE SERVICIOS MEDICOS DE PUERTO RICO
DEPARTAMENTO DE INGENIERIA Y CONSERVACION
DIVISION DE CONSERVACION

E-1

1 1

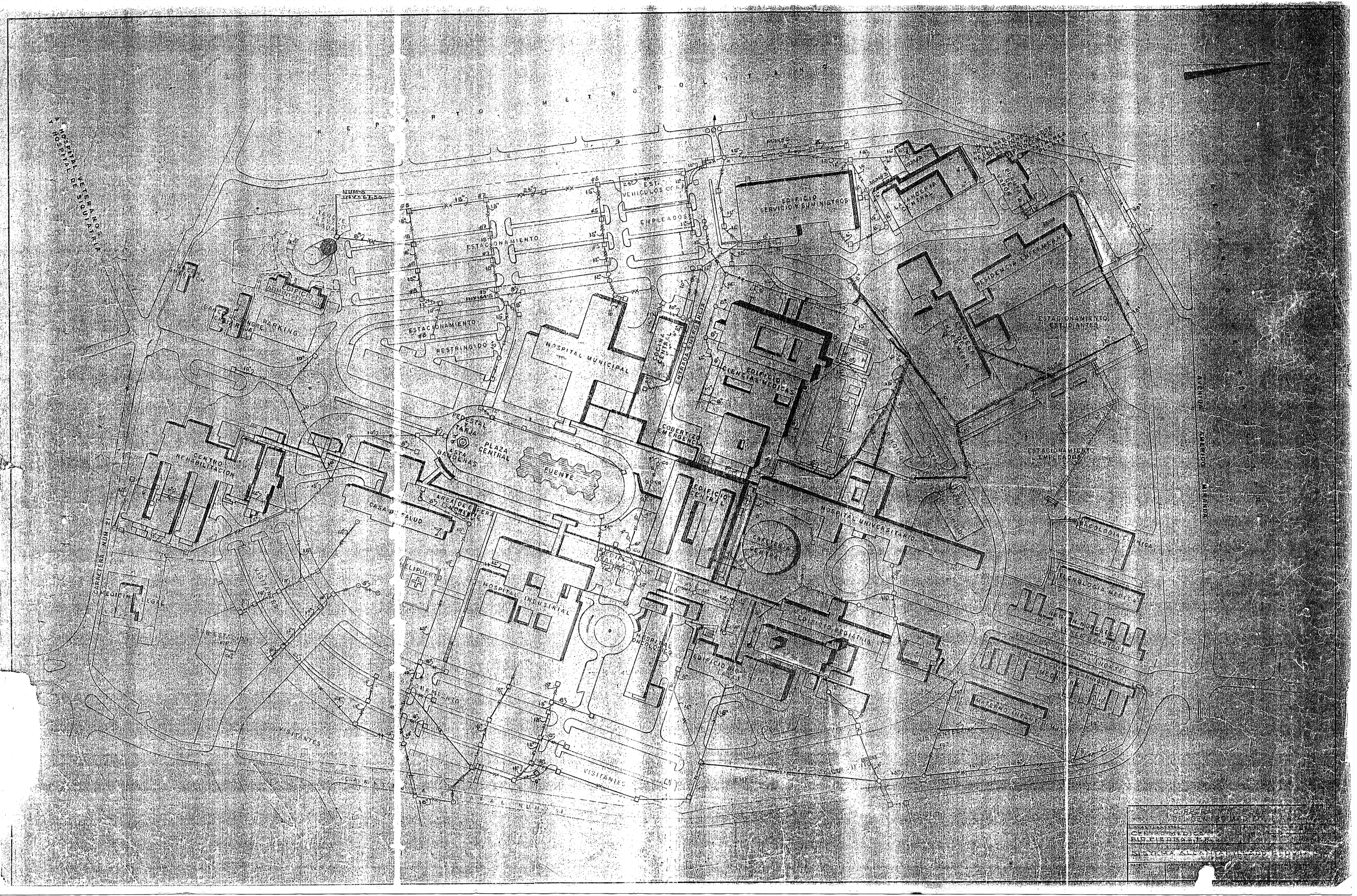


LEYENDA:

- VALVULA
- BOMBA INCENDIO
- TAPON
- CONTADOR
- LINEA AGUA CORTADA
- VALVULA SIAMESA

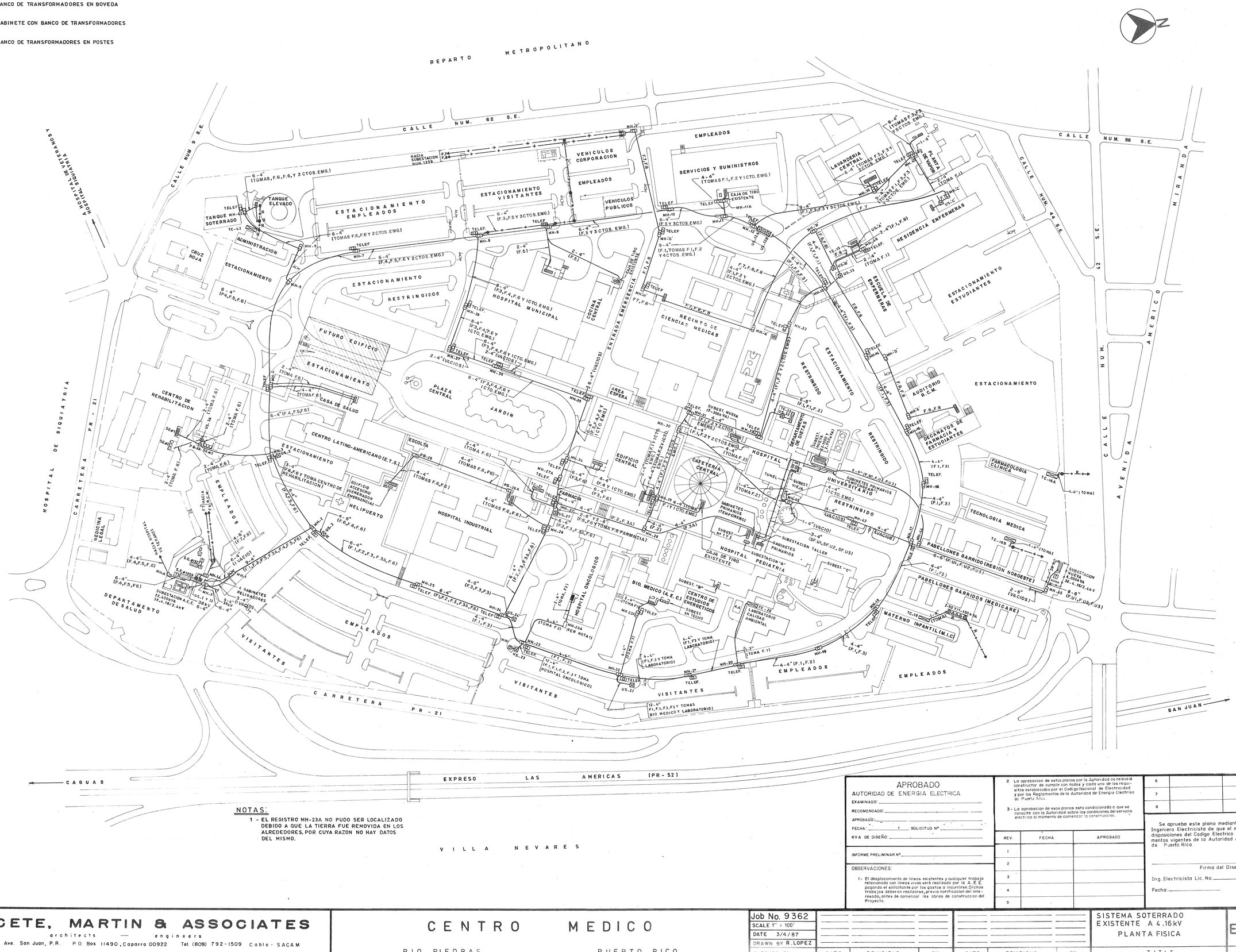
REVISION	
1	2/ MARZO/90
2	
3	
4	
5	
6	
7	
8	
9	

PLANO LINEAS DE AGUA POTABLE EXISTENTES , ASEM


A. METROPOLITANS
DEPARTO
HOSPITAL DE TRAUMATOLOGIA
EDIFICIO ADMINISTRATIVO
ESTACIONAMIENTO
PARKING
RESTRINGIDO
HOSPITAL MUNICIPAL
COCINA CENTRAL
ENTRADA AMBULANCIAS
EDIFICIO URGENCIAS MEDICAS
PEDESTAL TARJA
ASTA BANDERAS
PLAZA CENTRAL
FUENTE
COBERTIZO EMERGENCIA
EDIFICIO CENTRAL
EDIFICIO SERVICIO Y SUMINISTROS
ESTACIONAMIENTO EMPLEADOS
ESTACIONAMIENTO VEHICULOS OFICIALES
CENTRO DE REHABILITACION
CASA DE SALUD
CARRETERA KUM-21
HELIPUERTO LEGAL
HOSPITAL INDUSTRIAL
HOSPITAL ONCOLOGICO
EDIFICIO PEDIATRIA
HOSPITAL UNIVERSITARIO
CAFETERIA CENTRAL
RESIDENCIA ENFERMERAS
ESTACIONAMIENTO ESTUDIANTES
ESTACIONAMIENTO EMPLEADOS
NEUROLOGIA MEDICA
NEUROLOGIA QUIRURGICA
MATERNO INFANTIL
VISITANTES
AVENIDA
CENTRO MEDICO
RIO PIEDRAS PR

LEGEND

- UNIDAD SECCIONADORA
- SUBESTACION DENTRO EDIFICIO
- BANCO DE TRANSFORMADORES EN BOVEDA
- GABINETE CON BANCO DE TRANSFORMADORES
- BANCO DE TRANSFORMADORES EN POSTES


REPARTO METROPOLITANO
CALLE NUM. 62 S.E.
CALLE NUM. 56 S.E.
CALLE NUM. 44 S.E.
CALLE NUM. 42 S.E.
CALLE NUM. 9 S.E.
AVENIDA AMERICO MIRANDA
HOSPITAL DE SIQUIATRIA
HOSPITAL DE VETERANOS Y HOSPITAL QUIRURGICO
CARRETERA PR - 21
CARRETERA PR - 21
EXPRESO LAS AMERICAS (PR - 52)
CAGUAS
SAN JUAN
VILLA NEVARES
ESTACIONAMIENTO EMPLEADOS
ESTACIONAMIENTO VISITANTES
ESTACIONAMIENTO RESTRINGIDOS
ESTACIONAMIENTO ESTUDIANTES
ESTACIONAMIENTO
VEHICULOS CORPORACION
VEHICULOS PUBLICOS
EMPLEADOS
SERVICIOS Y SUMINISTROS
TANQUE ELEVADO
TANQUE MH-SOTERRADO
ADMINISTRACION
CRUZ ROJA
FUTURO EDIFICIO
PLAZA CENTRAL
JARDIN
AREA ESPERA
CASA DE SALUD
CENTRO DE REHABILITACION
CENTRO LATINO-AMERICANO (E.T.S.)
EDIFICIO ACCESORIO (REHABILITACION)
EDIFICIO ACCESORIO (EMERGENCIA)
HELIPUERTO
ESCOLTA
LEDICINA LEGAL
DEPARTAMENTO DE SALUD
HOSPITAL INDUSTRIAL
HOSPITAL ONCOLOGICO
HOSPITAL PEDIATRIA
HOSPITAL UNIVERSITARIO
HOSPITAL MUNICIPAL
COCINA CENTRAL
CAJA DE TIRO EXISTENTE
ENTRADA EMERGENCIA
CAFETERIA CENTRAL
EDIFICIO CENTRAL
FARMACIA
DEPARTAMENTO DE DIETAS
RECINTO DE CIENCIAS MEDICAS
BIO MEDICO (A.E.C.)
CENTRO DE ESTUDIOS ENERGETICOS
LABORATORIO CALIDAD AMBIENTAL
LAVANDERIA CENTRAL
PLANTA DE VAPOR
RESIDENCIA ENFERMERAS
ESCUELA DE ENFERMERIS
AUDITORIO R.C.M.
DESPACHOS DE FARMACIA ESTUDIANTES
FARMACOLOGIA CLINICA
TECNOLOGIA MEDICA
PABELLONES GARRIDO (REGION NOROESTE)
PABELLONES GARRIDOS (MEDICARE)
MATERNO INFANTIL (M.I.C)
SUBESTACION NUEVA (1 000kVA 38-4.16/2.4kV)
SUBESTACION A.E.E. (750kVA 38-4.16/2.4kV)
SUBEST. NUEVA (1-300kVA)
SUBEST. NUEVA (1-500kVA)
SUBEST. VIEJA
SUBESTACION "A"
SUBESTACION "B"
SUBEST. "C"
SUBEST. "D"
SUBEST. "N"
SUBESTACION TALLER
GABINETES PRIMARIOS
GABINETES PRIMARIOS (TENEDORES)
GABINETES PRIMARIOS UNIVERSITARIO (PARTE)
GABINETES RELLAMADORES
LABORATORIO
BIO MEDICO Y LABORATORIO
HOSPITAL (PARTE)
TUNEL
RESTRINGIDO
EMPLEADOS
VISITANTES
ESTACIONAMIENTO ESTUDIANTES
6-4" (TOMAS, F.6, F.6, Y 2 CTOS. EMG.)
6-4" (TOMAS F.6, F.6 Y 2 CTOS. EMG.)
6-4" (F.4, F.5, F.6 Y 2 CTOS. EMG.)
6-4" (F.5 Y 3 CTOS. EMG.)
6-4" (F.3, F.5 Y 3 CTOS. EMG.)
6-4" (F.1, TOMAS F.1, F.2 Y 4 CTOS. EMG.)
8-4" (TOMAS F.3, F.5 Y 4 CTOS. EMG.)
9-4" (F.1, F.3, F.5 Y 5 CTOS. EMG.)
4-4" (TOMAS F.1, F.2 Y 1 CTO. EMG.)
2-4" (F.5)
2-4" (F.6)
2-4" (TOMA F.6)
2-4" (TOMA F.1)
4-4" (TOMAS F.6, F.6)
4-4" (F.1, F.3)
4-4" (F.1, F.2)
4-4" (F.1, F.3 Y TOMA LABORATORIO)
4-4" (TOMA F.1)
4-4" (TOMA F.2)
4-4" (TOMA F.3)
4-4" (TOMA F.6)
4-4" (F.5A)
4-4" (F.2, F.3A)
4-4" (F.3, F.5, F.3)
4-4" (F.1, F.3)
4-4" (F.1, F.2 Y 2 CTOS. EMG.)
4-4" (F.1, F.2 Y 1 CTO. EMG.)
4-4" (F.1, F.2 Y TOMA F.6 FARMACIA)
4-4" (F.1, F.2 Y TOMA F.1 LABORATORIO)
4-4" (F.1, F.3 Y TOMA LABORATORIO)
4-4" (F.1, F.2, F.3 Y TOMAS BIO MEDICO Y LABORATORIO)
4-4" (F.1, F.2 Y 2 CTOS. EMG.)
4-4" (F.1, F.2 Y 1 CTO. EMG.)
4-4" (F.1, F.3)
4-4" (F.1, F.3)
4-4" (F.1, F.3

NOTAS:

1- a) INSTALAR INTERRUPTOR PRIMARIO, 3 FASES, 5 KV, 600 A, "SQUARE D" EN GABINETE NO. 16

b) INSTALAR 2 CONDUCTOS DE 4" DIAMETRO, ACERO GALVANIZADO, ENTRE GABINETE PRIMARIO NO.16 EN LA SUBESTACION NUEVA Y LOS "O.C.B.S." PRIMARIOS EN LA SUBESTACION VIEJA DEL HOSPITAL UNIVERSITARIO.

c) INSTALAR 3 CABLES # 2/0 AWG, "X.L.P.E.", BLINDADO, 15 KV. Y 1 C # 4 AWG, TW-600 V. (TIERRA)

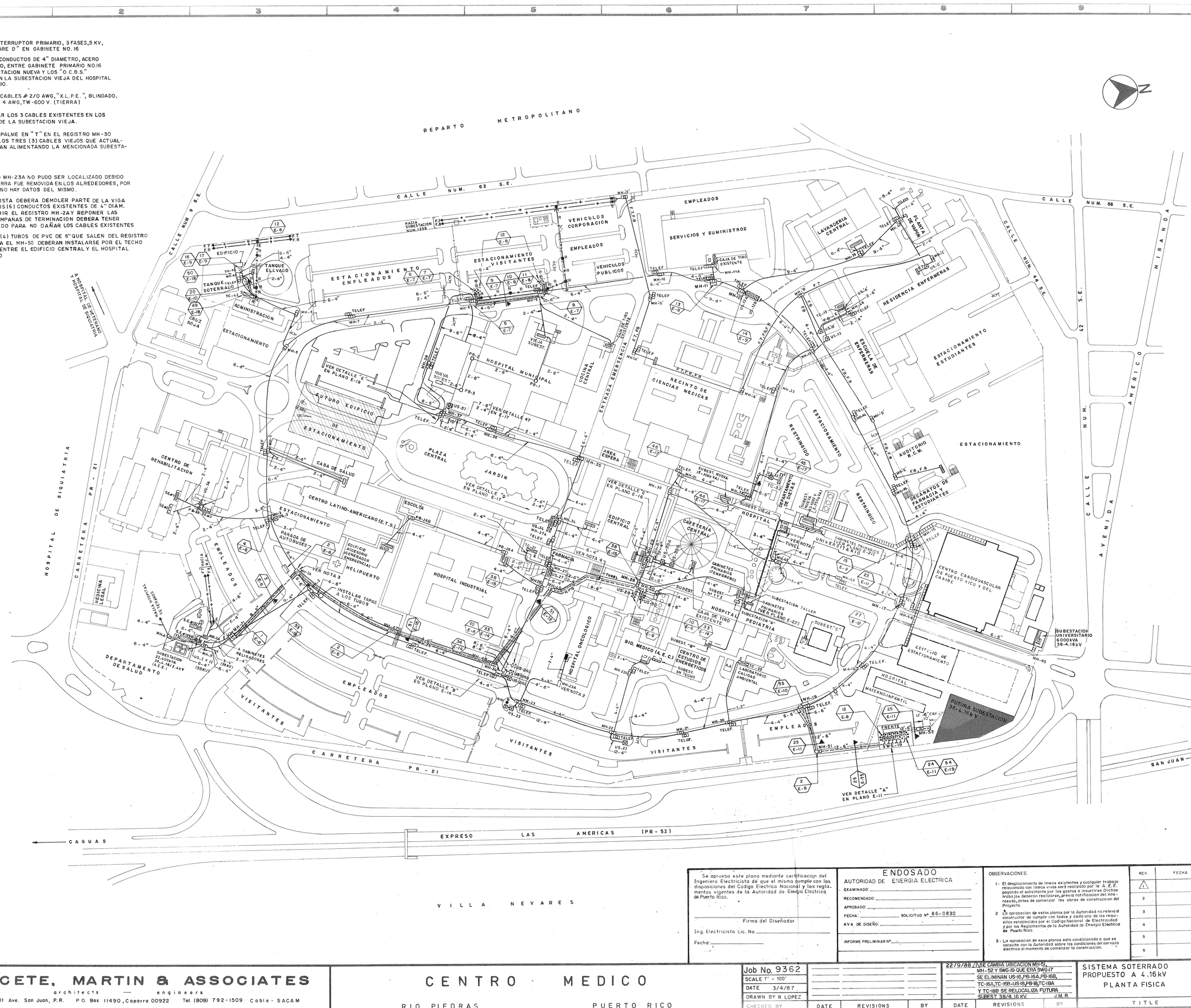
d) DESCONECTAR LOS 3 CABLES EXISTENTES EN LOS "O.C.B.S." DE LA SUBESTACION VIEJA.

e) ELIMINAR EMPALME EN "T" EN EL REGISTRO MH-30 Y RETIRAR LOS TRES (3) CABLES VIEJOS QUE ACTUALMENTE ESTAN ALIMENTANDO LA MENCIONADA SUBESTACION VIEJA.

