



STATEMENT OF WORKS

SEISMIC RETROFIT OF BUILDING
#194 AT CAMP SANTIAGO JOIN
TRAINING CENTER
Salinas, Puerto Rico

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PART 1

GENERAL INFORMATION

1.1 ACRONYMOUS

1.2 DEFINITIONS

1.3 BACKGROUND

1.4 DESCRIPTION

1.5 PERFORMANCE PERIOD

1.6 FUNDS

PART 1: GENERAL INFORMATION

1.1 ACRONYMOUS

AR Army Regulations

ASG Administración de Servicios Generales

AT/OPSEC Antiterrorism/Operational Security Background Investigation

CFMO Construction and Facilities Management Office

CFR Code Federal Regulation

COR Contracting Officer Representative

DA Department of the Army

DD254 Department of Defense Contract Security Classification Specification

DFARS Defense Federal Acquisition Regulation Supplement

DoD Department of Defense

EPA Environmental Protection Agency

FAR Federal Acquisition Regulation

NIOSH National Institute for Occupational Safety and Health

NGB National Guard Bureau

OSHA Occupational Safety and Health Agency

POC Point of Contact

PPE Personal Protective Equipment

PRARNG Puerto Rico Army National Guard

RUL Registro Unico de Licitadores

SAM System for Award Management

US United States

1.2 DEFINITIONS

Change Order - A written order issued by the PRARNG, 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 Contract. 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.

Contract - a written agreement, especially concerning with detailed services herein in this document.

Contractor - is an individual or entity that conducts business and is duly organized under the laws of the Government of Puerto Rico or foreign commercial organizations authorized to do business in Puerto Rico, registered in "Registro Unico de Licitadores" under the Puerto Rico General Services Administration (ASG), with: Unique Entity Identifier, CAGE Number and be active in SAM Registry. It will be who be select to perform the services and works described in this request.

Days - this term will be considered as calendar days.

Government - means Government of Puerto Rico, it is inclusive but not limited to other branches, municipalities and instrumentalities that administer Puerto Rico.

PRARNG – means Puerto Rico Army National Guard.

Project Schedule - A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Work within the Contract Time.

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 Purchase Order Documents means the Subcontractor or his authorized representative.

1.3 BACKGROUND

In January 2020, the seismic event occurred in the south region part of Puerto Rico. The Puerto Rico Army National Guard (PRARNG) contracted the professional services who perform post-earthquake seismic evaluations to different building of its jurisdiction to determine if the buildings structure is safe to be occupied according to the Applied Technology Council ATC-20 Standard. Based on the post-earthquake evaluation results, the PRARNG requested Seismic Evaluation and Retrofit Recommendations of various of their existing buildings to determine the response of the structure to a future seismic event. In this type of evaluation, the structure is assessed to determine structural seismic deficiencies based on the American Society of Civil Engineer Standard ASCE/SEI 41-17, Seismic Evaluation and Retrofit of Existing Buildings. According with the structural assessment held the ASCE 41 -17 the building #194, Camp Santiago Joint Training Center Museum, do not meet with the requirements of a Basic Performance Objective of Existing Building.

1.4 DESCRIPTION

The project consists of selective demolition of slab on grade concrete and CMU walls to conduct a general construction for Seismic Retrofit on structural elements such as modified foundation and slab on grade, modified roof framing and modified new walls.

1.5 PERFORMANCE PERIOD

Contractor will develop the activities indicated in the scope of work in a term of 120 calendar days.

1.6 FUNDS

Appropriation funds for the project are 100% Federal.

PART 2

COST PROPOSAL CONSIDERATION

2.1 SCOPE

2.2 CONDITIONS

2.2.1 UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACT IN PUERTO RICO

2.2.2 ADDITIONAL PROVISIONS

2.2.3 CONTRACT FEDERAL CLAUSES

2.2.4 IMPERATIVE INCLUSION CLAUSES

2.2.5 SECURITY AND PROTECTION REQUIREMENTS

2.2.5.1 Anti-Terrorism/Force Protection

2.2.5.2 iWATCH

2.2.5.3 TARP

2.1

SCOPE OF WORKS

PUERTO RICO ARMY NATIONAL GUARD

SEISMIC RETROFIT OF MUSEUM BUILDING

CAMP SANTIAGO, SALINAS, PUERTO RICO

INDEX OF DRAWINGS

T-01 TITLE SHEET AND INDEX OF DRAWINGS

STRUCTURAL DRAWINGS

- DS1-01DEMOLITION FLOOR PLAN
- S0-01GENERAL NOTES
- S1-01MODIFIED FOUNDATION & SLAB ON GRADE PLAN
- S2-01MODIFIED ROOF FRAMING PLAN
- S3-01NEW CONCRETE SHEAR WALLS ELEVATIONS
- S4-01STRUCTURAL SECTIONS & DETAILS
- S4-02STRUCTURAL SECTIONS & DETAILS
- S5-01TYPICAL REINFORCEMENT DETAILS
- S6-01TYPICAL CMU WALL DETAILS

CMA

ARCHITECTS &
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CMA# 20073-03

CERTIFIED:



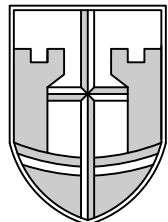
PUERTO RICO ARMY NATIONAL GUARD
CALLE GENERAL ESTEVES #100, SAN JUAN PUERTO RICO 00901 - 2104

PROJECT:
SEISMIC RETROFIT OF MUSEUM BUILDING
CAMP SANTIAGO, SALINAS, PUERTO RICO

SHEET TITLE:
TITLE SHEET AND INDEX OF DRAWINGS

NO.	DESCRIPTION	DATE	NO.	DESCRIPTION	DATE
0	100% CD	02/11/2022			

R E V I S I O N S



DESIGN:
ELVIN PEREZ

DRAWN:
FELIX MELENDEZ

SUPERVISOR:
ALVIN RODRIGUEZ

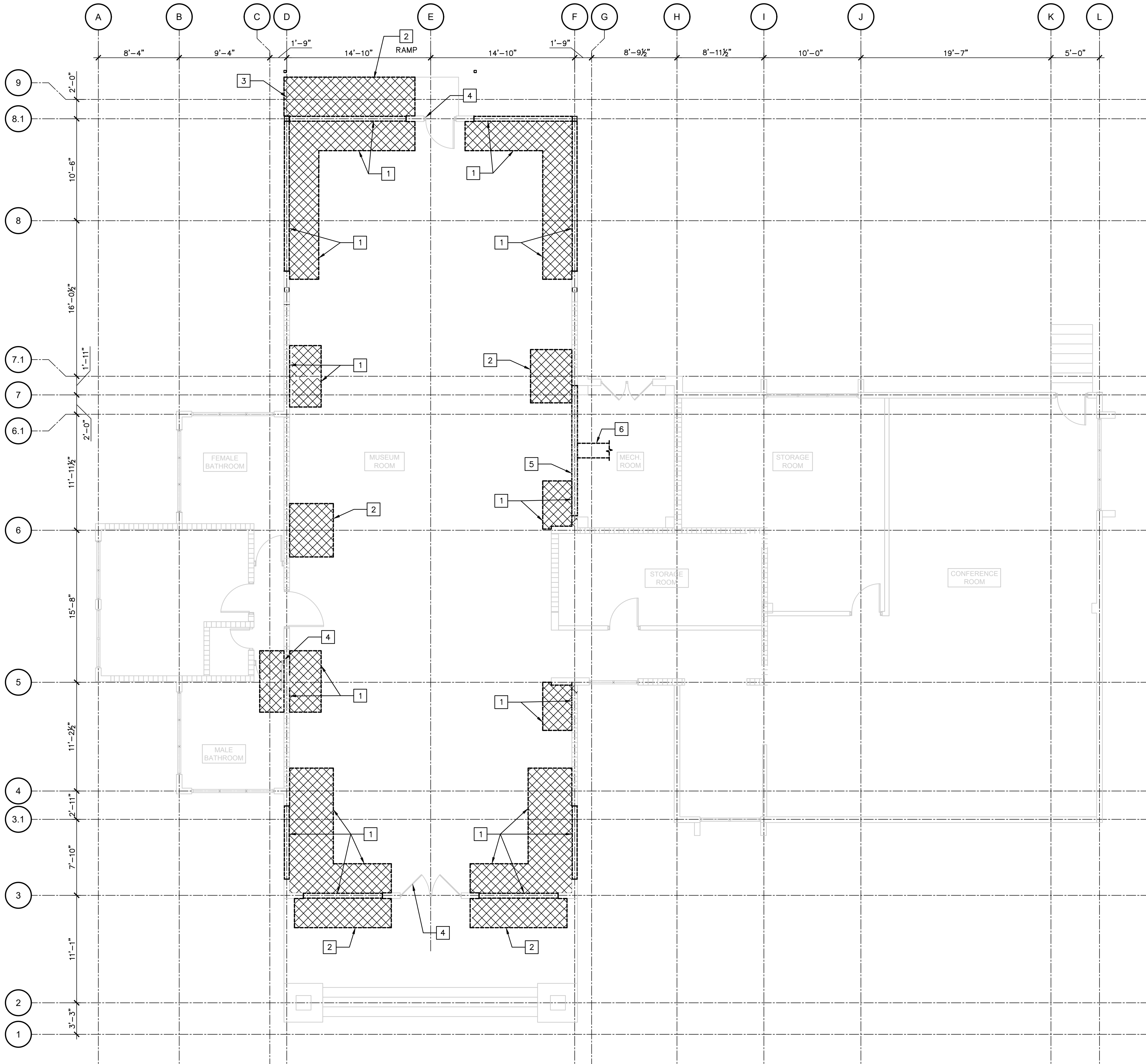
DATE:
01/28/2022

SCALE:
AS SHOWN

SHEET:
01

TOTAL SHEETS:
10

SHEET NAME:
T-01



DEMOLITION FLOOR PLAN
SCALE: 3/16" = 1'-0"