2- EL REGISTRO MH-23A NO PUDO SER LOCALIZADO DEBIDO A QUE LA TIERRA FUE REMOVIDA EN LOS ALREDEDORES, POR CUYA RAZON NO HAY DATOS DEL MISMO.

3- EL CONTRATISTA DEBERA DEMOLER PARTE DE LA VIGA CON LOS SEIS(6) CONDUCTOS EXISTENTES DE 4" DIAM. AL CONSTRUIR EL REGISTRO MH-23A Y REPONER LAS DOCE(12) CAMPANAS DE TERMINACION DEBERA TENER SUMO CUIDADO PARA NO DAÑAR LOS CABLES EXISTENTES

4- LOS CUATRO(4) TUBOS DE PVC DE 6" QUE SALEN DEL REGISTRO MH-49 HACIA EL MH-50 DEBERAN INSTALARSE POR EL TECHO DEL TUNEL ENTRE EL EDIFICIO CENTRAL Y EL HOSPITAL ONCOLOGICO



Se aprueba este plano mediante certificacion del Ingeniero Electricista de que el mismo cumple con las disposiciones del Codigo Electrico Nacional y las reglamentos vigentes de la Autoridad de Energia Electrica de Puerto Rico.

Firma del Diseñador

Ing. Electricista Lic. No.

Fecha:

ENDOSADO
AUTORIDAD DE ENERGIA ELECTRICA

EXAMINADO:
RECOMENDADO:
APROBADO:
FECHA: SOLICITUD Nº 86-0830
KVA DE DISEÑO:
INFORME PRELIMINAR Nº:

OBSERVACIONES:

1- El desplazamiento de lineas existentes y cualquier trabajo relacionado con lineas vivas será realizado por la A.E.E. pagando el solicitante por los gastos a incurrirse. Dichos trabajos deberan realizarse, previa notificacion del interesado, antes de comenzar las obras de construccion del Proyecto.

2- La aprobacion de estos planos por la Autoridad no relevará al constructor de cumplir con todos y cada uno de los requisitos establecidos por el Codigo Nacional de Electricidad y por los Reglamentos de la Autoridad de Energia Electrica de Puerto Rico.

3- La aprobacion de esos planos esta condicionada a que se consulte con la Autoridad sobre las condiciones del servicio electrico al momento de comenzar la construccion.

REV.	FECHA	APROB
1		
2		
3		
4		
5		
6		

CAPACETE, MARTIN & ASSOCIATES
architects — engineers
1509 F.D. Roosevelt Ave. San Juan, P.R. P.O. Box 11490, Caparra 00922 Tel. (809) 792-1509 Cable - SACAM

CENTRO MEDICO

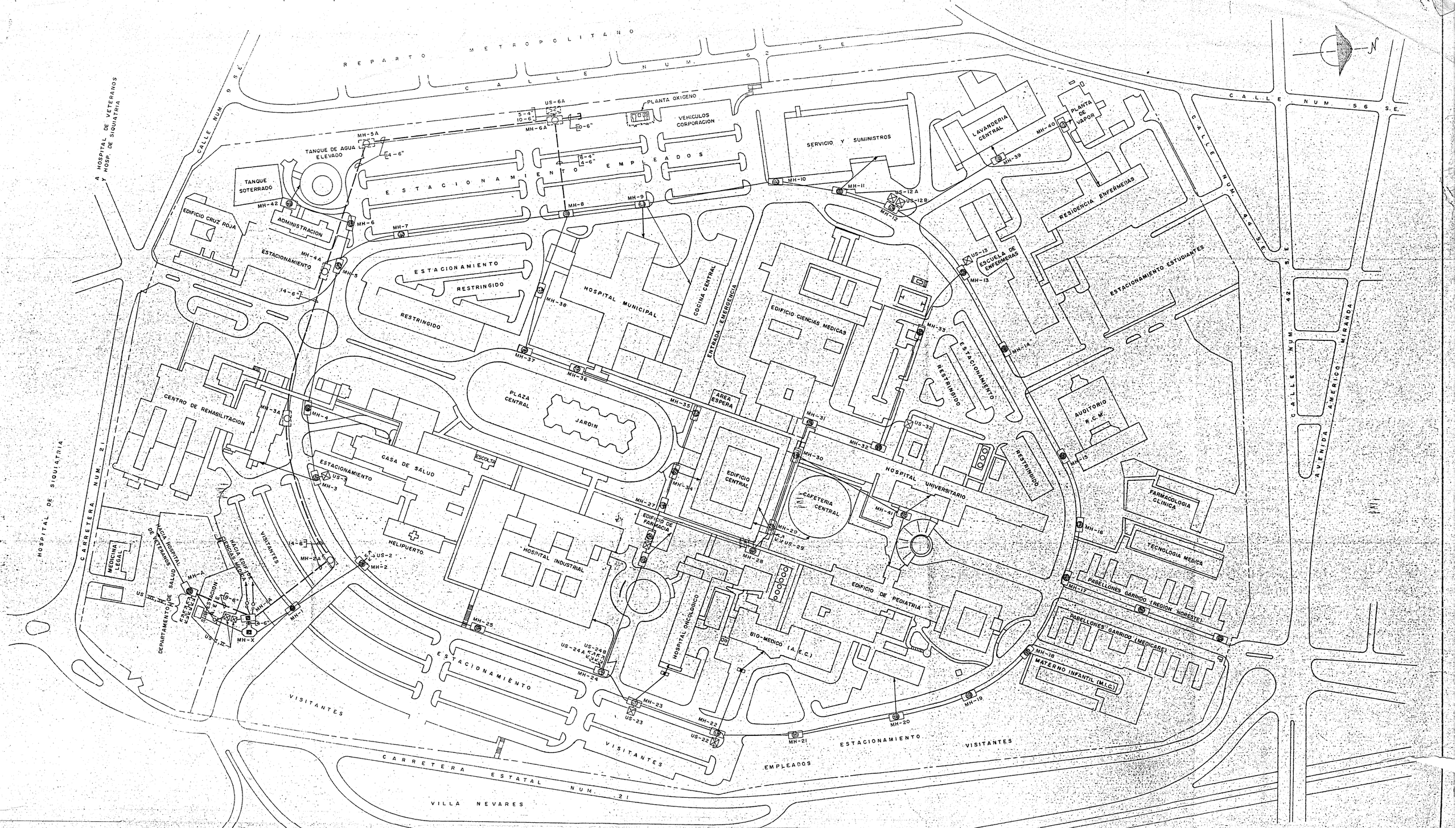
RIO PIEDRAS PUERTO RICO

Job No. 9362
SCALE 1" = 100'
DATE 3/4/87
DRAWN BY R LOPEZ
CHECKED BY

DATE	REVISIONS	BY
2/9/88	SE CAMBIA UBICACION MH-51, MH-52 Y SWG-19 QUE ERA SWG-17 SE ELIMINAN US-16, PB-16A, PB-16B, TC-16A, TC-16B-US-18, PB-18, TC-18A Y TC-18B SE RELOCALIZA FUTURA SUBEST. 38/4.16 KV.	J.M.R.

SISTEMA SOTERRADO
PROPUESTO A 4.16 kV
PLANTA FISICA
TITLE

E-5
No.



NOTA IMPORTANTE:

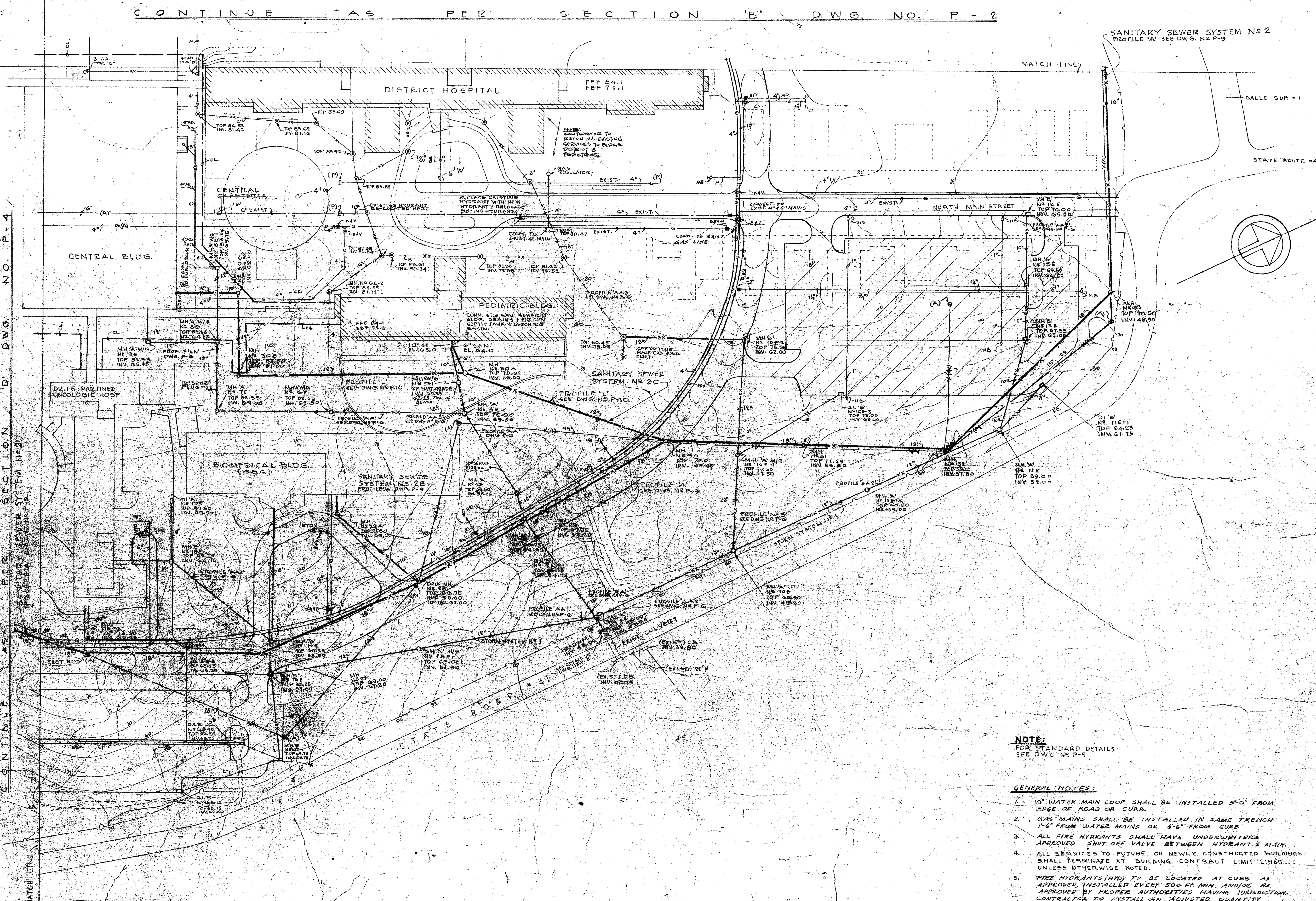
LA REVISION #1 EFECTUADA A ESTE PLANO ES RESULTADO DE UN ESTUDIO PRELIMINAR Y NO CONSTITUYE UN DISEÑO FINAL.

REVISIONS				REFERENCE DRAWINGS		REFERENCE DRAWINGS			DATE
NO.	DATE	DESCRIPTION	APPD	NUMBER	TITLE	NUMBER	TITLE	SURVEY	
1	7-8-84	SE AÑADEN UNIDADES SECCIONADORAS US. 2, 2-A, 2-B, 29 Y 32, Y SWITCH. SALE: US-6A. SE AÑADEN REGISTROS MH-2A, 2B, 4A, 5A Y 6A. SE AÑADE MANGADA DE CONDUCTOS DESDE LA SUBESTACION A MH-B, ATRAVES DE LOS REGISTROS MH-1A, 2A, 3A, 4A, 5A Y 6A.						DESIGN	
								DRAWN (TRACED) LUIS R. VILLALTA	01-13-84
								CHECKED	
								SUBMITTED	
								RECOMMENDED	
								APPROVED	

PUERTO RICO ELECTRIC POWER AUTHORITY
DISTRIBUTION SYSTEM

SISTEMA SOTERRADO A 4.16 KV
EN CENTRO MEDICO, RIO PIEDRAS
— PLANO FISICO —

SCALE: 1" = 100'-0" | SAN JUAN, P.R. | DRWG. NO.



SYMBOLS AND ABBREVIATIONS

SANITARY	SAN.	——x——
STORM	ST	——xx——
COLD WATER	CW	
SOFT WATER	SW	——SW——
GAS	G	——G——
POOL SUPPLY WATER	PS	——PS——
POOL RETURN WATER	PR	——PR——

CURB AND VALVE BOX	B&V	DWG.	DRAWING		
EXISTING	EXIST	HB	HOSE BIBE		
INVERT	INV	CL	CONTRACT LIMIT	W.I.	WROUGHT IRON
MANHOLE	MH	V.T	VITRIFIED TILE	O.C.	ON CENTER
AREA DRAIN	A. D.	CI	CAST IRON	LG.	LONG
DRAIN INLET	DI	FFF	FINISHED FIRST FLOOR	CB	CATCH BASIN
HYDRANT (FIRE)	HYD	FBF	FINISHED BASEMENT FLOOR	VERT.	VERTICAL
ELEVATION	EL	CONN	CONNECT	HOR.	HORIZONTAL
		W/G	WITH GRATE		

SANITARY, STORM, COLD WATER, GAS } EXISTING

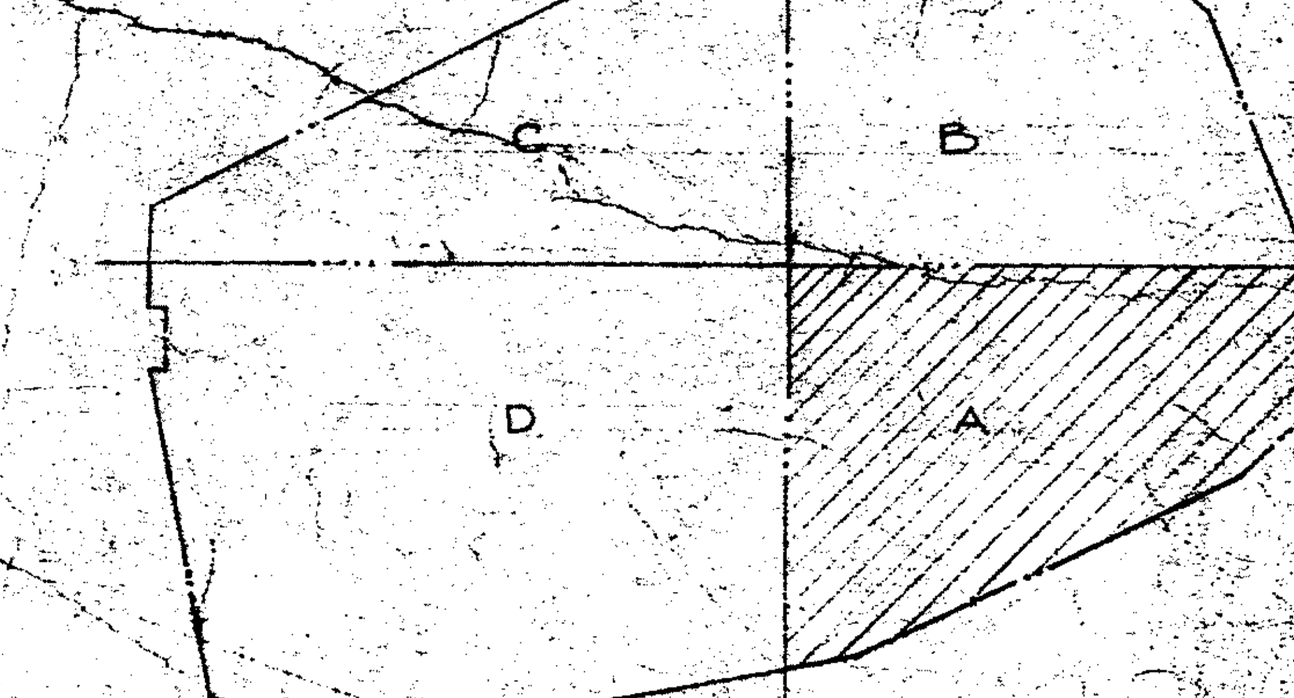
(A) ABANDON EXISTING PIPING OR EXISTING MANHOLE
(P) PLUG OR CAP. MAKE GAS AND AIR TIGHT
◉ EXISTING MANHOLE

EXISTING GRADE
FINISHED GRADE
CONTRACT LIMIT LINE CL.

NOTE:
FOR STANDARD DETAILS SEE DWG Nº P-5

GENERAL NOTES:

1. 10" WATER MAIN LOOP SHALL BE INSTALLED 5'-0" FROM EDGE OF ROAD OR CURB.
2. GAS MAINS SHALL BE INSTALLED IN SAME TRENCH 1'-6" FROM WATER MAINS OR 6'-6" FROM CURB.
3. ALL FIRE HYDRANTS SHALL HAVE UNDERWRITERS APPROVED SHUT OFF VALVE BETWEEN HYDRANT & MAIN.
4. ALL SERVICES TO FUTURE OR NEWLY CONSTRUCTED BUILDINGS SHALL TERMINATE AT BUILDING CONTRACT LIMIT LINES UNLESS OTHERWISE NOTED.
5. FIRE HYDRANTS (HYD) TO BE LOCATED AT CURB AS APPROVED, INSTALLED EVERY 500 FT. MIN. AND/OR AS APPROVED BY PROPER AUTHORITIES HAVING JURISDICTION. CONTRACTOR TO INSTALL AN ADJUSTED QUANTITY OTHER THEN SHOWN ON PLANS AS DETERMINED BY SAME AUTHORITIES, CONTRACTOR IS ALSO CAUTIONED TO INSTALL PROPER HYDRANTS AT BLDGS. NOT SHOWN ON PLANS.
6. CONTRACTOR TO REMAIN RESPONSIBLE & REVISE (UNDER AUTHORIZED SUPERVISION) ANY NEW OR EXISTING MANHOLE, OR ANY PIPING FOUND ON JOB NOT SHOWN OR NOTED ON THESE DRAWINGS, DUE TO UNKNOWN CONDITIONS AT THIS TIME... WITH NO EXTRA TO OWNER.
7. ALL UNDERGROUND WATER PIPING, VALVES, CONSTRUCTION DETAILS AND ISULATION, SHALL MEET THE STANDARDS AND REQUIREMENTS OF THE PUERTO RICO AQUEDUCT AND SEWER AUTHORITY.



KEY PLAN

SITE IMPROVEMENT AND UTILITIES

PUERTO RICO MEDICAL CENTER
RIO PIEDRAS, P.R.-PROJECT No.P.R.11(REVISED)

PROVISIONAL BOARD OF THE MEDICAL CENTER
COMMONWEALTH OF PUERTO RICO

APPROVED: ____ DATE ____
PRESIDENT: PROVISIONAL BOARD OF THE PUERTO RICO MEDICAL CENTER

WATER AND GAS MAINS
STORM AND SANITARY SEWERS
PLAN SECTION A

ISADORE & ZACHARY ROSENFIELD
ARCHITECTS & HOSPITAL CONSULTANTS
45 WEST 45 ST. NEW YORK 36, N.Y.

JOHN D. DILLON, CONSULTING ENGINEER | FARKAS & BARRON, STRUCTURAL ENGINEER | COFFEY & LEVINE, SITE PLANNING CONSULTANTS

SCALE: 1" = 50'-0"
DRAWN BY: G.C.
CHECKED BY: T.S.
DATE: OCT 1960
REVISIONS:
JOB No. 5715-C
DRAWING No.
P-1

CONTINUE AS PER SECTION 'C' DWG. NO. P-3

MATCH LINE

STATE ROUTE #3

SOUTH MAIN STREET

COMPREHENSIVE COMMUNITY REHABILITATION CENTER

NURSING HOME

INDUSTRIAL HOSPITAL

CENTRAL BUILDING

POOL

ELIMINATED

CONTINUE AS PER SECTION 'A' DWG. NO. P-1

STATE ROUTE #3

STATE ROUTE #41

TO MUNICIPAL INSULINA

TO PENITENCIRIA INSULINA

FROM PSYCHIATRIC

FROM PRISON

METER PIT SEE DETAIL'N' THIS SHEET

NEW E.M. CONNECTION TO MAIN AS DIRECTED BY AQUEDUCT AND SEWER AUTHORITY

CONNECT EXISTING 6"CW. AND 4"GAS LINES TO NEW MAINS

4" WATER METER

4" GAS METER

STORM SYSTEM N° 1

STORM SYSTEM N° 2

STORM SYSTEM N° 3

STORM SYSTEM N° 4

STORM SYSTEM N° 5

STORM SYSTEM N° 6

STORM SYSTEM N° 7

STORM SYSTEM N° 8

SANITARY SEWER SYSTEM N° 2

SANITARY SEWER SYSTEM N° 2A

PROFILE 'CC' SEE DWG. N° P-7

PROFILE 'DD' SEE DWG. N° P-8

PROFILE 'EE' SEE DWG. N° P-9

PROFILE 'FF' SEE DWG. N° P-10

PROFILE 'GG' SEE DWG. N° P-11

PROFILE 'HH' SEE DWG. N° P-12

PROFILE 'II' SEE DWG. N° P-13

PROFILE 'JJ' SEE DWG. N° P-14

PROFILE 'KK' SEE DWG. N° P-15

PROFILE 'LL' SEE DWG. N° P-16

PROFILE 'MM' SEE DWG. N° P-17

PROFILE 'NN' SEE DWG. N° P-18

PROFILE 'OO' SEE DWG. N° P-19

PROFILE 'PP' SEE DWG. N° P-20

PROFILE 'QQ' SEE DWG. N° P-21

PROFILE 'RR' SEE DWG. N° P-22

PROFILE 'SS' SEE DWG. N° P-23

PROFILE 'TT' SEE DWG. N° P-24

PROFILE 'UU' SEE DWG. N° P-25

PROFILE 'VV' SEE DWG. N° P-26

PROFILE 'WW' SEE DWG. N° P-27

PROFILE 'XX' SEE DWG. N° P-28

PROFILE 'YY' SEE DWG. N° P-29

PROFILE 'ZZ' SEE DWG. N° P-30

PROFILE 'AAA' SEE DWG. N° P-31

PROFILE 'BBB' SEE DWG. N° P-32

PROFILE 'CCC' SEE DWG. N° P-33

PROFILE 'DDD' SEE DWG. N° P-34

PROFILE 'EEE' SEE DWG. N° P-35

PROFILE 'FFF' SEE DWG. N° P-36

PROFILE 'GGG' SEE DWG. N° P-37

PROFILE 'HHH' SEE DWG. N° P-38

PROFILE 'III' SEE DWG. N° P-39

PROFILE 'JJJ' SEE DWG. N° P-40

PROFILE 'KKK' SEE DWG. N° P-41

PROFILE 'LLL' SEE DWG. N° P-42

PROFILE 'MMM' SEE DWG. N° P-43

PROFILE 'NNN' SEE DWG. N° P-44

PROFILE 'OOO' SEE DWG. N° P-45

PROFILE 'PPP' SEE DWG. N° P-46

PROFILE 'QQQ' SEE DWG. N° P-47

PROFILE 'RRR' SEE DWG. N° P-48

PROFILE 'SSS' SEE DWG. N° P-49

PROFILE 'TTT' SEE DWG. N° P-50

PROFILE 'UUU' SEE DWG. N° P-51

PROFILE 'VVV' SEE DWG. N° P-52

PROFILE 'WWW' SEE DWG. N° P-53

PROFILE 'XXX' SEE DWG. N° P-54

PROFILE 'YYY' SEE DWG. N° P-55

PROFILE 'ZZZ' SEE DWG. N° P-56

PROFILE 'AAAA' SEE DWG. N° P-57

PROFILE 'BBBB' SEE DWG. N° P-58

PROFILE 'CCCC' SEE DWG. N° P-59

PROFILE 'DDDD' SEE DWG. N° P-60

PROFILE 'EEEE' SEE DWG. N° P-61

PROFILE 'FFFF' SEE DWG. N° P-62

PROFILE 'GGGG' SEE DWG. N° P-63

PROFILE 'HHHH' SEE DWG. N° P-64

PROFILE 'IIII' SEE DWG. N° P-65

PROFILE 'JJJJ' SEE DWG. N° P-66

PROFILE 'KKKK' SEE DWG. N° P-67

PROFILE 'LLLL' SEE DWG. N° P-68

PROFILE 'MMMM' SEE DWG. N° P-69

PROFILE 'NNNN' SEE DWG. N° P-70

PROFILE 'OOOO' SEE DWG. N° P-71

PROFILE 'PPPP' SEE DWG. N° P-72

PROFILE 'QQQQ' SEE DWG. N° P-73

PROFILE 'RRRR' SEE DWG. N° P-74

PROFILE 'SSSS' SEE DWG. N° P-75

PROFILE 'TTTT' SEE DWG. N° P-76

PROFILE 'UUUU' SEE DWG. N° P-77

PROFILE 'VVVV' SEE DWG. N° P-78

PROFILE 'WWWW' SEE DWG. N° P-79

PROFILE 'XXXX' SEE DWG. N° P-80

PROFILE 'YYYY' SEE DWG. N° P-81

PROFILE 'ZZZZ' SEE DWG. N° P-82

PROFILE 'AAAAA' SEE DWG. N° P-83

PROFILE 'BBBBB' SEE DWG. N° P-84

PROFILE 'CCCCC' SEE DWG. N° P-85

PROFILE 'DDDDD' SEE DWG. N° P-86

PROFILE 'EEEEE' SEE DWG. N° P-87

PROFILE 'FFFFF' SEE DWG. N° P-88

PROFILE 'GGGGG' SEE DWG. N° P-89

PROFILE 'HHHHH' SEE DWG. N° P-90

PROFILE 'IIIII' SEE DWG. N° P-91

PROFILE 'JJJJJ' SEE DWG. N° P-92

PROFILE 'KKKKK' SEE DWG. N° P-93

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PROFILE 'RRRRR' SEE DWG. N° P-100

PROFILE 'SSSSS' SEE DWG. N° P-101

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PROFILE 'UUUUU' SEE DWG. N° P-103

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PROFILE 'AAAAAA' SEE DWG. N° P-109

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PROFILE 'FFFFFFFFFFF' SEE DWG. N° P-244

PROFILE 'GGGGGGGGGGG' SEE DWG. N° P-245

PROFILE 'HHHHHHHHHHH' SEE DWG. N° P-246

PROFILE 'IIIIIIIIIII' SEE DWG. N° P-247

PROFILE 'JJJJJJJJJJJ' SEE DWG. N° P-248

PROFILE 'KKKKKKKKKKK' SEE DWG. N° P-249

PROFILE 'LLLLLLLLLLL' SEE DWG. N° P-250

PROFILE 'MMMMMMMMMMM' SEE DWG. N° P-251

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PROFILE 'OOOOOOOOOOO' SEE DWG. N° P-253

PROFILE 'PPPPPPPPPPP' SEE DWG. N° P-254

PROFILE 'QQQQQQQQQQQ' SEE DWG. N° P-255

PROFILE 'RRRRRRRRRRR' SEE DWG. N° P-256

PROFILE 'SSSSSSSSSSS' SEE DWG. N° P-257

PROFILE 'TTTTTTTTTTT' SEE DWG. N° P-258

PROFILE 'UUUUUUUUUUU' SEE DWG. N° P-259

PROFILE 'VVVVVVVVVVV' SEE DWG. N° P-260

PROFILE 'WWWWWWWWWWW' SEE DWG. N° P-261

PROFILE 'XXXXXXXXXXX' SEE DWG. N° P-262

PROFILE 'YYYYYYYYYYY' SEE DWG. N° P-263

PROFILE 'ZZZZZZZZZZZ' SEE DWG. N° P-264

PROFILE 'AAAAAAAAAAAA' SEE DWG. N° P-265

PROFILE 'BBBBBBBBBBBB' SEE DWG. N° P-266

PROFILE 'CCCCCCCCCCCC' SEE DWG. N° P-267

PROFILE 'DDDDDDDDDDDD' SEE DWG. N° P-268

PROFILE 'EEEEEEEEEEEE' SEE DWG. N° P-269

PROFILE 'FFFFFFFFFFFF' SEE DWG. N° P-270

PROFILE 'GGGGGGGGGGGG' SEE DWG. N° P-271

PROFILE 'HHHHHHHHHHHH' SEE DWG. N° P-272

PROFILE 'IIIIIIIIIIII' SEE DWG. N° P-273

PROFILE 'JJJJJJJJJJJJ' SEE DWG. N° P-274

PROFILE 'KKKKKKKKKKKK' SEE DWG. N° P-275

PROFILE 'LLLLLLLLLLLL' SEE DWG. N° P-276

PROFILE 'MMMMMMMMMMMM' SEE DWG. N° P-277

PROFILE 'NNNNNNNNNNNN' SEE DWG. N° P-278

PROFILE 'OOOOOOOOOOOO' SEE DWG. N° P-279

PROFILE 'PPPPPPPPPPPP' SEE DWG. N° P-280

PROFILE 'QQQQQQQQQQQQ' SEE DWG. N° P-281

PROFILE 'RRRRRRRRRRRR' SEE DWG. N° P-282

PROFILE 'SSSSSSSSSSSS' SEE DWG. N° P-283

PROFILE 'TTTTTTTTTTTT' SEE DWG. N° P-284

PROFILE 'UUUUUUUUUUUU' SEE DWG. N° P-285

PROFILE 'VVVVVVVVVVVV' SEE DWG. N° P-286

PROFILE 'WWWWWWWWWWWW' SEE DWG. N° P-287

PROFILE 'XXXXXXXXXXXX' SEE DWG. N° P-288

PROFILE 'YYYYYYYYYYYY' SEE DWG. N° P-289

PROFILE 'ZZZZZZZZZZZZ' SEE DWG. N° P-290

PROFILE 'AAAAAAAAAAAAA' SEE DWG. N° P-291

PROFILE 'BBBBBBBBBBBBB' SEE DWG. N° P-292

PROFILE 'CCCCCCCCCCCCC' SEE DWG. N° P-293

PROFILE 'DDDDDDDDDDDDD' SEE DWG. N° P-294

PROFILE 'EEEEEEEEEEEEE' SEE DWG. N° P-295

PROFILE 'FFFFFFFFFFFFF' SEE DWG. N° P-296

PROFILE 'GGGGGGGGGGGGG' SEE DWG. N° P-297

PROFILE 'HHHHHHHHHHHHH' SEE DWG. N° P-298

PROFILE 'IIIIIIIIIIIII' SEE DWG. N° P-299

PROFILE 'JJJJJJJJJJJJJ' SEE DWG. N° P-300

PROFILE 'KKKKKKKKKKKKK' SEE DWG. N° P-301

PROFILE 'LLLLLLLLLLLLL' SEE DWG. N° P-302

PROFILE 'MMMMMMMMMMMMM' SEE DWG. N° P-303

PROFILE 'NNNNNNNNNNNNN' SEE DWG. N° P-304

PROFILE 'OOOOOOOOOOOOO' SEE DWG. N° P-305

PROFILE 'PPPPPPPPPPPPP' SEE DWG. N° P-306

PROFILE 'QQQQQQQQQQQQQ' SEE DWG. N° P-307

PROFILE 'RRRRRRRRRRRRR' SEE DWG. N° P-308

PROFILE 'SSSSSSSSSSSSS' SEE DWG. N° P-309

PROFILE 'TTTTTTTTTTTTT' SEE DWG. N° P-310

PROFILE 'UUUUUUUUUUUUU' SEE DWG. N° P-311

PROFILE 'VVVVVVVVVVVVV' SEE DWG. N° P-312

PROFILE 'WWWWWWWWWWWWW' SEE DWG. N° P-313

PROFILE 'XXXXXXXXXXXXX' SEE DWG. N° P-314

PROFILE 'YYYYYYYYYYYYY' SEE DWG. N° P-315

PROFILE 'ZZZZZZZZZZZZZ' SEE DWG. N° P-316

PROFILE 'AAAAAAAAAAAAAA' SEE DWG. N° P-317

PROFILE 'BBBBBBBBBBBBBB' SEE DWG. N° P-318

PROFILE 'CCCCCCCCCCCCCC' SEE DWG. N° P-319

PROFILE 'DDDDDDDDDDDDDD' SEE DWG. N° P-320

PROFILE 'EEEEEEEEEEEEEE' SEE DWG. N° P-321

PROFILE 'FFFFFFFFFFFFFF' SEE DWG. N° P-322

PROFILE 'GGGGGGGGGGGGGG' SEE DWG. N° P-323

PROFILE 'HHHHHHHHHHHHHH' SEE DWG. N° P-324

PROFILE 'IIIIIIIIIIIIII' SEE DWG. N° P-325

PROFILE 'JJJJJJJJJJJJJJ' SEE DWG. N° P-326

PROFILE 'KKKKKKKKKKKKKK' SEE DWG. N° P-327

PROFILE 'LLLLLLLLLLLLLL' SEE DWG. N° P-328

PROFILE 'MMMMMMMMMMMMMM' SEE DWG. N° P-329

PROFILE 'NNNNNNNNNNNNNN' SEE DWG. N° P-330

PROFILE 'OOOOOOOOOOOOOO' SEE DWG. N° P-331

PROFILE 'PPPPPPPPPPPPPP' SEE DWG. N° P-332

PROFILE 'QQQQQQQQQQQQQQ' SEE DWG. N° P-333

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PROFILE 'SSSSSSSSSSSSSS' SEE DWG. N° P-335

PROFILE 'TTTTTTTTTTTTTT' SEE DWG. N° P-336

PROFILE 'UUUUUUUUUUUUUU' SEE DWG. N° P-337

PROFILE 'VVVVVVVVVVVVVV' SEE DWG. N° P-338

PROFILE 'WWWWWWWWWWWWWW' SEE DWG. N° P-339

PROFILE 'XXXXXXXXXXXXXX' SEE DWG. N° P-340

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PROFILE 'ZZZZZZZZZZZZZZ' SEE DWG. N° P-342

PROFILE 'AAAAAAAAAAAAAAA' SEE DWG. N° P-343

PROFILE 'BBBBBBBBBBBBBBB' SEE DWG. N° P-344

PROFILE 'CCCCCCCCCCCCCCC' SEE DWG. N° P-345

PROFILE 'DDDDDDDDDDDDDDD' SEE DWG. N° P-346

PROFILE 'EEEEEEEEEEEEEEE' SEE DWG. N° P-347

PROFILE 'FFFFFFFFFFFFFFF' SEE DWG. N° P-348

PROFILE 'GGGGGGGGGGGGGGG' SEE DWG. N° P-349

PROFILE 'HHHHHHHHHHHHHHH' SEE DWG. N° P-350

PROFILE 'IIIIIIIIIIIIIII' SEE DWG. N° P-351

PROFILE 'JJJJJJJJJJJJJJJ' SEE DWG. N° P-352

PROFILE 'KKKKKKKKKKKKKKK' SEE DWG. N° P-353

PROFILE 'LLLLLLLLLLLLLLL' SEE DWG. N° P-354

PROFILE 'MMMMMMMMMMMMMMM' SEE DWG. N° P-355

PROFILE 'NNNNNNNNNNNNNNN' SEE DWG. N° P-356

PROFILE 'OOOOOOOOOOOOOOO' SEE DWG. N° P-357

PROFILE 'PPPPPPPPPPPPPPP' SEE DWG. N° P-358

PROFILE 'QQQQQQQQQQQQQQQ' SEE DWG. N° P-359

PROFILE 'RRRRRRRRRRRRRRR' SEE DWG. N° P-360

PROFILE 'SSSSSSSSSSSSSSS' SEE DWG. N° P-361

PROFILE 'TTTTTTTTTTTTTTT' SEE DWG. N° P-362

PROFILE 'UUUUUUUUUUUUUUU' SEE DWG. N° P-363

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PROFILE 'WWWWWWWWWWWWWWW' SEE DWG. N° P-365

PROFILE 'XXXXXXXXXXXXXXX' SEE DWG. N° P-366

PROFILE 'YYYYYYYYYYYYYYY' SEE DWG. N° P-367

PROFILE 'ZZZZZZZZZZZZZZZ' SEE DWG. N° P-368

PROFILE 'AAAAAAAAAAAAAAAA' SEE DWG. N° P-369

PROFILE 'BBBBBBBBBBBBBBBB' SEE DWG. N° P-370

PROFILE 'CCCCCCCCCCCCCCCC' SEE DWG. N° P-371

PROFILE 'DDDDDDDDDDDDDDDD' SEE DWG. N° P-372

PROFILE 'EEEEEEEEEEEEEEEE' SEE DWG. N° P-373

PROFILE 'FFFFFFFFFFFFFFFF' SEE DWG. N° P-374

PROFILE 'GGGGGGGGGGGGGGGG' SEE DWG. N° P-375

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PROFILE 'RRRRRRRRRRRRRRRR' SEE DWG. N° P-386

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PROFILE 'TTTTTTTTTTTTTTTT' SEE DWG. N° P-388

PROFILE 'UUUUUUUUUUUUUUUU' SEE DWG. N° P-389

PROFILE 'VVVVVVVVVVVVVVVV' SEE DWG. N° P-390

PROFILE 'WWWWWWWWWWWWWWWW' SEE DWG. N° P-391

PROFILE 'XXXXXXXXXXXXXXXX' SEE DWG. N° P-392

PROFILE 'YYYYYYYYYYYYYYYY' SEE DWG. N° P-393

PROFILE 'ZZZZZZZZZZZZZZZZ' SEE DWG. N° P-394

PROFILE 'AAAAAAAAAAAAAAAAA' SEE DWG. N° P-395

PROFILE 'BBBBBBBBBBBBBBBBB' SEE DWG. N° P-396

PROFILE 'CCCCCCCCCCCCCCCCC' SEE DWG. N° P-397

PROFILE 'DDDDDDDDDDDDDDDDD' SEE DWG. N° P-398

PROFILE 'EEEEEEEEEEEEEEEEE' SEE DWG. N° P-399

PROFILE 'FFFFFFFFFFFFFFFFF' SEE DWG. N° P-400

PROFILE 'GGGGGGGGGGGGGGGGG' SEE DWG. N° P-401

PROFILE 'HHHHHHHHHHHHHHHHH' SEE DWG. N° P-402

PROFILE 'IIIIIIIIIIIIIIIII' SEE DWG. N° P-403

PROFILE 'JJJJJJJJJJJJJJJJJ' SEE DWG. N° P-404

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PROFILE 'NNNNNNNNNNNNNNNNN' SEE DWG. N° P-408

PROFILE 'OOOOOOOOOOOOOOOOO' SEE DWG. N° P-409

PROFILE 'PPPPPPPPPPPPPPPPP' SEE DWG. N° P-410

PROFILE 'QQQQQQQQQQQQQQQQQ' SEE DWG. N° P-411

PROFILE 'RRRRRRRRRRRRRRRRR' SEE DWG. N° P-412

PROFILE 'SSSSSSSSSSSSSSSSS' SEE DWG. N° P-413

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PROFILE 'KKKKKKKKKKKKKKKKKK' SEE DWG. N° P-431

PROFILE 'LLLLLLLLLLLLLLLLLL' SEE DWG. N° P-432

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PROFILE 'PPPPPPPPPPPPPPPPPP' SEE DWG. N° P-436

PROFILE 'QQQQQQQQQQQQQQQQQQ' SEE DWG. N° P-437

PROFILE 'RRRRRRRRRRRRRRRRRR' SEE DWG. N° P-438

PROFILE 'SSSSSSSSSSSSSSSSSS' SEE DWG. N° P-439

PROFILE 'TTTTTTTTTTTTTTTTTT' SEE DWG. N° P-440

PROFILE 'UUUUUUUUUUUUUUUUUU' SEE DWG. N° P-441

PROFILE 'VVVVVVVVVVVVVVVVVV' SEE DWG. N° P-442

PROFILE 'WWWWWWWWWWWWWWWWWW' SEE DWG. N° P-443

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PROFILE 'YYYYYYYYYYYYYYYYYY' SEE DWG. N° P-445