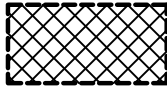

NOTES:

- ALL DEMOLITION WORK SHALL BE COORDINATED WITH NEW CONSTRUCTION DRAWINGS, REPAIR AND FINISH TO MATCH EXISTING CONSTRUCTION.
- FOR GENERAL NOTES REFER TO DRAWING S1-00.
- GENERAL CONTRACTOR TO COORDINATE OPENINGS FOR DOORS AND WINDOWS.
- CONTRACTOR SHALL IDENTIFY ANY EQUIPMENT OR UTILITY ATTACHED OR INSIDE THE PROPOSED WALLS OR SLABS TO BE DEMOLISHED AND IN ITS SURROUNDINGS SUCH AS ELECTRICAL CONDUITS, PLUMBING, DATA AND OTHER UTILITIES PRIOR COMMENCE OF THE CONSTRUCTION WORK TO ENSURE THAT SUCH EQUIPMENTS OR UTILITIES ARE NOT ELIMINATED OR AFFECTED.
- IN CASE OF ANY SPECIAL SITUATION OR CONFLICT, THE CONTRACTOR SHALL SUBMIT FIELD INFORMATION TO BE EVALUATED BY THE EOR. SUCH EQUIPMENTS OR UTILITIES SHALL BE RESTORED TO ITS ORIGINAL LOCATION IN COORDINATION WITH THE OWNER.
- WALL AND FLOOR FINISHES SHALL BE RESTORED TO MATCH EXISTING OR AS DETERMINED BY THE OWNER.
- REFER TO DEMOLITION NOTES AND SEISMIC RETROFIT NOTES ON DRAWING S0-01 FOR ADDITIONAL DEMOLITION REQUIREMENTS.
- DEMOLITION AND CONSTRUCTION OF NEW WALLS AT THE CORRIDOR SHALL BE PERFORMED ONE AT A TIME PER BUILDING.

DEMOLITION NOTES:

- DEMOLISH AND DISPOSE CMU WALL AND SLAB ON GRADE.
- DEMOLISH AND DISPOSE SLAB ON GRADE.
- EXISTING GUARDRAIL TO BE REMOVE, SAVAGE AND HANDED TO OWNER. REINSTALL AFTER RAMP IS RECONSTRUCTED.
- EXISTING DOOR FRAME AND HARDWARE TO BE REMOVE, SALVAGED AND HANDED TO OWNER. REINSTALL AFTER NEW CONCRETE WALL IS ONSTRUCTED. SEE NOTES BELOW FOR NEW DOOR INSTALLATION ALTERNATE.
- DEMOLISH AND DISPOSE EXISTING CMU WALL. PREPARE FOR NEW WALL CONSTRUCTION.
- REMOVE EXISTING DUCT TO ALLOW WALL RECONSTRUCTION. REINSTALL TO MATCH EXISTING CONDITIONS.

DEMOLITION LEGEND:

-  AREA TO BE DEMOLISHED.
-  DEMOLITION LEGEND IDENTIFICATION

GENERAL SHORING NOTES:

- FOR GENERAL NOTES SEE DRAWINGS S0-01.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN AND PROVIDE SHORING FOR THE TEMPORARY ROOF SUPPORT PRIOR DEMOLITION WORK.
- PRIOR DEMOLITION OF WALLS TO BE REPLACED BY NEW REINFORCED CONCRETE WALLS, A CONTINUOUS SHORING ALONG WALL SHALL BE PROVIDED TO SUPPORT THE ROOF.
- STEEL TRUSS SHALL REMAIN SHORED DURING DEMOLITION AND CONSTRUCTION OF NEW FOOTINGS, WALLS AND COLUMNS. G.C. SHALL TAKE CARE ABOUT SIZE AND TYPE OF TEMPORARY SUPPORTS (BASE PLATES) ON SLAB ON GRADE TO AVOID CRACKING OR DAMAGE DURING SHORING.
- LOCATION OF SHORING SHOULD AVOID CONFLICTS WITH EXCAVATIONS FOR NEW WALL FOOTING. A FIRM AND SOLID SUPPORT SHALL BE PROVIDED AT GROUND LEVEL.

NEW EXTERIOR DOOR REPLACEMENT ALTERNATE NOTES:

- FURNISH AND INSTALL NEW HURRICANE RESISTANT HOLLOW METAL DOOR ASSEMBLY TO COMPLY WITH A MINIMUM WIND SERVICE DESIGN PRESSURE OF +70/-70 PSF. DOOR ASSEMBLY SHALL HAVE A CURRENT MIAMI DADE NOA.
- DOOR ASSEMBLY MAY BE SUBJECT TO COMPLIANCE WITH SHPO REQUIREMENTS REGARDING APPEARANCE AND/OR FINISH. SHPO REQUIREMENTS TO BE CONFIRMED WITH OWNER.

CERTIFIED:

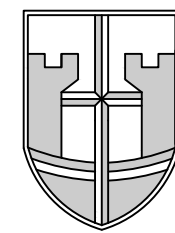


PUERTO RICO ARMY NATIONAL GUARD
CALLE GENERAL ESTEVES #100, SAN JUAN, PUERTO RICO 00901 - 2104

SEISMIC RETROFIT OF MUSEUM BUILDING
CAMP SANTIAGO, SALINAS, PUERTO RICO

DEMOLITION FLOOR PLAN

DESCRIPTION		REVISIONS	
NO.	DATE	NO.	DATE
1	02/11/2022		



DESIGN:
ELVIN PEREZ
DRAWN:
FELIX MELENDEZ
SUPERVISOR:
ALVIN RODRIGUEZ
DATE:
02/11/2022
SCALE:
AS SHOWN
SHEET:
02
TOTAL SHEETS:
10
SHEET NAME:
DS1-01

GENERAL:

1. THE CONTRACTOR SHALL EXAMINE THE STRUCTURAL DRAWINGS AND SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY DISCREPANCIES HE MAY FIND BEFORE PROCEEDING WITH THE WORK.

2. THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS AT THE SITE AND SHALL NOTIFY THE STRUCTURAL ENGINEER OF DISCREPANCIES BETWEEN THE ACTUAL CONDITIONS AND INFORMATION SHOWN ON THE DRAWINGS BEFORE PROCEEDING WITH THE WORK.

3. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE STRUCTURAL ENGINEER OF ANY CONDITION WHICH, IN HIS OPINION, MIGHT ENDANGER THE STABILITY OF THE STRUCTURE OR CAUSE DISTRESS TO THE STRUCTURE.

4. THE FOLLOWING REFERENCE DOCUMENTS, THEIR COMMENTARIES AND THE STANDARDS REFERENCED THEREIN, APPLY TO DESIGN, FABRICATION AND CONSTRUCTION PRACTICES TO BE ADHERED TO REGARD TO THE WORK SHOWN ON THE DRAWINGS:

A) PUERTO RICO BUILDING REGULATION & INTERNATIONAL BUILDING CODE (IBC 2018)

B) ACI MANUAL OF CONCRETE PRACTICE (LATEST).

C) ACI BLDG. CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-14).

E) AWS STRUCTURAL WELDING CODE.

5. ALL ASTM DESIGNATIONS SHALL BE AS AMENDED TO DATE.

6. SPECIFIC NOTES & DETAILS SHALL TAKE PRECEDENCE OVER GENERAL NOTES & TYPICAL DETAILS.

7. THE CONTRACTOR SHALL REFER TO THE SPECIFICATIONS FOR INFORMATION NOT COVERED BY THESE GENERAL NOTES OR THE STRUCTURAL DRAWINGS.

8. THE CONTRACTOR SHALL PROVIDE TEMPORARY ERECTION BRACING & SHORING FOR ALL STRUCTURAL MEMBERS AS REQUIRED FOR STRUCTURAL STABILITY OF THE STRUCTURE DURING ALL PHASES OF CONSTRUCTION.

9. THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO ENSURE THE PROPER ALIGNMENT OF THE STRUCTURE AFTER THE INSTALLATION OF ALL STRUCTURAL AND FINISH MATERIALS.
- FOUNDATIONS:
1. SOIL CONSULTANT SHALL INSPECT FOOTING EXCAVATIONS TO VERIFY FOUNDATION DEPTHS PRIOR TO PLACEMENT OF FORMS AND/OR REINFORCING STEEL.

2. ALL SOIL BACKFILL SHALL BE RECOMPACTED TO 95 PERCENT OF MAXIMUM DENSITY AS PER SOIL REPORT (ASTM D1557 MODIFIED PROCTOR).

3. LEAN CONCRETE BACKFILL SHALL CONSISTS OF A WELL-GRADED, FLOWABLE, SELF-LEVELING MIX AS PER SPECIFICATION 03 37 39.

4. THE TEST BORINGS FOR THIS PROJECT WERE PERFORMED BY:

SUELOS, PSC.

A COPY OF THE SOILS AND FOUNDATION INVESTIGATION ANALYSIS REPORT IS INCLUDED IN THE SPECIFICATION.

5. THE FOUNDATION DESIGN IS BASED 3,000 psf SOIL BEARING VALUE AND 100 KCF COEFFICIENT OF SUBGRADE REACTION

6. ALL EXCAVATION WORK SHALL BE PERFORMED WITHOUT AFFECTING THE STABILITY AND INTEGRITY OF EXISTING NEIGHBORING STRUCTURES.

7. THE CONTRACTOR SHALL PROVIDE ALL DEWATERING AS REQUIRED DURING THE EXCAVATION AND CONSTRUCTION OF THE FOUNDATION WORK.