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PROFILE 'BBBBBBBBBBBBBBBBBBB' SEE DWG. N° P-448

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PROFILE 'EEEEEEEEEEEEEEEEEEE' SEE DWG. N° P-451

PROFILE 'FFFFFFFFFFFFFFFFFFF' SEE DWG. N° P-452

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PROFILE 'HHHHHHHHHHHHHHHHHHH' SEE DWG. N° P-454

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PROFILE 'LLLLLLLLLLLLLLLLLLL' SEE DWG. N° P-458

PROFILE 'MMMMMMMMMMMMMMMMMMM' SEE DWG. N° P-459

PROFILE 'NNNNNNNNNNNNNNNNNNN' SEE DWG. N° P-460

PROFILE 'OOOOOOOOOOOOOOOOOOO' SEE DWG. N° P-461

PROFILE 'PPPPPPPPPPPPPPPPPPP' SEE DWG. N° P-462

PROFILE 'QQQQQQQQQQQQQQQQQQQ' SEE DWG. N° P-463

PROFILE 'RRRRRRRRRRRRRRRRRRR' SEE DWG. N° P-464

PROFILE 'SSSSSSSSSSSSSSSSSSS' SEE DWG. N° P-465

PROFILE 'TTTTTTTTTTTTTTTTTTT' SEE DWG. N° P-466

PROFILE 'UUUUUUUUUUUUUUUUUUU' SEE DWG. N° P-467

PROFILE 'VVVVVVVVVVVVVVVVVVV' SEE DWG. N° P-468

PROFILE 'WWWWWWWWWWWWWWWWWWW' SEE DWG. N° P-469

PROFILE 'XXXXXXXXXXXXXXXXXXX' SEE DWG. N° P-470

PROFILE 'YYYYYYYYYYYYYYYYYYY' SEE DWG. N° P-471

PROFILE 'ZZZZZZZZZZZZZZZZZZZ' SEE DWG. N° P-472

PROFILE 'AAAAAAAAAAAAAAAAAAAA' SEE DWG. N° P-473

PROFILE 'BBBBBBBBBBBBBBBBBBBB' SEE DWG. N° P-474

PROFILE 'CCCCCCCCCCCCCCCCCCCC' SEE DWG. N° P-475

PROFILE 'DDDDDDDDDDDDDDDDDDDD' SEE DWG. N° P-476

PROFILE 'EEEEEEEEEEEEEEEEEEEE' SEE DWG. N° P-477

PROFILE 'FFFFFFFFFFFFFFFFFFFF' SEE DWG. N° P-478

PROFILE 'GGGGGGGGGGGGGGGGGGGG' SEE DWG. N° P-479

PROFILE 'HHHHHHHHHHHHHHHHHHHH' SEE DWG. N° P-480

PROFILE 'IIIIIIIIIIIIIIIIIIII' SEE DWG. N° P-481

PROFILE 'JJJJJJJJJJJJJJJJJJJJ' SEE DWG. N° P-482

PROFILE 'KKKKKKKKKKKKKKKKKKKK' SEE DWG. N° P-483

PROFILE 'LLLLLLLLLLLLLLLLLLLL' SEE DWG. N° P-484

PROFILE 'MMMMMMMMMMMMMMMMMMMM' SEE DWG. N° P-485

PROFILE 'NNNNNNNNNNNNNNNNNNNN' SEE DWG. N° P-486

PROFILE 'OOOOOOOOOOOOOOOOOOOO' SEE DWG. N° P-487

PROFILE 'PPPPPPPPPPPPPPPPPPPP' SEE DWG. N° P-488

PROFILE 'QQQQQQQQQQQQQQQQQQQQ' SEE DWG. N° P-489

PROFILE 'RRRRRRRRRRRRRRRRRRRR

CONTINUE AS PER SECTION 'C' DWG. NO. P-13

MATCH LINE

STATE ROUTE #2

155th MAIN STREET

WATER, WATER AND GAS MAIN TO REMAIN, CONNECTION NOT IN CONTRACT

CONNECT EXISTING 6" GAS AND 6" & 8" WATER LINES TO NEW MAINS

COMPREHENSIVE COMMUNITY REHABILITATION CENTER

NURSING HOME

INDUSTRIAL HOSPITAL

POOL

CENTRAL BUILDING

STORM SYSTEM NO. 8

STORM SYSTEM NO. 7

SANITARY SEWER SYSTEM NO. 2A

NOTE: INSTALL HOSE BIBB IN NEAREST LANDSCAPED AREAS

NOTE: INSTALL ON EDGE OF ALL PLAZA MANHOLES 6" OUT AWAY FROM EDGE OF CURB

NOTE: FOR CONSTRUCTION OF THIS SANITARY SEWER LINE FROM EXISTING MH NO. 155-1 TO MH NO. 155-3 SEE SPECIFICATIONS

NEW CONNECTION TO MAIN AS DIRECTED BY ASSISTANT ARCHITECT AND SEWER ENGINEER

PERMA-LOK

TO PUNTA SALINAS

TO PUNTA ESCONDIDA

TO PUNTA CHIQUITA

STATE ROUTE • 41

CONTINUE AS PER SECTION 'C' DWG. NO. P-11

MATCH LINE

SCALE: 1" = 50'-0"

SYMBOLS FOR POOL

A - SPRAY NOZZLE AND ADJUSTABLE JOINT IN SIDEWALL - 4" ABOVE WATERLINE
B - DRAIN - JOSAM G4560-60 GALVANIZED BODY, SIX-DLTE STRAINER
C - SUPPLY HYDRANT - ZURN Z-1485 ENCASED HYDRANT, 11"SQ.TOP, LOCKING COVER
D - RETURN FITTING - JOSAM 05610-B 5" GALVANIZED BODY BRONZE STRAINER - INV. 6" BELOW RIM
E - OVERFLOW - JOSAM 05410-B 2½" GALVANIZED BODY BRONZE STRAINER - INV. 6" BELOW RIM
F - DRAIN VALVE WITH CURB BOX
G - PYLON BASE DRAIN - JOSAM 4865 EP ALL BRASS, HIGH DOME — OMIT
H - GLOSS VALVE IN CURB BOX WITH LOCKED C.I. COVER — OMIT

NOTE
SPRAY NOZZLE NO. 4K 190 WITH ADJUSTABLE 3" x 2½" JOINT 20.5 G.P.M. @ 50 P.S.I. FROM WATER COOLING CORP. N.Y.

15' - 6"

EXTRA BARS

WATER-TIGHT FRAME WITH HINGED DOORS "FLOCKHART" NO. 65443

FLOW

NOTE: LEGS TO BE HOOKED AT ENDS INTO CONCRETE WALLS

PLAN

WATERTIGHT FRAME WITH HINGED DOORS "FLOCKHART" NO. 65443

GRADE

LADDER RUNGS SEE DWG. P-5 FOR DETAIL

FLOW

WALL FLANGE BOTH SIDES, CAULK BOTH SIDES OF WALL CLOW F-1408

6" COVER

DRY SUMP 18"-18"x18"

SECTION

6" PRESSURE GAUGES

FLANGE AND BELL

FLANGE AND PLAIN

METERS, VALVES AND PIPING SUPPLIED & INSTALLED AS SPECIFIED.

NOTES:
1- ALL VALVES O.S.&Y. AWWA CI. BRASS TRIM
2- ALL FITTINGS 125# CI. FLANGED
3- ALL PIPE CAST IRON CLASS CEMENT LINED

DETAIL OF METER PIT AND ASSEMBLY

SCALE: ½" = 1'-0"

KEY PLAN

CONTRACT LIMIT LINE (C.L.)

NOTE: FOR SYMBOLS AND ABBREVIATIONS, SEE DWG NO. P-11

FOR STANDARD DETAILS SEE DWG NO. P-5

SITE IMPROVEMENT AND UTILITIES

PUERTO RICO MEDICAL CENTER
RIO PIEDRAS, P.R.-PROJECT No.P.R.-1 (REVISED)

PROVISIONAL BOARD OF THE MEDICAL CENTER
COMMONWEALTH OF PUERTO RICO

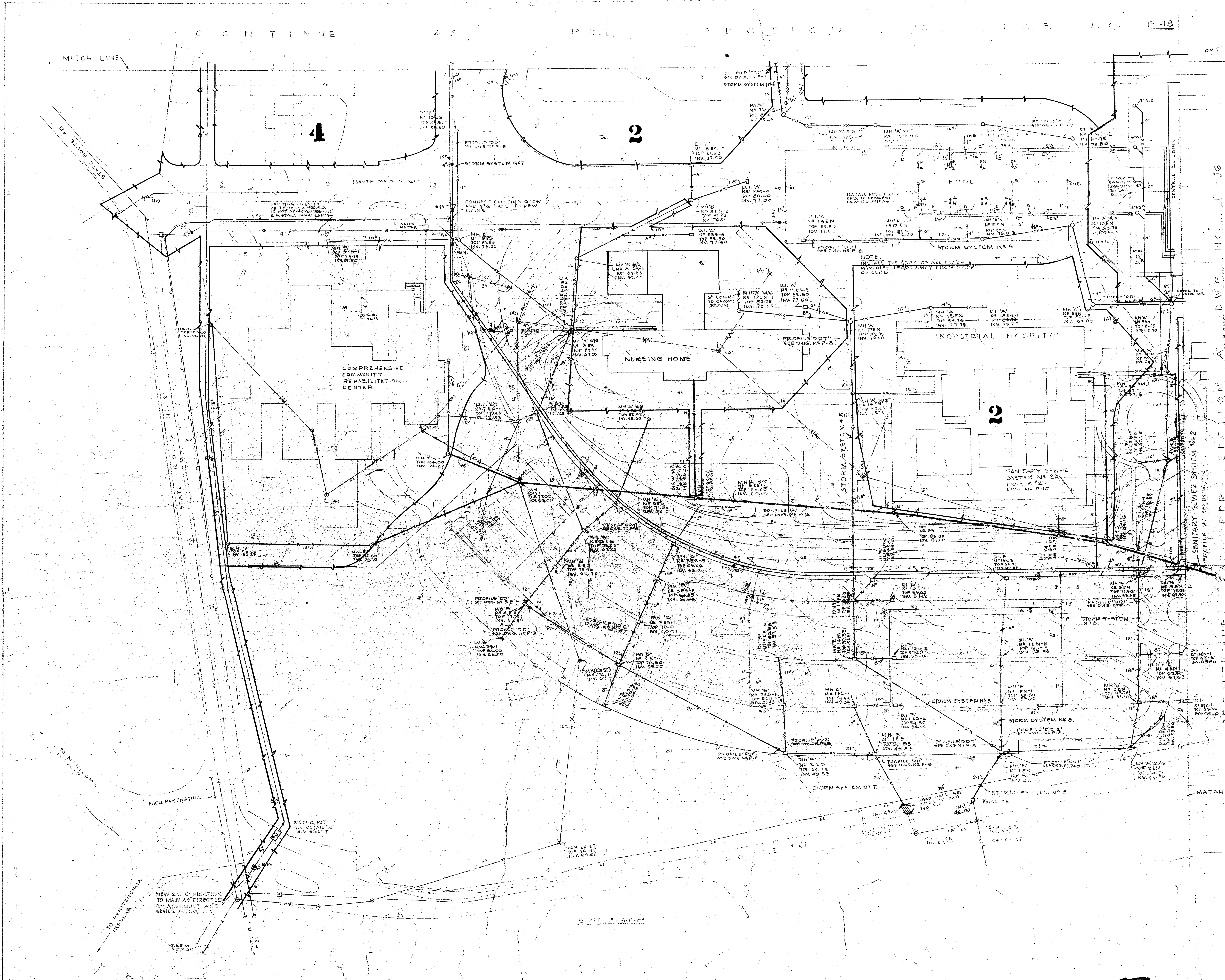
APPROVED: _____ DATE: _____
PRESIDENT: PROVISIONAL BOARD OF THE PUERTO RICO MEDICAL CENTER

WATER & GAS MAINS
STORM AND SANITARY SEWERS
PLAN SECTION 'D' PHASE 1

ISADORE & ZACHARY ROSENFIELD
ARCHITECTS & HOSPITAL CONSULTANTS
45 WEST 45 ST., NEW YORK 36, N.Y.

JOHN B. DILLON CONSULTING ENGINEER — FARRAR & BARRON STRUCTURAL ENGINEERS — COFFEY & LEVINE SITE PLANNING CONSULTANTS

SCALE:	20' SHOWN 4 1" = 50'-0"
DRAWN BY:	S.L.
CHECKED BY:	I.R.
DATE:	OCT. 1956
REVISIONS:	
JOB No:	5715-C
DRAWING No:	P-11



SYMBOLS FOR POOL

A - SPRAY NOZZLE AND ADJUSTABLE JOINT ON SIDEWALL - 4" ABOVE WATERLINE

B - DRAIN - JOSAM C4 30 - 6" GALVANIZED BODY, BRONZE STRAINER

C - SUPPLY HYDRANT - ZURN Z-1493 ENCASED HYDRANT, 1" SIZE, LOCK & COVER

D - RETURN FITTING - JOSAM B 3" GALVANIZED BODY BRONZE STRAINER - INV. 8" BELOW RIM

E - OVERFLOW - JOSAM C6 40 B 2½" GALVANIZED BODY BRONZE STRAINER - INV. 6" BELOW RIM

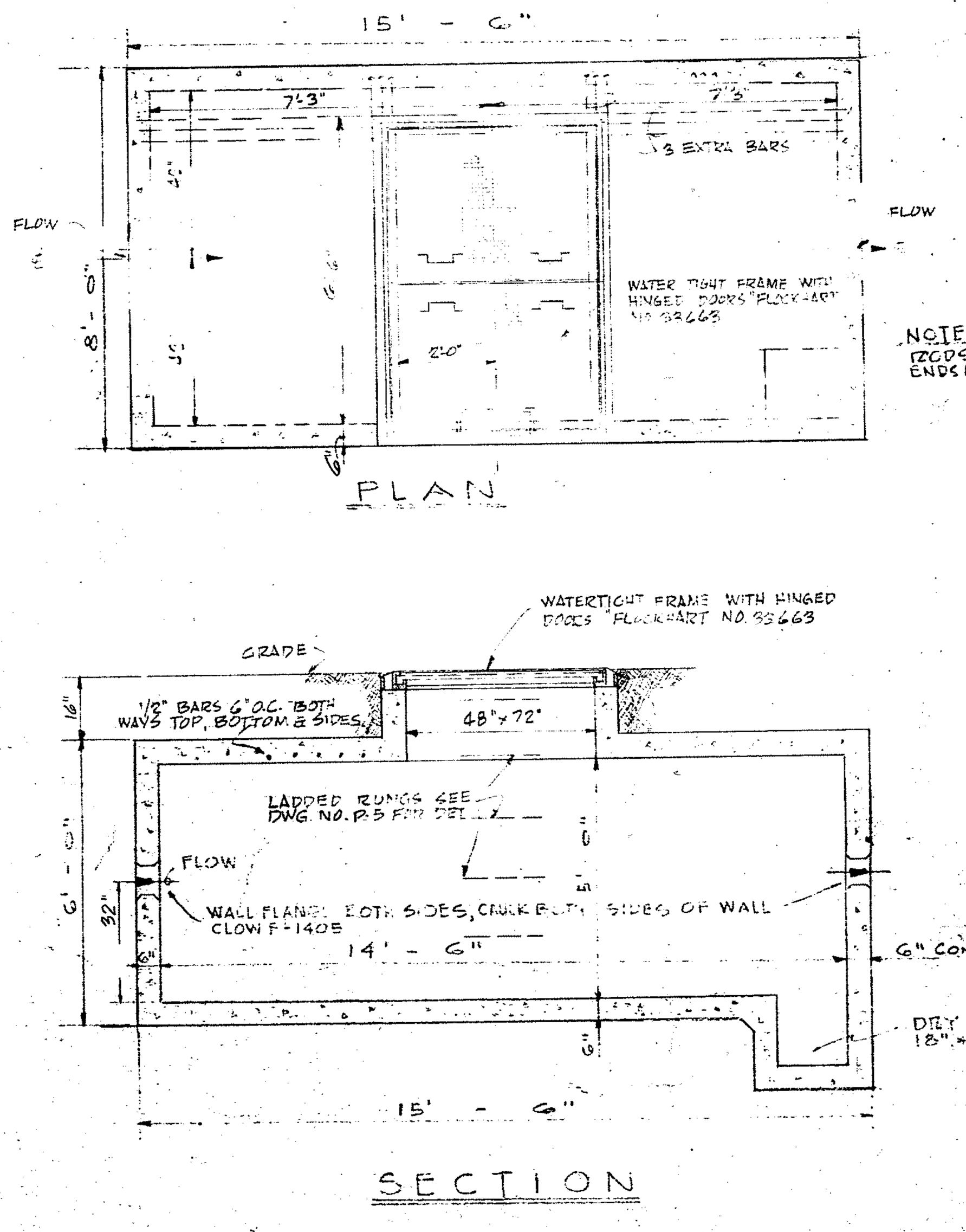
F - DRAIN VALVE WITH CURB BOX

OMIT → G - PYLON BASE DRAIN JOSAM # 4565 PP ALL BRASS HIGH DOME ← OMIT

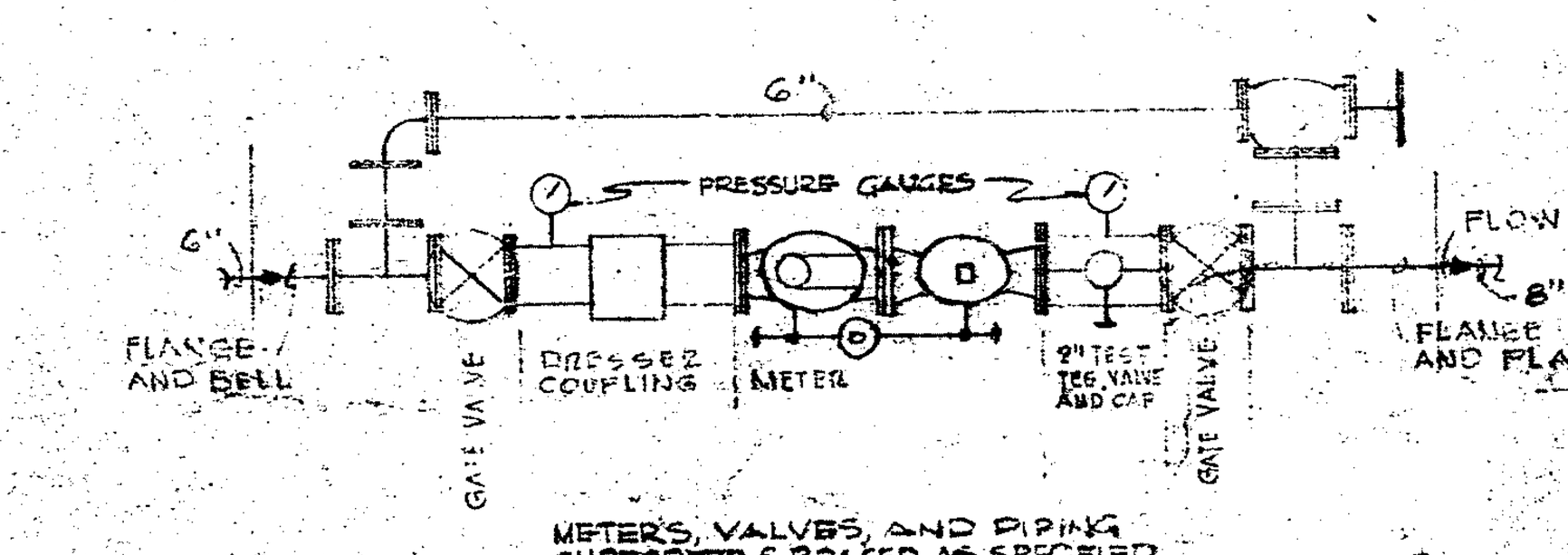
H - GLOBE VALVE IN CURB BOX WITH LOCKED C.I. COVER

NOTE

SPRAY NOZZLE Nº ¾K 120 WITH ADJUSTABLE ¾" × ¾" JOINT 26.8 G.P.M. @ 50 P.S.I. FROM WATER COOLING CORP. N.Y.