8. ALL COLUMN FOOTINGS SHALL BE CENTERED ON THE COLUMN CENTERLINES, UNLESS OTHERWISE NOTED.

9. ALL EXISTING UNDERGROUND UTILITIES IN THE AREA OF THE NEW CONSTRUCTION SHALL BE RELOCATED UNLESS OTHERWISE NOTED ON THE DRAWINGS BEFORE ANY NEW FOUNDATION WORK IS STARTED. EXISTING SITE ELEMENTS AND UTILITIES, MANHOLES, CATCH BASINS, ETC. ADJACENT TO NEW CONSTRUCTION EXCAVATIONS SHALL BE PROTECTED BY SHIELDING AND/OR SHORING. THIS PROTECTION SHALL BE PROVIDED AND DESIGNED BY THE CONTRACTOR AND HIS PROFESSIONAL ENGINEER WHO SHALL BE TOTALLY RESPONSIBLE FOR ITS DESIGN AND INSTALLATION.

10. THE CONTRACTOR SHALL COORDINATE ALL FOUNDATION WORK WITH ALL UNDERGROUND UTILITIES. ALL NEW UNDERGROUND UTILITIES OR PIPES SHALL NOT BE PLACED BELOW THE FOOTINGS. IF ANY SUCH CONDITION OCCURS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND DROP THE BOTTOM OF FOOTING TO CLEAR THE PIPE.

11. BACKFILL AGAINST WALLS SHALL FOLLOW THE CRITERIA NOTED. AS A MINIMUM, WALLS MUST HAVE REACHED THEIR 28 DAY DESIGN STRENGTH OR BE IN PLACE 14 DAYS, WHICHEVER IS LONGER. FOR EXTERIOR AND INTERIOR BASEMENT AND/OR RETAINING WALLS, BACKFILL SHALL BE PLACED EVENLY ON BOTH SIDES TO THE FLOOR SUBGRADE LEVEL. EQUIPMENT USED TO COMPACT THE BACKFILL WILL BE SUCH AS TO LIMIT PRESSURES ON THE WALLS TO THE DESIGN VALUES AND TO BE REVIEWED AND ACCEPTED BY THE OWNER'S GEOTECHNICAL ENGINEER.

12. PROVIDE STANDARD STEEL PIPE SLEEVES FOR ALL PIPES PASSING THROUGH NEW CONCRETE WALLS AND NEATLY CORED HOLES A MINIMUM OF ONE PIPE SIZE LARGER THAN NEW PIPE THROUGH EXISTING CONCRETE WALLS WHERE SHOWN ON THE DRAWINGS. COORDINATE CORED HOLES WITH SEALANT, ETC., REQUIREMENTS WITH RELATED SPECIFICATIONS.

13. THE CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR THE EXCAVATION USING SUCH TECHNIQUES AS SOIL NAILING, TIEBACKS OR SOLDIER PILES, ALONE OR COMBINED WITH OPEN EXCAVATIONS AS ALLOW BY THE EXISTING CONDITIONS AND SOIL STABILITY.

14. FOR ADDITIONAL REQUIREMENTS SEE TYPICAL DETAILS AND THE SPECIFICATIONS.

15. BY THE PROXIMITY OF EXISTING BUILDING, COMPACTION OPERATIONS SHALL BE MONITORED AT THE BEGINNING OF THE COMPACTION OPERATIONS. GEOTECHNICAL ENGINEER MUST EVALUATE THE SITUATION AND ISSUE PERTINENT PREVENTIVE RECOMMENDATIONS OVERCOMING ANY RISK FOR THE EXISTING STRUCTURE. REFER TO GEOTECHNICAL REPORT ADDITIONAL RECOMMENDATIONS.

16. CONTRACTOR SHALL PROVIDE, AFTER CONSULTING WITH GEOTECHNICAL ENGINEER, PROTECTION TO THE EXISTING BUILDING FOOTINGS THAT WILL BE EXPOSED DURING EXCAVATIONS.

17. EXISTING FOOTINGS DIMENSIONS SHOWN IN THIS DRAWINGS ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR. SUBMIT TO E.O.R. DOCUMENTATION OF THE EXISTING FOOTINGS EXPLORATION.

18. IN CASE OF DIFFERENT FIELD CONDITIONS, GENERAL CONTRACTOR SHALL REPORT IN A WRITTEN MANNER SIZE, DEPTH AND SHAPE OF EXISTING FOOTINGS TO ADJUST, STRUCTURAL DETAILS TO ACTUAL CONDITIONS.

REINFORCING STEEL:

1. ALL REINFORCING STEEL SHALL BE NEW STOCK DEFORMED BARS CONFORMING TO ASTM A615 GRADE 60.

2. ALL BAR BENDS SHALL BE MADE COLD.

3. BAR LAPS SHALL BE MADE AWAY FROM POINTS OF MAXIMUM STRESS OR AT LOCATIONS SHOWN ON THE DRAWINGS. LAP SPLICES SHALL BE CLASS "B" AS PER ACI 318-05.

4. FIELD WELDING OF REINFORCING STEEL SHALL BE PERFORMED BY WELDERS SPECIFICALLY CERTIFIED FOR REINFORCING STEEL.

5. PRIOR TO WELDING THE "CARBON EQUIVALENT" (CE) OF STEEL SHALL BE DETERMINED. REINFORCING STEEL WHOSE "CE" CAN NOT BE IDENTIFIED OR WHOSE "CE" EXCEEDS 0.75% SHALL NOT BE WELDED, EXCEPT FOR REINFORCING STEEL CONFORMING TO ASTM A706.

6. WELDING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH A PROCEDURE ESTABLISHED BY A CERTIFIED TESTING LABORATORY FOR THE MATERIAL BEING WELDED. PROCEDURE SHALL BE BASED ON THE CARBON CONTENT OF THE REINFORCING AND SHALL ESTABLISH PREHEATING REQUIREMENTS TO SATISFACTORILY COMPLETE THE WORK.

CONCRETE:

1. ALL CONCRETE SHALL BE STONE CONCRETE UTILIZING AGGREGATE CONFORMING TO ASTM C33. CEMENT SHALL BE TYPE I CONFORMING TO ASTM C150.

2. ALL CONCRETE SHALL BE PROVIDED WITH A CORROSION INHIBITOR ADDITIVE APPROVED BY THE ENGINEER OF RECORD

3. CONCRETE STRENGTH SHALL BE AT 28 DAYS:

	LOCATION	STRENGTH (*)	MAX W/C RATIO
A. MAIN BUILDING	FOUNDATIONS	4,000 PSI	0.50
	GROUND SLAB	4,000	0.50
	COLUMNS & WALLS	4,000	0.50
	ELEVATED SLABS & BEAMS	4,000	0.50

4. CONCRETE COVER OVER REINFORCING STEEL SHALL BE AS FOLLOWS,

A. FOOTINGS:	— 3" BOTT, 2" TOP	D. COLUMNS & BEAMS	— 1 1/2"
B. CONCRETE AGAINST EARTH (FORMED)	— 1 1/2" UP TO #5	E. ELEVATED SLABS	— 3/4"
	— 2" #6 & ABOVE	F. ROOF SLABS	— 3/4" BOTT, 1 1/2" TOP
C. CONCRETE PEDESTALS	— 2"	G. WALLS	— 3/4"

ALL PEDESTAL AND WALLS BELOW GRADE SHALL BE FORMED CONCRETE.

5. BEFORE CONCRETE IS PLACED THE CONTRACTOR SHALL COORDINATE AND CHECK WITH ALL TRADES TO ENSURE THE PROPER PLACEMENT OF ALL OPENINGS, SLEEVES, INSERTS, CURBS, DEPRESSIONS, ETC. RELATING TO THE WORK, AS SHOWN IN THE DRAWINGS. ANY CHANGE OR DISCREPANCY SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.

6. NO JOINT, OPENING, SLOT OR GROOVE OTHER THAN THAT SHOWN ON PLANS SHALL BE PERMITTED WITHOUT PREVIOUS APPROVAL BY THE ENGINEER. ALL CONSTRUCTION JOINT SURFACES SHALL BE CLEANED AND ROUGHENED TO 1/4" AMPLITUDE (U.N.O.) AND TREATED AS INSTRUCTED IN THE ACI MANUAL OF CONCRETE PRACTICE.

7. ALL CONCRETE WORK SHALL BE CURED FOR A MINIMUM OF 7 CONSECUTIVE DAYS IN ACCORDANCE WITH ACI STANDARDS.

8. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR CONCRETE EQUIPMENT PADS AND FOUNDATIONS REQUIRED.

9. ALL CONCRETE USED TO PATCH EXISTING FLOOR SLABS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. THE CONCRETE TYPE SHALL BE THE SAME AS THE EXISTING ADJACENT CONCRETE.

10. FOR ADDITIONAL REQUIREMENTS SEE TYPICAL DETAILS AND SPECIFICATIONS.

SPECIAL INSPECTIONS:

ONE OR MORE APPROVED AGENCIES (EMPLOYED BY THE OWNER) WILL BE RESPONSIBLE FOR PERFORMING AND REPORTING ON THE SPECIAL INSPECTIONS REQUIRED FOR THE WORK. CHAPTER 17 OF THE 2011 PR BUILDING CODE CONTAINS FURTHER DETAILS PER THE REQUIREMENTS THAT FOLLOW.

FOUNDATION — TABLE 1704.7, ITEMS 1 THRU 4; TABLE 1704.8, ITEMS 1 THRU 7; TABLE 1704.9, ITEMS 1 THRU 3.

CONCRETE — TABLE 1704.4, ITEMS 1 THRU 12.

MASONRY — TABLE 1704.5.1, ITEMS 1 THRU 8; TABLE 1704.5.3, ITEMS 1 THRU 6.

STRUCTURAL STEEL — TABLE 1704.3, ITEMS 1 THRU 6.

SEISMIC RESISTANCE — FOR THE STRUCTURAL STEEL SEISMIC LOAD RESISTING SYSTEM (SLRS), PER APPENDIX Q OF ANSI/AISC 341-05 REGARDING THE QC AND QA PLAN REQUIREMENTS. SEE ALSO SECTION 1707 AND 1708.