NOTE: RODS TO BE HOOKED AT ENDS INTO CONCRETE WALLS



METERS, VALVES, AND PIPING SUPPORTED & BRACED AS SPECIFIED

NOTES:

1- ALL VALVES O.S.&Y AWWA C.I. BRASS TRIM

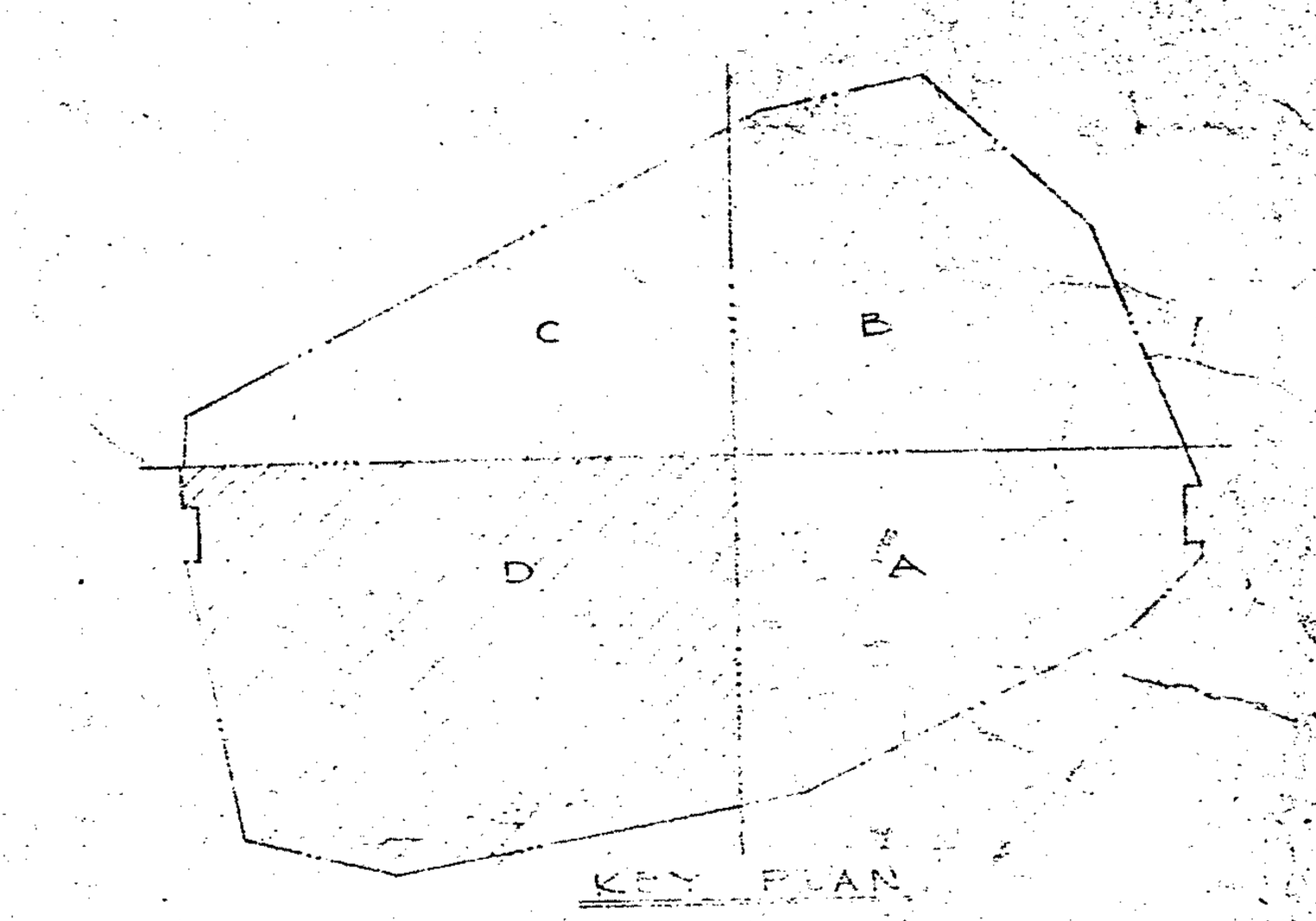
2- ALL FITTINGS 125# C.I. FLANGED

3- ALL PIPE C.I. 150# CLASS CEMENT LINED

DETAIL 'N'

METER PIT AND ASSEMBLY

SCALE: ½" = 1'-0"



KEY PLAN

— — CONTRACT LIMIT LINE (CL.)

NOTE: FOR SYMBOLS AND ABBREVIATIONS SEE DWG Nº P-16

FOR STANDARD DETAILS SEE DWG Nº P-5

SITE IMPROVEMENT AND UTILITIES	SCALE: 1" = 50'-0" & AS SHOWN
PUERTO RICO MEDICAL CENTER	DRAWN BY: P.M.
RIO PIEDRAS, P.R.-PROJECT No.P.R.11(REVISED)	CHECKED BY: I.S.
PROVISIONAL BOARD OF THE MEDICAL CENTER	DATE: OCT 28,60
COMMONWEALTH OF PUERTO RICO	REVISIONS:
APPROVED: ______ DATE ______ PRESIDENT: PROVISIONAL BOARD OF THE PUERTO RICO MEDICAL CENTER	
WATER & GAS MAINS STORM AND SANITARY SEWERS PLAN SECTION 'D' PHASE 2,3&4	
ISADORE & ZACHARY ROSENFIELD ARCHITECTS & HOSPITAL CONSULTANTS 45 WEST 45 ST., NEW YORK 36, N.Y.	JOB No: 5715.C
JOHN D. DILLON CONSULTING ENGINEER / FARRAS & BARRON STRUCTURAL ENGINEER / COFFEY & LEVINE SITE PLANNING CONSULTANTS	DRAWING No. P-19

LEGEND

- BUILDING CONTRACT LINE
- PLOT PERIMETER
- FENCE AT PLOT PERIMETER
- MATCH LINE
- FUTURE BUILDING EXPANSION & FUTURE ROADS
- PHASING LIMIT LINE

GENERAL NOTES

1. CONTRACTOR TO VERIFY ALL CONDITIONS, LOCATIONS & DIMENSIONS AT SITE.
2. STREET LIGHTING CABLE TO BE LAID CLOSE TO CURBS SO AS TO AVOID TREES AND PLANTING.
3. CONTRACTOR TO CO-ORDINATE STREET LIGHTING LOCATIONS WITH TREES, PLANTING AND LANDSCAPING LOCATIONS AND DETAILS SO AS TO AVOID CONFLICTS.
4. SEE DWG. "E7" FOR SECTIONS AND DETAILS.
5. DUCTS AND CONNECTIONS SHOWN TO FUTURE BUILDINGS ARE DEPENDANT UPON FUTURE BUILDING LOCATIONS AND ITS ELECTRICAL FACILITIES LOCATIONS (WHICH SHALL BE VERIFIED BY CONTRACTOR). CONTRACTOR SHALL PROVIDE DUCTS AND CONNECTIONS TO FUTURE BUILDINGS AS REQUIRED BY THE ENGINEER.
6. PICK UP TELEPHONE SERVICE FROM PUERTO RICO TELEPHONE CO. POLE AND MANHOLES.
7. CONTRACTOR IS TO VERIFY ALL BUILDINGS AND ELECTRIC FACILITIES LOCATIONS.
8. EXACT LOCATIONS OF CONDUIT TERMINATIONS SHALL BE VERIFIED BY CONTRACTOR BY SITE INSPECTION OF EQUIPMENT LOCATIONS.
9. GROUNDING SYSTEMS AS REQUIRED BY LOCAL ELECTRICAL CODE AND P.R.W.R.A. REGULATIONS SHALL BE SUPPLIED AND INSTALLED. GROUND ALL EQUIPMENT AS SPECIFIED BY EQUIPMENT MANUFACTURERS.
10. ALL SCHEDULES ARE PREPARED FOR DESIGN CONVENIENCE. ALL QUANTITIES AND SIZES SHALL BE VERIFIED BY CONTRACTOR FROM THESE PLANS.
11. CIRCUIT NUMBERS ARE ASSIGNED FOR DESIGN CONVENIENCE. PHASE LOADINGS SHALL BE BALANCED AT EACH PANEL TO DESIGN LIMITS SET BY P.R.W.R.A.
12. INSTALL ALL CONTROL WIRING, CONDUITS AND DEVICES AS REQUIRED BY MANUFACTURERS CONTROL WIRING REQUIREMENTS FOR INDIVIDUAL EQUIPMENT, MOTORS AND CONTROL PANELS.
13. ALL OUTDOOR CONDUITS AND EQUIPMENT TO BE WATER TIGHT. SLEEVES WHERE NECESSARY.
14. ALL EXPOSED CONDUIT SHALL BE FLAT, SNUG TO MOUNTING SURFACE AND PARALLEL TO WALLS.
15. CONTRACTOR TO REMOVE ALL EXISTING ABOVE GROUND ELECTRICAL FACILITIES AND EQUIPMENT AND ABANDON ALL EXISTING UNDERGROUND ELECTRICAL FACILITIES AND CAP ALL LIVE ENDS THROUGHOUT SITE AS WORK PROGRESS OBSOLETES SAID ELECTRICAL FACILITIES AND EQUIPMENT. ALL REMOVALS AND ABANDONMENTS SHALL BE DONE AS DIRECTED BY THE ENGINEERS.
16. CONTRACTOR TO CO-ORDINATE WITH ALL TRADES AND VERIFY AND CO-ORDINATE WITH ALL WORK UNDER ALL OTHER SECTIONS OF THE SPECIFICATIONS. DO NOT CONFLICT WITH STEAM, WATER, GAS, OXYGEN, SOIL, ETC. LINES. WHERE NECESSARY ADJUST ELECTRIC WORK LOCATIONS AND ELEVATIONS AS DIRECTED AND APPROVED BY THE ENGINEER.

ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
W.P.	WEATHER PROOF
E.C.	EMPTY CONDUIT
	ELECTRIC PANEL
	CONDUIT CONCEALED IN CEILING.
	CONDUIT CONCEALED IN FLOOR (PUMP HOUSE ONLY)
	CONDUIT EXPOSED
	CONDUIT GOING UP
	CONDUIT GOING DOWN
	HOME RUN. NUMBER OF ARROWS DENOTES QUANTITY OF CIRCUITS. NUMBER OF CROSS LINES DENOTES QUANTITY OF WIRES. ALL CONDUITS, UNLESS OTHERWISE NOTED ON PLANS OR IN SCHEDULES, ARE ¾" AND CONTAIN 2 #12 WIRES. USE #10 WIRES IN ALL BRANCH CIRCUITS OF 100' OR OVER.
A.F.F.	ABOVE FINISHED FLOOR
	CEILING OUTLET
A	CEILING OUTLET, LIGHTING FIXTURE LETTER DENOTES FIXTURE TYPE
bH	WALL OUTLET, LIGHTING FIXTURE LETTER DENOTES FIXTURE TYPE
	WALK WAY LIGHT - PRESCOLITE CAT. # OL45SP SEE DETAIL ON DWG. # E-6
	UNDER TREE LIGHT - 500W. - SIMES CAT. "44923-S OR EQUAL SEE DETAIL ON DWG. # E-6
	POOL LIGHT - 300W. - SIMES CAT. "45212 OR EQUAL SEE DETAIL ON DWG. # E-6
J	JUNCTION BOX
	DUPLEX CONVENIENCE RECEPTACLE 120 VOLTS, 20 AMPS.
	DUPLEX CONVENIENCE RECEPTACLE GROUNDING TYPE, 120 VOLTS, 20 AMPS.
S	SINGLE POLE, SINGLE THROW SWITCH.
SP	SINGLE POLE, SINGLE THROW SWITCH WITH LIGHTED ACTIVATOR.
	CAST ALUMINUM 8"x8"x4" WATERTIGHT DIRECT BURIAL JUNCTION BOX.
70	DISCONNECT SWITCH, NUMBER INDICATES FUSE SIZE WHEN FUSED.
	MOTOR STARTER.
	MOTOR STARTER, HAND-OFF-AUTOMATIC
7½	COMBINATION MOTOR STARTER, NUMBER INDICATES FUSE SIZE WHEN FUSED.
Z	MOTOR, NUMBER INDICATES HORSE-POWER
D	FIRE ALARM AUTOMATIC COMBINATION DETECTOR, RATED AT 135° F, CEILING RECESSED OUTLET BOX MTD.
F	FIRE ALARM MANUAL BREAK GLASS STATION
G	FIRE ALARM GONG - 10" DIAM. - WALL MOUNTED.
	INTERCOM. TELEPHONE AND OUTLET BOX WITH RECEPTACLE, WALL MOUNTED.
C	CLOCK AND OUTLET - 12" SINGLE FACE - FLUSH MOUNTED
	ELECTRICAL DUCT BANK, IN SITE WORK CONTRACT. SEE SECTIONS ON DWG. E-7 FOR CABLES & WIRES IN DUCT BANK.
	ELECTRICAL DUCT BANK CABLE, WIRES AND/OR CONDUITS FURNISHED UNDER INDIVIDUAL BUILDING CONTRACTS. DO NOT INCLUDE AS PART OF SITE CONTRACT WORK.
	CABLE IN OUTDOOR UNDERGROUND ALUMINUM CONDUIT. TICKS INDICATE NUMBER OF WIRES IN CONDUIT. WIRES MIN. #10.
	HOME RUN - OUTDOOR ALUMINUM UNDERGROUND CONDUIT. NUMBER OF ARROWS DENOTES QUANTITY OF CIRCUITS. TICKS DENOTE QUANTITY OF WIRES. ALL CONDUITS UNLESS OTHERWISE NOTED ON PLANS OR IN SCHEDULES ARE 1" AND CONTAIN 2 #10 WIRES. ALL WIRES MIN. #10.
	½" ϕ 5 KV. DIRECT BURIAL CABLE UNDER OTHER CONTRACTS. TICKS INDICATE NUMBER OF CABLES IN TRENCH.
	½" ϕ 5 KV. DIRECT BURIAL CABLE IN SITE WORK. TICKS INDICATE NUMBER OF CABLES IN TRENCH.
	2" OUTDOOR ALUMINUM UNDERGROUND CONDUIT, BURIED A MINIMUM OF 2'-6" BELOW FINISHED GRADE. TICKS INDICATE NUMBER OF ½" ϕ 5 KV. STREET LIGHTING CABLES IN CONDUIT. CONDUIT SHOULD EXTEND A MIN. OF 5 FEET BEYOND ON EACH SIDE OF ROADWAY OR PAVED SURFACES PASSED.
	2" OUTDOOR ALUMINUM UNDERGROUND CONDUIT & CABLES. UNDER OTHER CONTRACTS.
	POWER AND SIGNAL MANHOLE (IN SITE WORK UNLESS OTHERWISE NOTED IN MANHOLE SCHEDULE)
	POWER MANHOLE
	SIGNAL MANHOLE (TELEPHONE)
	UNIT SUB-STATION. ALL (EXCEPT PUMP HOUSE SUB-STATION) ARE UNDER OTHER CONTRACTS.
	OUTDOOR UNDER GROUND PULL BOX - UNDER OTHER CONTRACTS.
	STREET LIGHTING STANDARD - SINGLE ARM
	STREET LTG. STANDARD - SINGLE ARM - UNDER OTHER CONTRACT
	STREET LTG. STANDARD - DOUBLE ARM
	STREET LTG. STANDARD - DOUBLE ARM - UNDER OTHER CONTRACT.
T.O.EL. 76.0	WHERE CROSSING UNDER OTHER SERVICES THIS INDICATES "TOP OF ELECT. DUCT ELEVATION 76.0"
B.O.EL. 71.0	WHERE CROSSING OVER OTHER SERVICES THIS INDICATES "BOTTOM OF ELECT. DUCT ELEVATION 71.0"

PUERTO RICO WATER RESOURCE AUTHORITY
SECONDARY IN OUTDOOR SUBSTATION Nº 1827
4160 V. 3ϕ, 60 CYCLE

5KV. OUTDOOR METAL ENCLOSED OIL CIRCUIT BREAKERS, 500A. TRIP 100,000A. I.C.; CONFORM TO ALL P.R.W.R.A. REQUIREMENTS.

FEEDER # 1 | FEEDER # 2 | FEEDER # 3 | FEEDER # 4 | FEEDER # 5 | FEEDER # 6

MANHOLE # 1

NURSING HOME — M.H. 4
COMPREHENSIVE COMMUNITY REHAB. CENTER — M.H. 3 — SECTIONALIZER
PUMP HOUSE — M.H. 42
FUTURE HEALTH CENT.
INDUSTRIAL HOSPITAL — M.H. 26
CENTRAL BLDG. — M.H. 29
CENTRAL BLDG. — M.H. 34
CAFETERIA — M.H. 40
MEDICAL SCIENCE BLDG. — M.H. 35
DISTRICT HOSPITAL — M.H. 41
CLINICAL RESEARCH
MEDICAL SCIENCE BLDG. — M.H. 31, M.H. 33, M.H. 11
M.H. 36, M.H. 38, M.H. 9 — FUTURE MUNICIPAL HOSPITAL
M.H. 16 — FUTURE STUDENT DORM. & APARTMENT BUILDING AND FACILITIES
M.H. 15
M.H. 14 — FUTURE SCHOOL OF NURSING AND STUDENT & GRAD NURSES DORM.
M.H. 13
M.H. 11 — GARAGE, WAREHOUSE & TEXTILE CENT.
EXISTING TB PAVILION — M.H. 17
SECTIONALIZER — M.H. 22
BIO MEDICAL BLDG. A.E.C.
SECTIONALIZER — M.H. 23
ONCOLOGIC HOSPITAL
LAUNDRY — M.H. 39
POWER PLANT — M.H. 40

NOTE:
ALL NORMAL SERVICE POWER FEEDERS ARE 3-1/c, 500 MCM, 5KV. UNDER GROUND CABLE.

NORMAL SERVICE POWER ONE-LINE DISTRIBUTION DIAGRAM
(NO SCALE)

PUERTO RICO MEDICAL CENTER EMERGENCY GENERATOR BUS IN POWER PLANT
4160 V. 3ϕ, 60 CYCLE

FEEDER # E1 | FEEDER # E2 | FEEDER # E3 | FEEDER # E4

MANHOLE # 40
POWER PLANT
CENTRAL BLDG. — M.H. 29
CAFETERIA
M.H. 39 — CENTRAL BLDG.
M.H. 11 — GARAGE WAREHOUSE & TEXTILE CENTER
M.H. 42 — PUMP HOUSE
M.H. 39 — LAUNDRY

NOTE:
ALL EMERGENCY SERVICE POWER FEEDERS ARE 3-1/c, #2 AWG., 5KV. UNDERGROUND CABLE.

EMERGENCY SERVICE POWER ONE-LINE DISTRIBUTION DIAGRAM
(NO SCALE)

SITE IMPROVEMENT AND UTILITIES

PUERTO RICO MEDICAL CENTER
RIO PIEDRAS, P.R. - PROJECT No. P.R. 11 (REVISED)

PROVISIONAL BOARD OF THE MEDICAL CENTER
COMMONWEALTH OF PUERTO RICO

APPROVED: ..... DATE .....
PRESIDENT: PROVISIONAL BOARD OF THE PUERTO RICO MEDICAL CENTER

ELECTRIC WORK
WIRING DIAG., DETAILS & SYMBOLS

SCALE: AS NOTED
DRAWN BY: P.M.
CHECKED BY: H.L.L.
DATE: OCT. 18, 60
REVISIONS

ISADORE & ZACHARY ROSENFIELD
ARCHITECTS & HOSPITAL CONSULTANTS
49 WEST 45 ST. NEW YORK 36, N.Y.

JOHN D. GILLON, CONSULTING ENGINEER
FARKAS & BARRON, STRUCTURAL ENGINEER
COFFEY & LEVINE, SITE PLANNING CONSULTANTS

JOB No: 5715-C
DRAWING No.
E-8

HEALTH CENTER

PARKING AREA "E"

WEST ROAD

STATE ROUTE # 21

PASS OVER STEAM CONDUIT. TOP OF ELECTRIC DUCT EL. 82.6'

EXISTING TEL. CO. DUCT LINE

EXIST. TEL. M.H. #18

TO PSYCHIATRIC HOSP. (NOT ON SITE)

PASS OVER STEAM CONDUIT

SOUTH MAIN STREET

EXISTING TEL. CO. DUCT LINES

EXISTING TEL. M.H. #19

MATCH LINE FOR CONT., SEE DWG. No E-11

THIS DUCT RUN IN PHASE #1

ELECTRIC DUCT TO PASS UNDER TUNNEL

M.H. #37

M.H. #36

M.H. #35 DROPPED MANHOLE

TO CENTRAL BLDG. LP-BP-1,3,5

TO CENTRAL BLDG. LP-BO-1,3,5

EXIST. TEL. M.H. #20

EXISTING TEL. CO. DUCT LINE

EXIST. TEL. M.H. #21

CENTRAL BUILDING

TO CENTRAL BLDG. LP-BO-M,N

TO CENTRAL BLDG. LP-BO-M,15

TO CENTRAL BLDG. LP-BO-2,4,6

TO CENTRAL BLDG. LP-BO-8,10,12

TO CENTRAL BLDG. LP-BP-2,4,6

PASS OVER STEAM CONDUIT. TOP OF ELEC. DUCT EL. 81.5'

PASS OVER STEAM CONDUIT. TOP OF ELECTRIC DUCT EL. 75.0'

TO NURSING HOME ELP-16-F

CAP AT BUILDING LINE

NURSING HOME

M.H. #4

COMPREHENSIVE COMMUNITY REHABILITATION CENTER

EAST ROAD

M.H. #3

CONNECT TO BLDG. DUCTS

CAP AT BUILDING CONTRACT LIMIT LINE

M.H. #27

TO CENTRAL BLDG. LP-BP-7

INDUSTRIAL HOSPITAL

THIS PORTION OF DUCT BANK IN PHASE #1

M.H. #26

FUTURE OUTDOOR RECREATION AREA

PASS UNDER STEAM CONDUIT. TOP OF ELECTRIC DUCT EL. 67.0'

M.H. #2

M.H. #25

M.H. #24

PARKING AREA "A"

M.H. #1

P.R.W.R.A. SUB-STATION #1527

TERMINATE ELECTRIC DUCTS AT OUTDOOR SUB-STATION LINE AS PER P.R.W.R.A. REGULATIONS AND REQUIREMENTS.

MATCH LINE FOR CONT., SEE DWG. N° E-9

STATE ROUTE # 21

STATE ROUTE # 41

NOTES:

1. SEE DWG. E-8 FOR SYMBOLS AND LEGEND LISTS AND GENERAL NOTES.
2. SEE DWGS. E-6 AND E-7 FOR SECTIONS AND DETAILS
3. ALL SITE ELECTRIC WORK IS IN PHASE N°1 UNLESS ENCLOSED BY PHASE LINE (—/—/—) ACCOMPANIED BY PHASE N° 2,3 OR 4 WHICH INDICATES PHASE IN WHICH WORK IS TO BE DONE

NORTH

KEY PLAN

SITE IMPROVEMENT AND UTILITIES

PUERTO RICO MEDICAL CENTER

RIO PIEDRAS, P.R. - PROJECT No. P.R. 11 (REVISED)

PROVISIONAL BOARD OF THE MEDICAL CENTER

COMMONWEALTH OF PUERTO RICO

APPROVED: ..... DATE: .....

PRESIDENT, PROVISIONAL BOARD OF THE PUERTO RICO MEDICAL CENTER

ELECTRIC SYSTEM - PHASING - PLAN SECTION "D"

SCALE: 1" = 50'

DRAWN BY: B.Jr.

CHECKED BY: M.L.K.

DATE: OCT. 28, 60

REVISIONS:

ISADORE & ZACHARY ROSENFIELD

ARCHITECTS & HOSPITAL CONSULTANTS

45 WEST 45 ST., NEW YORK 36, N.Y.

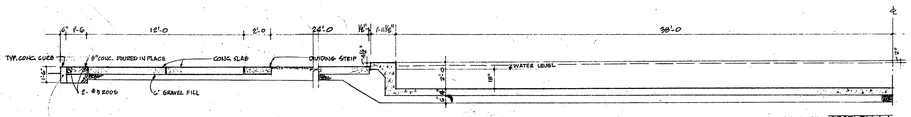
JOB No: 5715C

DRAWING No. E-12

JOHN D. DILLON - CONSULTING ENGINEER

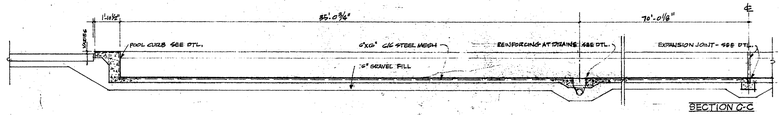
FARRES & BARRON - STRUCTURAL ENGINEERS

COFFEY & LEVINE - SANITARY & MECHANICAL ENGINEERS



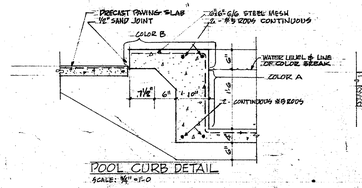
SECTION A-A

SECTION B-B

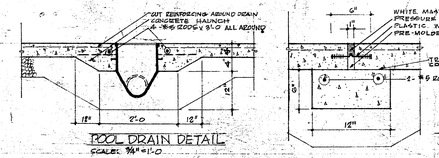


SECTION C-C

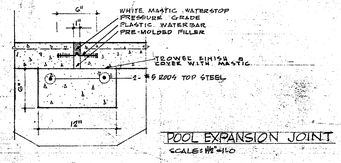
POOL SECTIONS
SCALE: 1/8"=1'-0



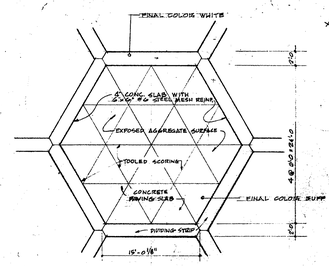
POOL CURB DETAIL
SCALE: 3/4"=1'-0



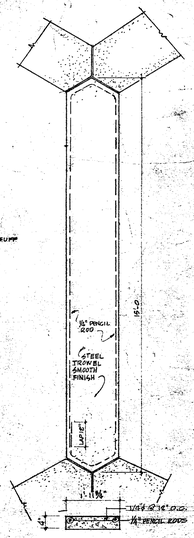
POOL DRAIN DETAIL
SCALE: 3/4"=1'-0



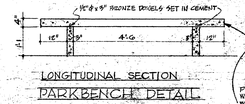
POOL EXPANSION JOINT
SCALE: 1 1/2"=1'-0



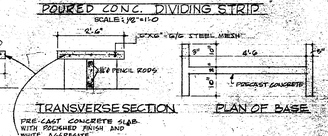
TYPICAL CONC. PAVING SLAB
SCALE: 1/8"=1'-0



POURED CONC. DIVIDING STRIP
SCALE: 1/2"=1'-0

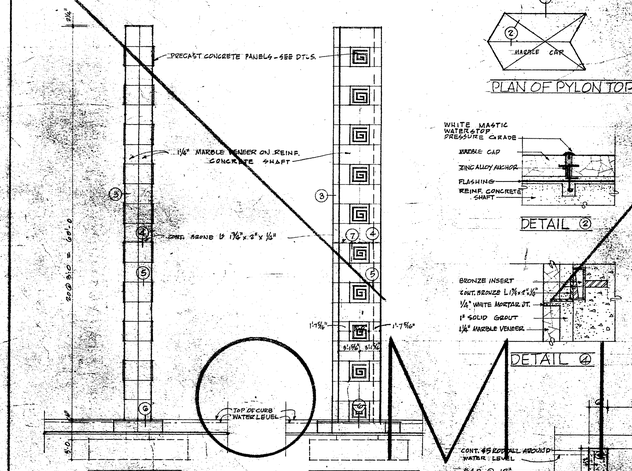


LONGITUDINAL SECTION
PARKBENCH DETAIL



TRANSVERSE SECTION

PLAN OF BASE



ELEVATION 1-1

ELEVATION 2-2

PLAN OF PYLON TOP

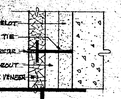
DETAIL ①

DETAIL ②

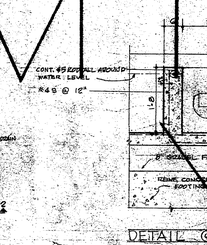


DETAIL ③

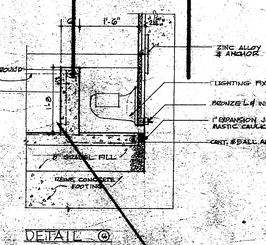
DETAIL ④



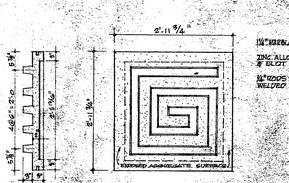
DETAIL ⑤



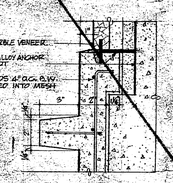
PYLON PLAN
SCALE: 1/8"=1'-0



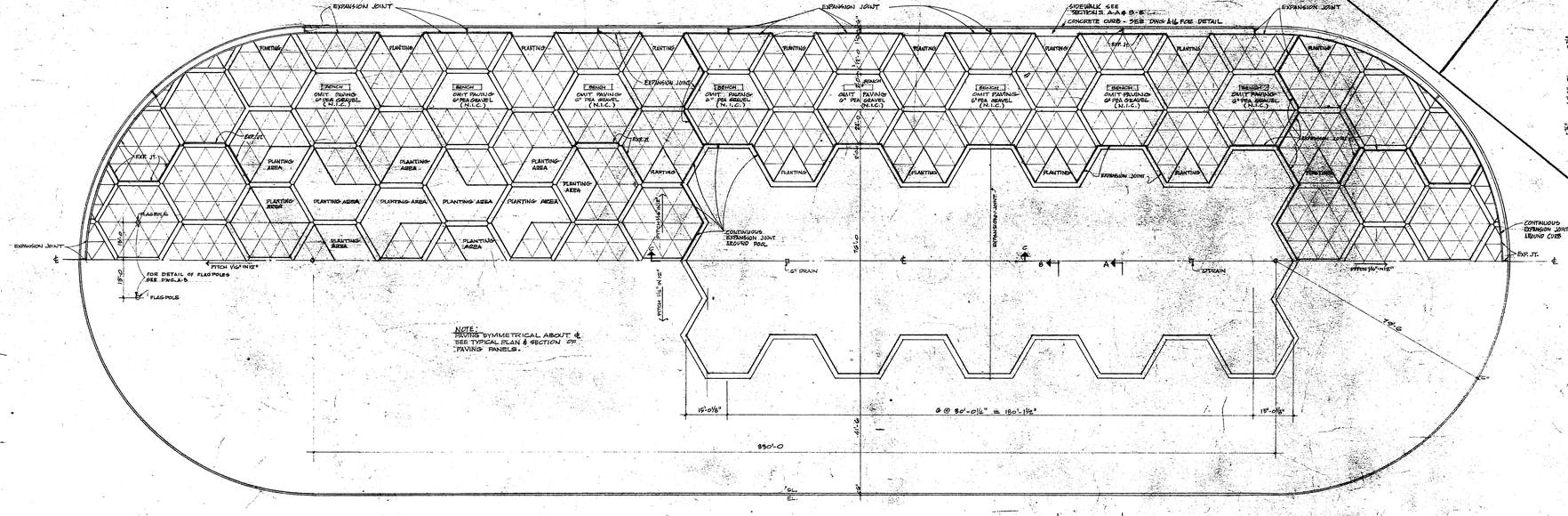
DETAIL ⑥
SCALE: 3/4"=1'-0



PRECAST CONCRETE PANEL
SCALE: 3/4"=1'-0



DETAIL ⑦
SCALE: 3"=1'-0"



PLAN OF PLAZA
SCALE: 1/60"=1'-0

SITE IMPROVEMENT AND UTILITIES

PUERTO RICO MEDICAL CENTER
RIO PIEDRAS, P.R.-PROJECT No. P.R. 11 (REVISED)

PROVISIONAL BOARD OF THE MEDICAL CENTER
COMMONWEALTH OF PUERTO RICO

APPROVED: _____ DATE: _____
PRESIDENT: PROVISIONAL BOARD OF THE PUERTO RICO MEDICAL CENTER

ARCHITECTURAL
POOL & PLAZA PLANS

ISADORE & ZACHARY ROSENFIELD
ARCHITECTS & HOSPITAL CONSULTANTS
45 WEST 45 ST., NEW YORK 36, N.Y.

JOHN D. DILLON, CONSULTING ENGINEER
FARKAS & BARRON, STRUCTURAL ENGINEER
COFFEY & LEVINE, SITE PLANNING CONSULTANTS

SCALE:	AS SHOWN
DESIGN BY:	W.S.
CHECKED BY:	J.D.
DATE:	9/15/49
REVISIONS:	
	MAY 14, 1950
	JULY 15, 1950
	OCT. 25, 1950

JOB No: 5715-C
DRAWING No. A-7

SCHEDULE OF DRAWINGS

ARCHITECTURAL

A-1 PLOT PLAN
A-2 SITE PLAN - SECTION A
A-3 SITE PLAN - SECTION B
A-4 SITE PLAN - SECTION C
A-5 SITE PLAN - SECTION D
A-6 WATER TANK RESERVOIR AND PUMP HOUSE
A-7 POOL AND PLAZA PLANS
A-8 OMITTED
A-9 OMITTED
A-10 OMITTED
A-11 OMITTED
A-12 SITE CROSS SECTION
A-13 SITE CROSS SECTION
A-14 SITE CROSS SECTION
A-15 SITE CROSS SECTION
A-16 ROAD PROFILES AND DETAILS
A-17 DEMOLITION PHASING
A-18 CONSTRUCTION PHASING
A-19 SITE PLAN - PHASE I
A-20 SITE PLAN - PHASE I
A-21 SITE PLAN - PHASE I
A-22 SITE PLAN - PHASE I
A-23 SITE PLAN - PHASE 2,3,& 4
A-24 SITE PLAN - PHASE 2,3,& 4
A-25 SITE PLAN - PHASE 2,3,& 4
A-26 SITE PLAN - PHASE 2,3,& 4

STRUCTURAL

S-1 WATER RESERVOIR TANK & DETAILS
S-2 PUMP HOUSE & DETAILS & RETAINING WALL A

MECHNICAL

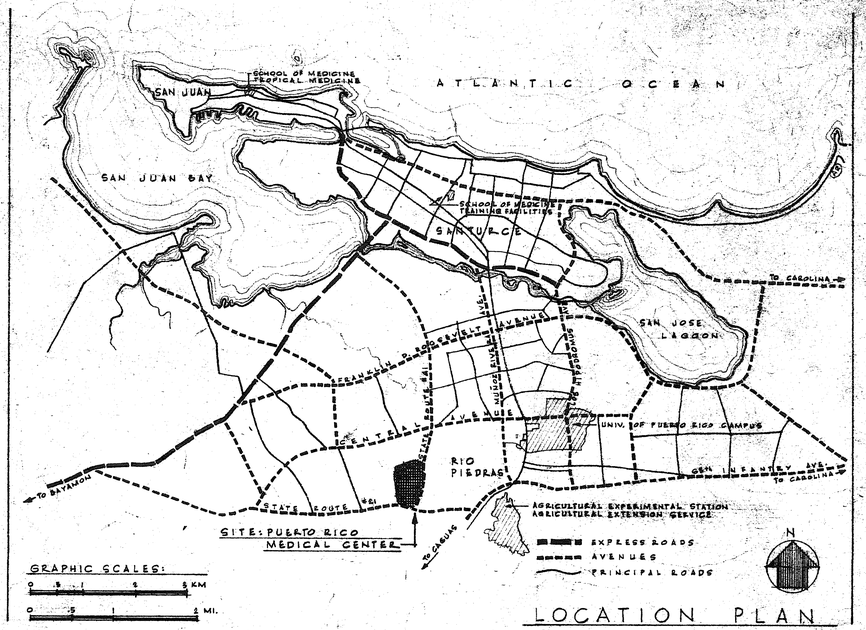
M-1 UNDERGROUND STEAM DISTRIBUATION - PLAN - SECTION - A
M-2 UNDERGROUND STEAM DISTRIBUATION - PLAN - SECTION - B
M-3 UNDERGROUND STEAM DISTRIBUATION - PLAN - SECTION - C
M-4 UNDERGROUND STEAM DISTRIBUATION - PLAN - SECTION - D
M-5 CONDUIT PROFILES
M-6 CONDUIT PROFILES
M-7 EXPANSION LOOP DETAILS AND SCHEDULES
M-8 ANCHOR DETAILS AND SCHEDULES
M-9 MANHOLE STRUCTURAL DETAILS AND SCHEDULES
M-10 MANHOLE DETAILS
M-11 MANHOLE DETAILS
M-12 MANHOLE DETAILS
M-13 MANHOLE DETAILS
M-14 UNDERGROUND STEAM DISTRIBUATION - PHASING PLAN - SECTION - A
M-15 UNDERGROUND STEAM DISTRIBUATION - PHASING PLAN - SECTION - B
M-16 UNDERGROUND STEAM DISTRIBUATION - PHASING PLAN - SECTION - C
M-17 UNDERGROUND STEAM DISTRIBUATION - PHASING PLAN - SECTION - D
M-18 STEAM CONDUIT SECTIONS

PLUMBING

P-1 WATER & GAS MAINS - STORM & SANITARY SEWER - PLAN - SECTION - A
P-2 WATER & GAS MAINS - STORM & SANITARY SEWER - PLAN - SECTION - B
P-3 WATER & GAS MAINS - STORM & SANITARY SEWER - PLAN - SECTION - C
P-4 WATER & GAS MAINS - STORM & SANITARY SEWER - PLAN - SECTION - D
P-5 STANDARD DETAILS
P-6 STORM SEWERS PROFILES
P-7 STORM SEWERS PROFILES
P-8 STORM SEWERS PROFILES
P-9 SANITARY SEWERS PROFILES
P-10 SANITARY SEWERS PROFILES
P-11 WATER & GAS MAINS - STORM & SANITARY SEWERS - PLAN - SECTION A - PHASE 1
P-12 WATER & GAS MAINS - STORM & SANITARY SEWERS - PLAN - SECTION B - PHASE 1
P-13 WATER & GAS MAINS - STORM & SANITARY SEWERS - PLAN - SECTION C - PHASE 1
P-14 WATER & GAS MAINS - STORM & SANITARY SEWERS - PLAN - SECTION D - PHASE 1
P-15 SANITARY SEWERS - PROFILES - PHASE 1
P-16 WATER & GAS MAINS - STORM & SANITARY SEWERS - PLAN - SECTION A - PHASE 2, 3 & 4
P-17 WATER & GAS MAINS - STORM & SANITARY SEWERS - PLAN - SECTION B - PHASE 2, 3 & 4
P-18 WATER & GAS MAINS - STORM & SANITARY SEWERS - PLAN - SECTION C - PHASE 2, 3 & 4
P-19 WATER & GAS MAINS - STORM & SANITARY SEWERS - PLAN - SECTION D - PHASE 2, 3 & 4

ELECTRICAL

E-1 ELECTRICAL SYSTEM - PLAN - SECTION A
E-2 ELECTRICAL SYSTEM - PLAN - SECTION B
E-3 ELECTRICAL SYSTEM - PLAN - SECTION C
E-4 ELECTRICAL SYSTEM - PLAN - SECTION D
E-5 PUMP HOUSE PLAN & DETAILS
E-6 MISCELLANEOUS DETAILS
E-7 MANHOLE SCHEDULES & DUCT SECTIONS
E-8 WIRING DIAGRAMS, DETAILS & SYMBOLS
E-9 ELECTRIC SYSTEM - PHASING PLAN - SECTION A
E-10 ELECTRIC SYSTEM - PHASING PLAN - SECTION B
E-11 ELECTRIC SYSTEM - PHASING PLAN - SECTION C
E-12 ELECTRIC SYSTEM - PHASING PLAN - SECTION D



LOCATION PLAN

SITE IMPROVEMENT AND UTILITIES

PUERTO RICO MEDICAL CENTER
RIO PIEDRAS, PUERTO RICO - PROJECT Nº PR-11 (REVISED)

PROVISIONAL BOARD OF THE MEDICAL CENTER
COMMONWEALTH OF PUERTO RICO

APPROVED: _____ DATE: Nov 23, 1960
PRESIDENT, PROVISIONAL BOARD OF THE P.R. MEDICAL CENTER

THIS PROJECT WILL BE CONSTRUCTED WITH FEDERAL AID UNDER PUBLIC LAW Nº 725 - 79th CONGRESS AS AMENDED BY LAW Nº 380 — 80th CONGRESS.