WIND RESISTANCE — ALL SYSTEMS AND COMPONENTS LISTED IN SECTION 1705.4.2.

CONTRACTOR RESPONSIBILITY — SUBMIT A STATEMENT OF RESPONSIBILITY PER SECTION 1709.

NON-STRUCTURAL COMPONENTS — PERIODIC INSPECTION OF ALL SYSTEMS AND COMPONENTS LISTED IN SECTIONS 1705.3.3 AND 1705.3.4.

DEMOLITION NOTES:

1. ALL DEBRIS SHALL BE REMOVED PRIOR CONSTRUCTION WORKS BEGINS.

2. PRIOR TO COMMENCING CONSTRUCTION, THE SITE SHALL BE CLEARED AND GRUBBED OF ANY VEGETATION COVER, DEBRIS, NON-ENGINEERING FILLS THAT MAY BE ENCOUNTERED, LOOSE OF SOFT SOIL, GARBAGE, AND SURFACE TOPSOIL THAT MAY EXIST AT THE GROUND SURFACE.

3. CONTRACTOR SHALL BE VERY CAREFUL NO TO DAMAGE EXISTING UTILITIES TO REMAIN DURING DEMOLITION AND CONSTRUCTION WORKS.

4. CONTRACTOR IS RESPONSIBLE OF ANY DAMAGES INFLECTED TO ADJACENT PROPERTY OR OTHER AREAS DURING THE DEMOLITION PROCESS. DAMAGED ITEMS SHALL BE RESTORES TO ITS ORIGINAL CONDITION AT THE CONTRACTOR EXPENSES.

5. WALLS AND PORTION OF CONCRETE SLAB ON GRADE WILL NEED TO BE DEMOLISHED AND RECONSTRUCTED PER NEW DETAILS. WALL AND FLOOR FINISHES SHALL BE INSTALLED TO MATCH EXISTING IN COORDINATION WITH OWNER.

6. THE GENERAL CONTRACTOR WILL COORDINATE IN THE FIELD, PRIOR TO ANY SELECTIVE DEMOLITION AND / OR CONSTRUCTION OF ANY NEW STRUCTURAL COMPONENT, THE PRESENCE OF EXISTING MECHANICAL AND ELECTRICAL SYSTEMS IN ORDER TO ENSURE THAT EXISTING UTILITIES ARE NOT ELIMINATED OR AFFECTED. IN CASE OF ANY SPECIAL SITUATION OR CONFLICT, THE CONTRACTOR SHALL SUBMIT FIELD INFORMATION TO BE EVALUATED BY THE ENGINEER PRIOR PROCEEDING.

7. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF THE EXISTING ROOF STRUCTURE SHORING.

8. STEEL TRUSS SHALL REMAIN SHORED DURING DEMOLITION AND CONSTRUCTION OF NEW FOOTINGS, WALLS AND COLUMNS. GENERAL CONTRACTOR SHALL TAKE CARE ABOUT SIZE AND TYPE OF TEMPORARY SUPPORTS (BASE PLATES) ON SLAB ON GRADE TO AVOID CRACKING OR DAMAGE DURING SHORING.

LEGEND FOR SECTION /DETAIL:

1. LEGEND FOR SECTION/DETAIL CROSS REFERENCING

SECTION /DETAIL DESIGNATION

DWG WHERE SECTION /DETAIL IS SHOWN

SECTION /DETAIL DESIGNATION

DWG WHERE SECTION /DETAIL IS SHOWN

2. SLAB REINF:

————	TOP BARS
- - - - -	BOTT BARS
- - - - -	WALL/COL BELOW
————	WALL/COL ABOVE
	MASONRY WALL

EW	—	EACH WAY
EF	—	EACH FACE
T & B	—	TOP & BOTTOM
CONT	—	CONTINUOUS
CLR	—	CLEAR

MISCELLANEOUS:

1. ALL STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATIONS AND ALL OTHER DRAWINGS RELATED TO THE WORK

2. ALL CONSTRUCTION JOINTS MADE IN EXTERIOR WALLS OR ROOF SLABS AND CISTERN WALLS SHALL CONTAIN WATERSTOPS AND SHALL HAVE REINFORCEMENT CONTINUOUS ACROSS THE JOINTS

3. PROVIDE DAMMPROOFING MEMBRANE AGAINST ALL UNDERGROUND WALLS AND WALLS EXPOSED TO EARTH BACKFILL

4. ALL WATERSTOPS SHALL BE INSTALLED SECURELY IN ACCORDANCE WITH THE SPECIFICATIONS. THE WATERSTOPS SHALL BE PLACED CONTINUOUSLY THROUGH OUT THE LENGTH OF THE CONSTRUCTION JOINT