APPROVED: _____ DATE: Nov. 23, 1960
PROJECT DIRECTOR, PROVISIONAL BOARD OF THE P.R. MEDICAL CENTER

ISADORE AND ZACHARY ROSENFIELD
ARCHITECTS - HOSPITAL CONSULTANTS
45 WEST 45th STREET, NEW YORK 36, N. Y.

JOHN D. DILLON — CONSULTING ENGINEER
FARKAS & BARRON — STRUCTURAL ENGINEER
COFFEY & LEVINE — SITE PLANNING CONSULTANTS

CONTINUE AS PER SECTION 'B' DWG. NO. P-2

CONTINUE AS PER SECTION 'D' DWG. NO. P-4

SANITARY SEWER SYSTEM Nº 2
Profile 'A' see dwg. Nº P-9

MATCH LINE

MATCH LINE

DISTRICT HOSPITAL

CENTRAL CAFETERIA

CENTRAL BLDG.

PEDIATRIC BLDG.

BIOMEDICAL BLDG. (A.E.C.)

DIZ. I.G. MARTINEZ ONCOLOGIC HOSP

NORTH MAIN STREET

CALLE SUR #1

STATE ROUTE #1

STATE ROAD # 4

SANITARY SEWER SYSTEM Nº 2C

SANITARY SEWER SYSTEM Nº 2B

PROFILE 'A' see dwg. Nº P-9

PROFILE 'L' see dwg. Nº P-10

PROFILE 'L' see dwg. Nº P-10

PROFILE 'AA' see dwg. Nº P-8

PROFILE 'AA' see dwg. Nº P-8

PROFILE 'AA' see dwg. Nº P-8

PROFILE 'AA' see dwg. Nº P-8

PROFILE 'AA' see dwg. Nº P-8

PROFILE 'AA' see dwg. Nº P-8

STORM SYSTEM Nº 1

STORM SYSTEM Nº 2

EXIST. CULVERT

(EXIST.) CB INV. 51.80

(EXIST.) CB INV. 40.75

(EXIST.) 21"Ø

NOTE:
FOR STANDARD DETAILS
SEE DWG Nº P-5

SYMBOLS AND ABBREVIATIONS

SANITARY	SAN.		
STORM	ST		
COLD WATER	CW		
SOFT WATER	SW		
GAS	G		
POOL SUPPLY WATER	PS		
POOL RETURN WATER	PR		
CURB AND VALVE BOX	C&V		
EXISTING	EXIST		
INVERT	INV		
MANHOLE	MH		
AREA DRAIN	A.D.		
DRAIN INLET	DI		
HYDRANT (FIRE)	HYD		
ELEVATION	EL		
SANITARY, STORM, COLD WATER, GAS	EXISTING		

DWG.	DRAWING
HB	HOSE BIBB
CL	CONTRACT LIMIT
VT	VITRIFIED TILE
CI	CAST IRON
FFF	FINISHED FIRST FLOOR
FBF	FINISHED BASEMENT FLOOR
CONN	CONNECT
W/G	WITH GRATE

W.I.	WROUGHT IRON
O.C.	ON CENTER
L.G.	LONG
C.B.	CATCH BASIN
VERT.	VERTICAL
HOR.	HORIZONTAL

(A) ABANDON EXISTING PIPING OR EXISTING MANHOLE
(P) PLUG OR CAP. MAKE GAS AND AIR TIGHT
◉ EXISTING MANHOLE

EXISTING GRADE
FINISHED GRADE
CONTRACT LIMIT LINE CL.

GENERAL NOTES:

1. 10" WATER MAIN LOOP SHALL BE INSTALLED 5'-0" FROM EDGE OF ROAD OR CURB.
2. GAS MAINS SHALL BE INSTALLED IN SAME TRENCH 1'-6" FROM WATER MAINS OR 6'-6" FROM CURB.
3. ALL FIRE HYDRANTS SHALL HAVE UNDERWRITERS APPROVED SHUT OFF VALVE BETWEEN HYDRANT & MAIN.
4. ALL SERVICES TO FUTURE OR NEWLY CONSTRUCTED BUILDINGS SHALL TERMINATE AT BUILDING CONTRACT LIMIT LINES UNLESS OTHERWISE NOTED.
5. FIRE HYDRANTS (HYD) TO BE LOCATED AT CURB AS APPROVED, INSTALLED EVERY 500 FT. MIN. AND/OR, AS APPROVED BY PROPER AUTHORITIES HAVING JURISDICTION. CONTRACTOR TO INSTALL AN ADJUSTED QUANTITY OTHER THEN SHOWN ON PLANS AS DETERMINED BY SAME AUTHORITIES. CONTRACTOR IS ALSO CAUTIONED TO INSTALL PROPER HYDRANTS AT BLDGS. NOT SHOWN ON PLANS.
6. CONTRACTOR TO REMAIN RESPONSIBLE & REVISE (UNDER AUTHORIZED SUPERVISION) ANY NEW OR EXISTING MANHOLE OR ANY PIPING FOUND ON JOB NOT SHOWN OR NOTED ON THESE DRAWINGS, DUE TO UNKNOWN CONDITIONS AT THIS TIME - WITH NO EXTRA TO OWNER.
7. ALL UNDERGROUND WATER PIPING, VALVES, CONSTRUCTION DETAILS AND INSULATION, SHALL MEET THE STANDARDS AND REQUIREMENTS OF THE PUERTO RICO AQUEDUCT AND SEWER AUTHORITY.

KEY PLAN

SITE IMPROVEMENT AND UTILITIES

PUERTO RICO MEDICAL CENTER
RIO PIEDRAS, P.R.-PROJECT No.P.R.11 (REVISED)

PROVISIONAL BOARD OF THE MEDICAL CENTER
COMMONWEALTH OF PUERTO RICO

APPROVED: ..... DATE .....
PRESIDENT, PROVISIONAL BOARD OF THE PUERTO RICO MEDICAL CENTER

WATER AND GAS MAINS
STORM AND SANITARY SEWERS
PLAN SECTION A

ISADORE & ZACHARY ROSENFIELD
ARCHITECTS & HOSPITAL CONSULTANTS
45 WEST 45 ST. NEW YORK 36, N.Y.

JOHN D. DILLON, CONSULTING ENGINEER
FARKAS & BARRON, STRUCTURAL ENGINEERS
COFFEY & LEVINE, SITE PLANNING CONSULTANTS

SCALE: 1" = 50'-0"
DRAWN BY: G.C.
CHECKED BY: I.R.
DATE: OCT 1950
REVISIONS:

JOB NO. 5715
DRAWING NO.
P-1

CONTINUE AS PER SECTION 'C' DWG. NO. P-3

MATCH LINE

STATE ROUTE # 2

SOUTH MAIN STREET

COMPREHENSIVE COMMUNITY REHABILITATION CENTER

NURSING HOME

INDUSTRIAL HOSPITAL

CENTRAL BUILDING

POOL

ELIMINATED

CONNECT EXISTING 6" GW. AND 6" G LINES TO NEW MAINS

INSTALL HOSE BIBBS (NO.) IN NEAREST LANDSCAPED AREAS

NOTE
INSTALL THE TOPS OF ALL PLAZA MANHOLES 1 FOOT AWAY FROM BOTTOM OF CURB

FROM PSYCHIATRIC

TO PENITENCIARIA INSULAR

METER PIT SEE DETAIL 'N' THIS SHEET

NEW D.W. CONNECTION TO MAIN AS DIRECTED BY AQUEDUCT AND SEWER AUTHORITY

STATE ROUTE # 41

SANITARY SEWER SYSTEM No. 2A PROFILE 'GG' DWG. No. P-10

STORM SYSTEM No. 7

STORM SYSTEM No. 8

STORM SYSTEM No. 5

STORM SYSTEM No. 6

SANITARY SEWER SYSTEM No. 2 PROFILE 'A' DWG. No. P-9

CONTINUE AS PER SECTION 'A' DWG. NO. P-1

MATCH LINE

CONTRACT LIMIT LINE (CL)

NOTE: FOR SYMBOLS AND ABBREVIATIONS, SEE DWG No P-1

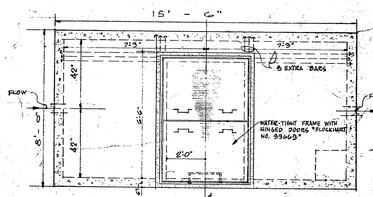
FOR STANDARD DETAILS SEE DWG No P-5

SCALE: 1" = 50'-0"

SYMBOLS FOR POOL

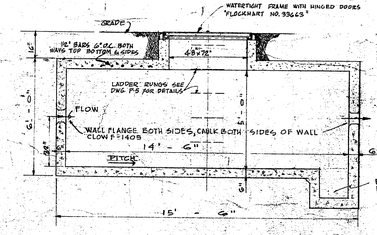
A - SPRAY NOZZLE AND ADJUSTABLE JOINT ON SIDEWALL - 4" ABOVE WATERLINE
B - DRAIN - JOSAM 04936 - 6" GALVANIZED BODY, BRONZE STRAINER
C - SUPPLY HYDRANT - ZURN Z-1693 ENCASED HYDRANT, 1" SIZE, LOCKING COVER
D - RETURN FITTING - JOSAM 05503 B 3" GALVANIZED BODY BRONZE STRAINER - INV. 8" BELOW RIM
E - OVERFLOW - JOSAM 05405 B 2½" GALVANIZED BODY BRONZE STRAINER - INV. 6" BELOW RIM
F - DRAIN VALVE WITH CURB BOX
G - NYLON BASE DRAIN JOSAM # 4868 SP ALL BRASS HIGH DOME ← OMIT
H - CLOSE VALVE IN CURB BOX WITH LOCKED C.I. COVER → OMIT

NOTE
SPRAY NOZZLE No 5K 120 WITH ADJUSTABLE 3"x½" JOINT 20.8 G.P.M. @ 50 P.S.I. FROM WATER COOLING CORP. N.Y.

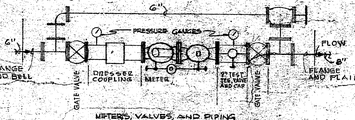


PLAN

NOTE:
TOPS TO BE HOOKED AT ENDS INTO CONCRETE WALLS



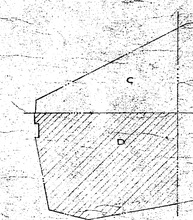
SECTION



METERS, VALVES AND PIPING SUPPORTED & BRACED AS SPECIFIED

NOTES:
1- ALL VALVES O.S.&Y. AWWA CI. BRASS TRIM
2- ALL FITTINGS 125# cl. FLANGED
3- ALL PIPE CL. 150# CLASS CEMENT LINED

DETAIL 'N'
METER PIT AND ASSEMBLY
SCALE: ½"=1'-0"



KEY PLAN

SITE IMPROVEMENT AND UTILITIES

PUERTO RICO MEDICAL CENTER
RIO PIEDRAS, P.R.-PROJECT No.P.R.11(REVISED)

PROVISIONAL BOARD OF THE MEDICAL CENTER
COMMONWEALTH OF PUERTO RICO

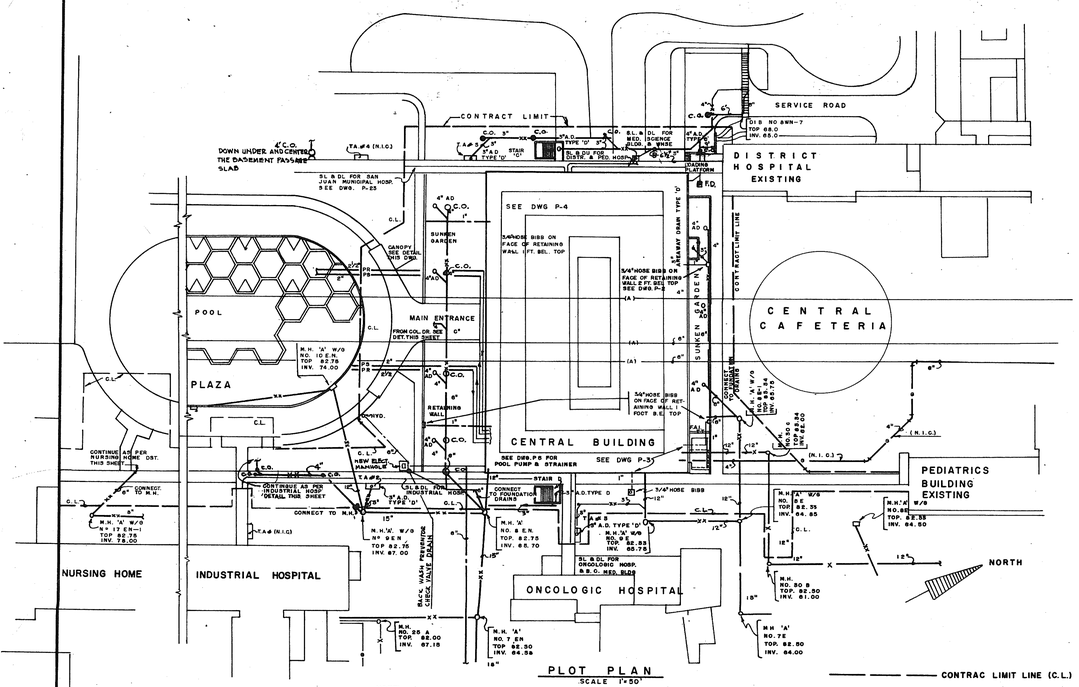
APPROVED: _____ DATE: _____
PRESIDENT: PROVISIONAL BOARD OF THE PUERTO RICO MEDICAL CENTER

WATER AND GAS MAINS
STORM AND SANITARY SEWERS
PLAN SECTION D

SCALE: 1"=50'-0" (1" = 100 FEET)	
DRAWN BY: G.C.	
CHECKED BY:	
DATE: OCT 29 '60	
REVISIONS:	
JOB No: 5715-C	
DRAWING No	P-4

ISADORE & ZACHARY ROSENFIELD
ARCHITECTS & HOSPITAL CONSULTANTS
45 WEST 45 ST., NEW YORK 36, N.Y.

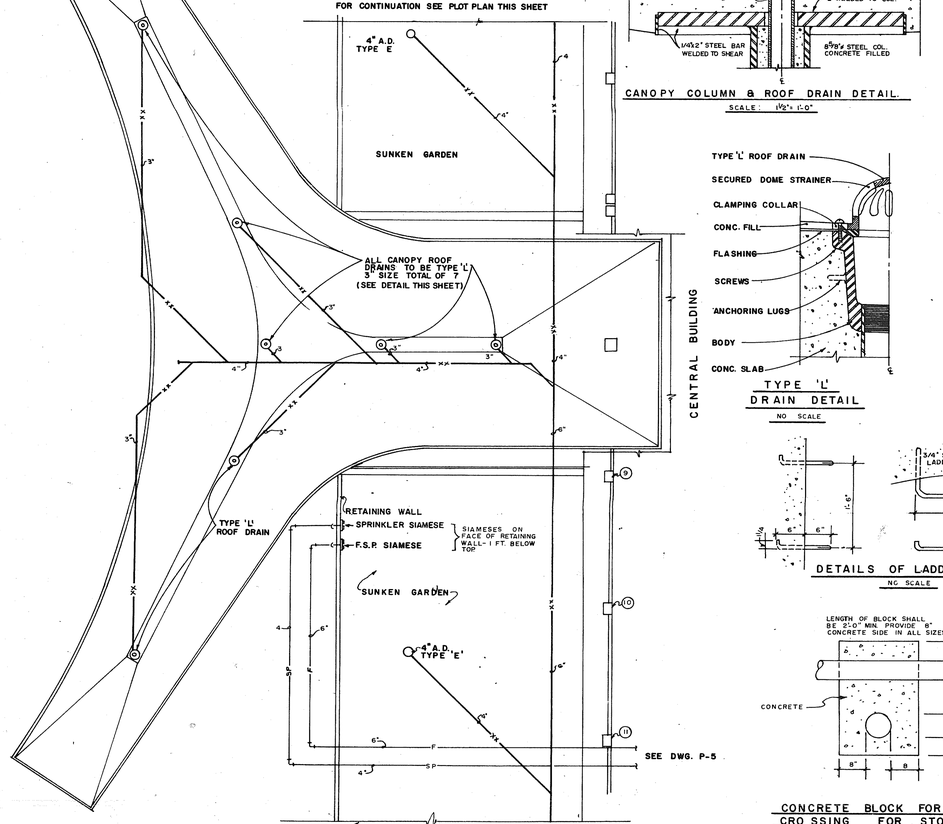
JOHN D. DILLON CONSULTING ENGINEER
FARKAS & BARRON STRUCTURAL ENGINEER
COFFEY & LEVINE SITE PLANNING CONSULTANTS



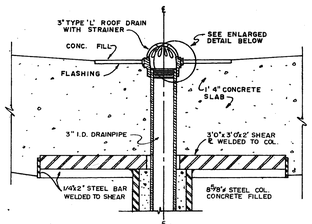
PLOT PLAN
SCALE 1"=50'

CONTRAC LIMIT LINE (C.L.)

NOTE:
ALL SUNKEN GARDEN AREA DRAINS TO BE TYPE 'E'
MAKE ALL FINAL PIPING CONNECTIONS TO MANHOLES WHICH ARE EXTERIOR OF CONTRACT LIMIT LINE BUT IMMEDIATELY ADJACENT



CENTRAL BUILDING
CANOPY ROOF DRAIN LAYOUT
SCALE 1/8"=1'-0"



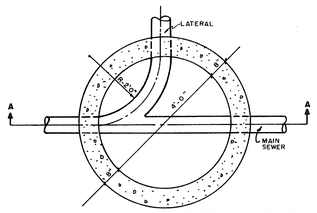
CANOPY COLUMN & ROOF DRAIN DETAIL.
SCALE: 1½"=1'-0"

TYPE 'L'
DRAIN DETAIL
NO SCALE

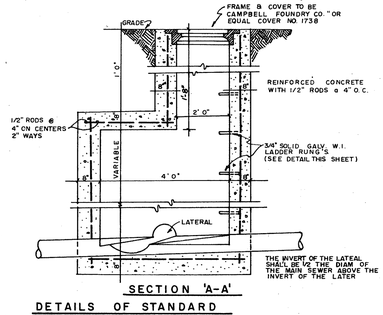
DETAILS OF LADDER RUNGS
NO SCALE

CONCRETE BLOCK FOR PIPE CROSSING FOR STORM & SANITARY SEWERS
SCALE 3/4" = 1'-0"

DRAIN SCHEDULE			
DESCRIPTION	TYPE	J.R. SMITH NO.	ZURN NO.
ROOF	A	38	Z-100
CANOPY	B	36	Z-100
FLOOR DRAIN GENERAL	C	100 A	Z-415B
AREA GENERAL	D	265	Z-509
AREA SUNKEN GARDEN AREA NORTH & PLANTING BOX	E	141	Z-620K
PENTHOUSE AIR CONDITIONING ROOM	F	100 VAL METAL BARBER	
FINISHED AREA COMBINATION FUNNEL & FLOOR	G	100VA	Z-317-5
GLOVE WASHER & ICE MACH. INDIRECT WASTE RECEPTORE	H	752-3V	ZP-9025
BASEMENT	I	295	Z-730
MECH. EQPT. ROOM FLOOR	J	263	Z-540
MECH. EQPT. ROOM FLOOR & FUNNEL	K	264-3	Z-508
CANOPY	L	80	Z-180
CANOPY	M	73	Z-189
COURT		36 LOW DOME W/MESH	Z-100
PLANTING BOX		1010	ZP-9491
CAN WASHER	N	240-37	Z-611

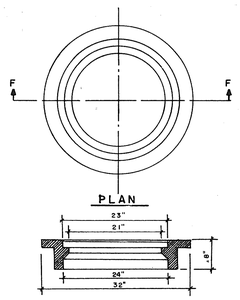


SECTIONAL PLAN



SECTION 'A-A'

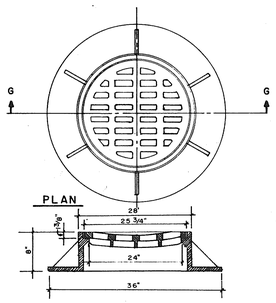
DETAILS OF STANDARD
SANITARY SEWER MANHOLE
NO SCALE



PLAN

SECTION 'F-F'

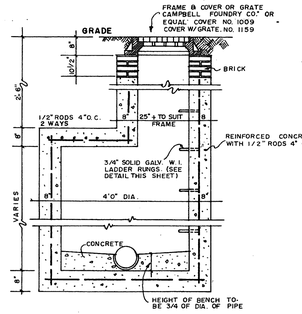
DETAILS OF CAST IRON COVER AND FRAME FOR SANITARY SEWER MANHOLES
SCALE 1"=1'0"



PLAN

SECTION 'G-G'

DETAILS OF CAST IRON COVER AND FRAME FOR STORM SEWERS MANHOLES
SCALE 1"=1'0"



DETAILS OF STANDARD
STORM SEWER MANHOLE
NO SCALE

MANHOLE NOTES

1. WALLS OF MH. GREATER THAN 12'0" IN DEPTH SHALL BE INCREASSED FROM 8" TO 10" IN THICKNESS.
2. ON FILLED GROUND THE BASE OF ALL MH. SHALL EXTEND A MINIMUM OF 1'0" BEYOND THE OUTSIDE FACE OF MH. AND THICKNESS OF BASE INCREASE FROM 8" TO 12"
3. SPECIAL SIZE OF MH. WHERE LATERALS OF SEWERS JOIN IN MH. & CURVES OF SEWERS IN MH REQUIRE IT, INCREASE DIAMETER OF STANDARD MH TO MAKE FLOW LINES MEET SMOOTHLY.
4. ALL MH TO BE ABANDONED SHOOLD BE FILLED WITH COMPACTED EARTH AND THE TOP & WALLS DEMOLISHED TWO FEET BELOW FINISHED GRADE.
5. AT CONTRACT LIMIT LINES CAP & PROVIDE MARKER FOR WHICH FINAL CONNECTIONS TO SITE OR BUILDING UTILITIES CANNOT BE MADE
6. CONCRETE GRADE B 1:2½:5. REINFORCED CONCRETE 1:2:4
7. WHERE BRICKWORK IS USED, PROVIDE EXTERIOR WITH 1/2" THICK PLASTER TROWELLED SMOOTH.

SYMBOLS AND ABBREVIATIONS

HOT WATER CIRCULATING	H.W.R. OR H.W.C.	
HOT WATER	H.W.	
COLD WATER	C.W.	
AUTOPSY HOT WATER	A.U.	AU AU
AUTOPSY COLD WATER	A.U.	AU AU
VENT	V.	
VAPOR VENT	V.V.	VV
ACID VENT	A.V.	AV
ACID WASTE	A.W.	AW
INDIRECT WASTE	I.W.	IW
STORM	ST.	ST OR XX
SOIL OR WASTE	S.	S OR X
SPRINKLER	S.P.	SP
FIRE STAND-PIPE	F.S.P.	F
* GAS (N.I.C.)	G.	G
VACUUM	VA.	VA
AIR	A.	A
OXYGEN	OX.	OX
NITROUS OXIDE	N.O.	NO
DISTILLED WATER	D.S.	DS
SWITCH LINE	S.L.	SL
DISPATCH LINE	D.L.	DL (PNEUMATIC TUBE LINES)
AIR LINE	A.L.	AL
CARBON DIOXIDE	C.D.	CD
CARBON MONOXIDE	C.M.	CM
HELIUM	H.	H
NITROGEN	N	N
POOL SUPPLY	P.S.	PS
POOL RETURN	P.R.	PR
GAS TO BE ABANDONED		G(A)
COLD WATER TO BE ABANDONED		(A)
VACUUM VENT	VAV	VAV

EXTRA HEAVY CAST IRON	E.N.C.I.	POST INDICATING VALVE	P.I.V.
CLEAN OUT DECK PLATE	C.O.D.P.	FIRE EXTINGUISHER	F.E.
AREA DRAIN	A.D.	LEADER	L.DR.
FLOOR DRAIN AND/OR FUNNEL	F.D.	CLEAN OUT	C.O.
HOUSE TRAP	H.T.	BRANCH	BR.
DRAIN	D.R.	HOSE BIBB	H.B.
ROOF DRAIN	R.D.	CONTINUATION	CONT.
FLOOR	FL.	INVERT	INV.
BELOW FLOOR	B.F.	ABOVE FLOOR	AB. FL.
AT CEILING	A.C.	WITH GRATING	W/G
ROOM	RM.	MANHOLE	MH.
VITRIFIED TILE	VT.	BUILDING	BLDG
STATION	STA.	JOINT	JT.
PNEUMATIC TUBE	P.T.	COURT DRAIN	C.D.
FUNNEL DRAIN	FU.DR.	HYDRANT	HYD.
DRAWING	DWG.	DRINKING FOUNTAIN	D.F.
URINAL	UR.		
FLUSHING RIM SINK	F.R.S.	SCRUB - UP SINK	S.U.S.
VENT	V.	STERILIZER	STER.
CUP SINK	C.S.	SHOWER	SH.
FIRE HOSE CABINET	F.H.C.		
HOT WATER	H.W.	POOL SUPPLY	P.S.
COLD WATER	C.W.	POOL RETURN	P.R.
EMERGENCY SHOWER	EM.SH.	PLANTING BOX DRAIN	P.B. DR.
CONCRETE	CONC.	SHOWER DRAIN	SH.DR.
CONNECTION	CONN.	RUNNING TRAP	R.T.
INSIDE DIAMETER	I.D.	HOT WATER CIRCULATING	H.W.C.OR H.W.R.
GALVANIZED	GALV.	BASEMENT	BSMT.
ARCHITECTURAL	ARCH.	FRESH AIR INLET	F.A.I.

OUTSIDE SCREW & YOKE	C.S. &Y.		
AIR CHAMBER	A.C.H.		
EXISTING	EXIST.		
CEILING	CLG.		
UF THRU ROOF	U.T.R.		
BELOW	BEL.		
FUTURE	FUT.		
IN CEILING	I.C.		
DOWN	DN.		
FROM	FR.		
ELEVATION	EL.		
HOSPITAL	HOSP.		
BY PASS	B.P.		
FIRE STAND PIPE	F.S.P.		
DRAIN INLET	D.I.		
WATER CLOSET	W.C.		
SERVICE SINK	S.S.		
LAVATORY	L., L.A.V.		
BED PAN WASHER	B.P.W.		
BRANCH VENT	B.R.V.		
OXYGEN VALVE NO. BOX	O.V.N.B		
NITROUS OXIDE VALVE No Box	N.O.V.N.B		
VACUM. VALVE NO BOX	VA.V.N.B.		
DENTAL UNIT	D. U		
WASTE	W		
TUNNEL AREAWAY	T. A.		
DIAMETER	DIAM.~ DIA.		
NUMBER	NO.		
GALLONS PER HOUR	G.P.H.		

A.F. AT FLOOR
S- DENOTES SINK TYPE SEE SPEC.
T- DENOTES TYPE OF FIXTURE TRIM
F- DENOTES EQUIPMENT SUPPLIED UNDER ANOTHER SECTION OF THE SPECIFICATION, UNLESS OTHERWISE NOTED OR SPECIFIED. SEE ARCHITECTURAL DWG. A-27 FOR EQUIPMENT SCHEDULE)

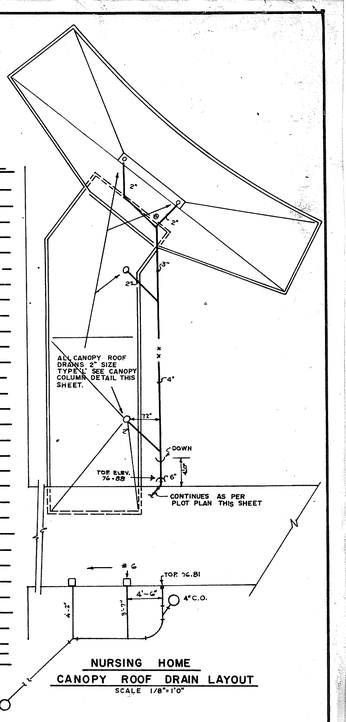
DRY CHEMICAL FIRE EXTINGUISHER F.E. (D.C)
CARBON DIOXIDE FIRE EXTINGUISHER F.E. (C.O)

(L) DENOTES LEADER No.
(S) DENOTES – SOIL STACK NO.
(AW) DENOTES – ACID WASTE STACK NO.
(VV) DENOTES VAPOR VENT STACK NO.
(F) DENOTES – FIRE STAND PIPE NO.

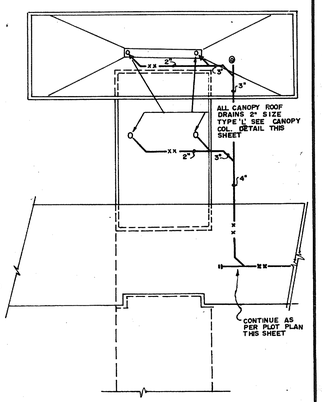
VALVE WITH BOX (OXYGEN N.O.)
RECESSED OUTLET, DOUBLE OXYGEN, VACUUM WITH SLIDE
RECESSED OUTLET, SINGLE (OXYGEN)
RECESSED OUTLET, SINGLE(VACUUM WITH SLIDE)

⊙ NITROUS OXIDE CLG. OUTLET.
⊘ VACUUM
⊗ OXYGEN
⊙ SPRINKLER HEAD
◎ CLEAN OUT & DECK PLATE
SWITCHING MECHANISM FOR PNEUMATIC TUBE LINES
OXYGEN ALARM BOX
NITROUS OXIDE ALARM BOX
DRINKING FOUNTAIN DF-
WATER CLOSET WC-
URINAL UR
SINK IN COUNTER F-
SERVICE SINK SS
FLUSHING RIM SINK W/DRAIN R.S. BOARD
SCRUB UP SINK S
LAVATORY L
SHOWER SH
CUSPIDOR
CLEAN OUT

CHECK VALVE — OR
GLOBE VALVE
GATE VALVE
PIPE DOWN
PIPE UP



NURSING HOME
CANOPY ROOF DRAIN LAYOUT
SCALE 1/8"=1'0"



INDUSTRIAL HOSPITAL
CANOPY ROOF DRAIN LAYOUT
SCALE: 1/8"=1'-0"

AS-BUILT DRAWING

PUERTO RICO MEDICAL CENTER PROJECT
PR-II REVISED
RIO PIEDRAS PUERTO RICO
PROVISIONAL BOARD OF THE MEDICAL CENTER
COMMONWEALTH OF PUERTO RICO
GENERAL HOSPITAL & RELATED FACILITIES
PR-IIA
CENTRAL BUILDING
PLUMBING
PLOT PLAN

SCALE:
DRAWN:
CHECKED:
DATE:
REVISIONS:

APPROVED _____ DATE _____
PRESIDENT PROVISIONAL BOARD OF THE PUERTO RICO MEDICAL CENTER
APPROVED _____ DATE _____
PROJECT DIRECTOR PROVISIONAL BOARD OF THE P.R. MEDICAL CENTER

ISADORE AND ZACHARY ROSENFIELD
ARCHITECTS & HOSPITAL CONSULTANTS
45 WEST 45 STREET NEW YORK 36 N.Y.

JOHN D. DILLON
CONSULTING ENGINEER

EDWARD SCHMITZ & ASSOC.
STRUCTURAL ENGINEERS

JOB NO.
DRAWING NO.
P-1

RE-DRAWN BY ORIGINAL CHECKED DATE

MATCH LINE
(FOR CONTINUATION SEE DWG. NO. P-3)

MATCH LINE
(FOR CONTINUATION SEE DWG NO. P-4)

CORRIDOR
SEB-11

CONTINUE AS PER DWG. Nº P-3

STORAGE
SEB-21
(FUTURE ELEVATOR) (FUTURE ELEVATOR)

LOUNGE
SEB-16

32 MENS LOCKERS
SEB-15

OFFICE
SEB-10

44 MENS LOCKERS
(JANITORS & ELEV. OPERS.)
SEB-9

16 WOMENS LOCKERS
(JANITORS)
SEB-7

TUNNEL TO ONCOLOGIC HOSP.

2" EARTH QUAKE JOINT

STAIR 'D'

1/4 WOMENS LOCKERS
(C.S.S. PHARMACY
FIRST FLOOR)
SEB-18

TOILET & SHOWER RM.
SEB-17

TOILET & SHOWER RM.
SEB-14

JANITOR'S STORAGE
SEB-15

SUPERVISOR
SEB-12

TOIL. & SHOWER
SEB-8

TOIL. & SHOWER
SEB-6

SHOP
SEB-5

ELEVATOR LOBBY
SEB-20

ELEVATOR #1

ELEVATOR #2

NOTE:
SEE SIMILAR PLAN BELOW FOR PIPING OF W.C.'S.

CHASE PIPING ON PART PLAN

ALL L-1
1½"W.
1½"W RISE
½"H & C.W.
1½"W. RISE

2" WASTE DN.

1½"W. DN.
1½"W. RISE
½"C.W. DN.
1½"H.W. "

1"C.W. DN.
1"H.W. "

4" SOIL DN.
2" C.W. DN.
1" H.W. DN.

2" SH. DR.
ALL SH.-1½"H & C.W.

SH-1 SH-1 SH-1 SH-1

WC-2 WC-2

4" SOIL DN.
2" V. RISE
1½"C.W. DN.

2" V. RISE

2" SH. DR.

3/4" DRAIN LINE FROM FLOW ALARM

FLOW ALARM

2" W. DN.
1½"W. RISE
1½"C.W. DN.
1½"H.W. "

2" W. DN.
1½"W. RISE

2" F.D. TYPE 'J'

3/4" C.W. DN.
3/4" H.W. DN.

4" SOIL DN.
2" V. RISE
1½"C.W. DN.

1½" WASTE DN.
1½" V. RISE

4" A.W. UP & DN.
1½"C.W. "
1½"H.W. "
3/4" H.W.R. "
4" A.V. UP

4" SOIL DN.
2" V. RISE

1½" C.W. UP

3" F.D. TYPE I

3" F.D. TYPE 'J'

3" DN. B.F.

4" B.F.

8" B.F.

5" B.F.

DUCT SPACE #11 ABOVE

DUCT SPACE #12 ABOVE

STORAGE
SEB-22

CONTINUE AS PER DWG. Nº P-4

PASSAGE
SEB-19

4" DN. B.F.

FE(DC)

2" C.W. UP
3/4" H.W. "
3/4" H.W. UP

4" SOIL UP
4" VENT

1½"W. FD. LAV.
½" C.W. UP
½" H.W. UP

4" DN. B.F.

2" FU. D TYPE 'P'

CONTROL COMPRESSOR

3/4" CONN. TO COMPRESSOR WITH KRANE VALVE (SEE DRAW. OF EQUIP.)

EXPANSION LOOPS

4" F.S.D. UP TO FIN 2

FE(CO)

4" F.S.D. UP

AIR CONDITIONING EQUIPMENT ROOM
SEB-4

AIR CONDITIONING UNITS

2" F.D. TYPE 'F'

3" F.D. TYPE 'F'

3" F.D. TYPE I

2" W. FR. LAV'S
½" C.W. UP
½" H.W. "

3" W. FR. LAV. & F.S. 1¼" C.W. 1¾" H. UP

1½" W. FR. LAV'S
¾" C.W. UP
¾" H.W. "

4" S. F.D. W.C.
1¼" C.W. UP
½" H.W. "

3" F.D. TYPE I

RESIDENTS
SWB-4

IN HUNG CEILING

F-139
T-2

2" F.U. DR. TYPE 'P'

1" C.W. FOR ICE MAKER F-139

HISTO. PATHOLOGY LAB.
SWB-3

PATHOLOGISTS OFFICES
SEB-12

ELECTRICAL EQUIPMENT RM
SEB-3

CHECK VALVE

DOWN BELOW LEVEL OF SUNKEN WARDROBE

4" SPRINKLE 'C' FIRE STANDPIPE CONNECT TO SIAMESE'S SEE CANOPY DETAIL DRAWING P-7

REFLECTING POOL PUMP & STRAINER UNITS (SEE DETAIL THIS SHEET)

EDGE OF SLAB ABOVE

RUN TO MH # BEN TOP 69.75 INV. 65.70

COLD WATER METER W/MANUAL BY-PASS SEE DETAIL DWG P-25

DOMESTIC C.W. SERVICE

4" SPRINKLER SERVICE

6" F.S.P. SERVICE

ALARM CHECK

LEAD SLEEVE ALL PIPING PASSING THRU FOUNDATION WALLS

DROP BELOW LEVEL OF SUNKEN WARDROBE

VALVE & BOX

6" TO HYDRANT

RAMP UP

FOR CONTINUATION SEE PLOT PLAN P-1

FOR CONTINUATION (SEE PLOT PLAN P-1)

NOTE:
SEE PLAN ABOVE FOR PIPING OF LAVS & SH.'S

ALL WC's 2"

CONTINUE AS PER PLAN ABOVE

CONTINUE AS PER PLAN ABOVE

TOILET & SHOWER ROOM
SEB-17

PART PLAN TOILET AND SHOWER
SOUTHEAST
SEB - 17
SCALE 1/4" = 1'-0"

IMPORTAN NOTE:

CERTAIN EQUIPMENT DRAWN IN CONTINUOUS LINE IS NOT INCLUDED IN THIS CONTRACT. SEE SHEET A-27 AND SPECIFICATIONS FOR EQUIPMENT NOT INCLUDED IN EVENT OF DISCREPANCY, THE SPECIFICATIONS SHALL GOVERN.

TO REFLECTING POOL PUMP & STRAINING UNITS

C.W. MAIN

CHECK VALVE

VALVE IN HORRIZONTAL

TO REFLECTING POOL

DETAIL OF COLD WATER TAKE OFF FOR REFLECTING POOL

NOTED: ALL PIPING AT CEILING UNLESS OTHERWISE NOTED.

NORTH

KEY PLAN

AS-BUILT DRAWING

PUERTO RICO MEDICAL CENTER PROJECT
PR-11 REVISED
RIO PIEDRAS PUERTO RICO
PROVISIONAL BOARD OF THE MEDICAL CENTER
COMMONWEALTH OF PUERTO RICO
GENERAL HOSPITAL & RELATED FACILITIES
PR-11A
CENTRAL BUILDING
PLUMBING
BASEMENT, S.E.

APPROVED _____ DATE _____
PRESIDENT PROVISIONAL BOARD OF THE PUERTO RICO MEDICAL CENTER
APPROVED _____ DATE _____
PROJECT DIRECTOR PROVISIONAL BOARD OF THE P.R. MEDICAL CENTER

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EDWARD SCHNITZER ASSOC. STRUCTURAL ENGINEERS

SCALE 1/8"&1'-0"
DRAWN
CHECKED
DATE
REVISIONS
JOB NO.
DRAWING NO. P.- 5

ORIGINAL CHECKED
RE-DRAWN BY
DATE