5. TRANSVERSE REINFORCEMENT ALONG A CURVED MEMBER SHALL BE RADIAL ABOUT THE CENTER LINE OF THE CURVE.

6. CONCRETE SURFACES LEADING TO DRAINS SHALL BE SLOPED TOWARD DRAIN AND THE ADJACENT SURFACES WARPED AS REQUIRED TO SATISFY AN ADEQUATED DRAINAGE FLOW

7. ALL EXPOSED CONCRETE EDGES AND CORNERS SHALL BE CHAMFERED WITH A 3/4" TIMES 45° CHAMFER UNLESS NOTED OTHERWISE

8. BACKFILL BEHIND BASEMENT WALLS SHALL BE NOT PLACED UNTIL AFTER TOP OF WALL IS BRACED BY FIRST FLOOR SLAB.

9. POST-INSTALLED FASTENERS (DRILL-IN CONCRETE FASTENERS) SHALL BE HILTI HVA ADHESIVE SYSTEM, UNLESS NOTED OTHERWISE)

10. FL. FINISHES, SLAB STEPS, FLOOR AND ROOF SLOPE FOR DRAINAGE AS WELL AS FLOOR DEPRESSIONS SHALL BE PER ARCHITECTURAL DWGS.

11. ALL WATERPROOFING MEMBRANES FOR CISTERN, RET. WALLS, PONDS, PITS, ETC. SHALL BE PER ARCHITECTURAL DWGS.

12. WATER STOPS SHALL BE 3/8"x6" FLAT RIBBED PVC

DESIGN LOADS

LATERAL LOADS — SEISMIC	IBC 2018
SEISMIC DESIGN CATEGORY	D
SEISMIC IMPORTANCE FACTOR, I	1.25
SEISMIC IMPORTANCE FACTOR, Ip (EQUIPMENT)	1.25
SITE CLASSIFICATION	C
MAPPED SPECTRAL ACCELERATION SHORT PERIODS, Ss	0.932g
MAPPED SPECTRAL ACCELERATION LONG PERIODS, St	0.351g
SEISMIC COEFFICIENT, Fa	1.20
SEISMIC COEFFICIENT, Fv	1.50
DESIGN ACCELERATION AT 0.2S, SDS	0.751g
DESIGN ACCELERATION AT 1.0S, SD1	0.351g
STRUCTURAL SYSTEM	SPECIAL REINFORCED CONCRETE SHEAR WALLS
RESPONSE MODIFICATION, R	5
SYSTEM OVERSTRENGTH, OMEGA	2.5
DEFLECTION AMPLIFICATION, CD	5

NOTES FOR GENERAL CONTRACTOR:

1. SELECTIVE DEMOLITION SHALL BE DONE CAREFULLY AVOIDING TO DAMAGE ANY EXISTING STRUCTURAL COMPONENT.

2. POURING OF NEW CONCRETE WALLS AGAINST EXISTING CMU WALLS ALONG FACADES AND CORRIDORS, SHALL REQUIRE LATERAL SUPPORT AND BRACING AGAINST LATERAL PRESSURE WHEN CONCRETE IS WET.

3. NEW FOOTINGS SHALL BE AT THE SAME BOTTOM LEVEL OF EXISTING MAIN STRUCTURAL FOUNDATIONS.

4. PROVIDE ADEQUATE SOIL PREPARATION AND COMPACTION OF NEW FOUNDATIONS. INSPECTION OF SOIL ENGINEER IS STRONGLY RECOMMENDED.

5. AVOID TO CUT OR PERFORATE ANY PRECAST CONCRETE JOISTS.

6. DURING INSTALLATION OF NEW STEEL DOWELS, GENERAL CONTRACTOR SHALL DETECT THE PRESENCE OF EXISTING REBARS TO AVOID CUT OR DAMAGE TO EXISTING STEEL REINFORCEMENT. THE USE OF A PACHOMETER OR FERROSCANNING DEVICE IS STRONGLY RECOMMENDED.

7. CONTRACTOR SHALL IDENTIFY ANY EQUIPMENT OR UTILITY ATTACHED OR INSIDE THE PROPOSED WALLS TO BE DEMOLISHED AND IN ITS SURROUNDING, SUCH AS ELECTRICAL CONDUITS, PLUMBING, DATA AND OTHER UTILITIES, PRIOR COMMENCE OF THE CONSTRUCTION WORK. SUCH EQUIPMENTS OR UTILITIES SHALL BE RESTORED TO ITS ORIGINAL LOCATION.

SEISMIC RETROFIT LIMITATIONS:

1. THE SEISMIC RETROFIT IS LIMITED TO THE ENHANCEMENT OF THE PERFORMANCE OF THE MAIN BUILDING STRUCTURE.

2. THIS DRAWINGS DO NOT CONTEMPLATE THE SEISMIC RETROFIT OF NON STRUCTURAL COMPONENTS AND EQUIPMENTS.

ARCHITECTS & ENGINEERS LLC

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www.cmapr.com
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CMA # 20073-03

CERTIFIED:

PUERTO RICO ARMY NATIONAL GUARD

CALLE GENERAL ESTEVES #100, SAN JUAN PUERTO RICO 00901 – 2104

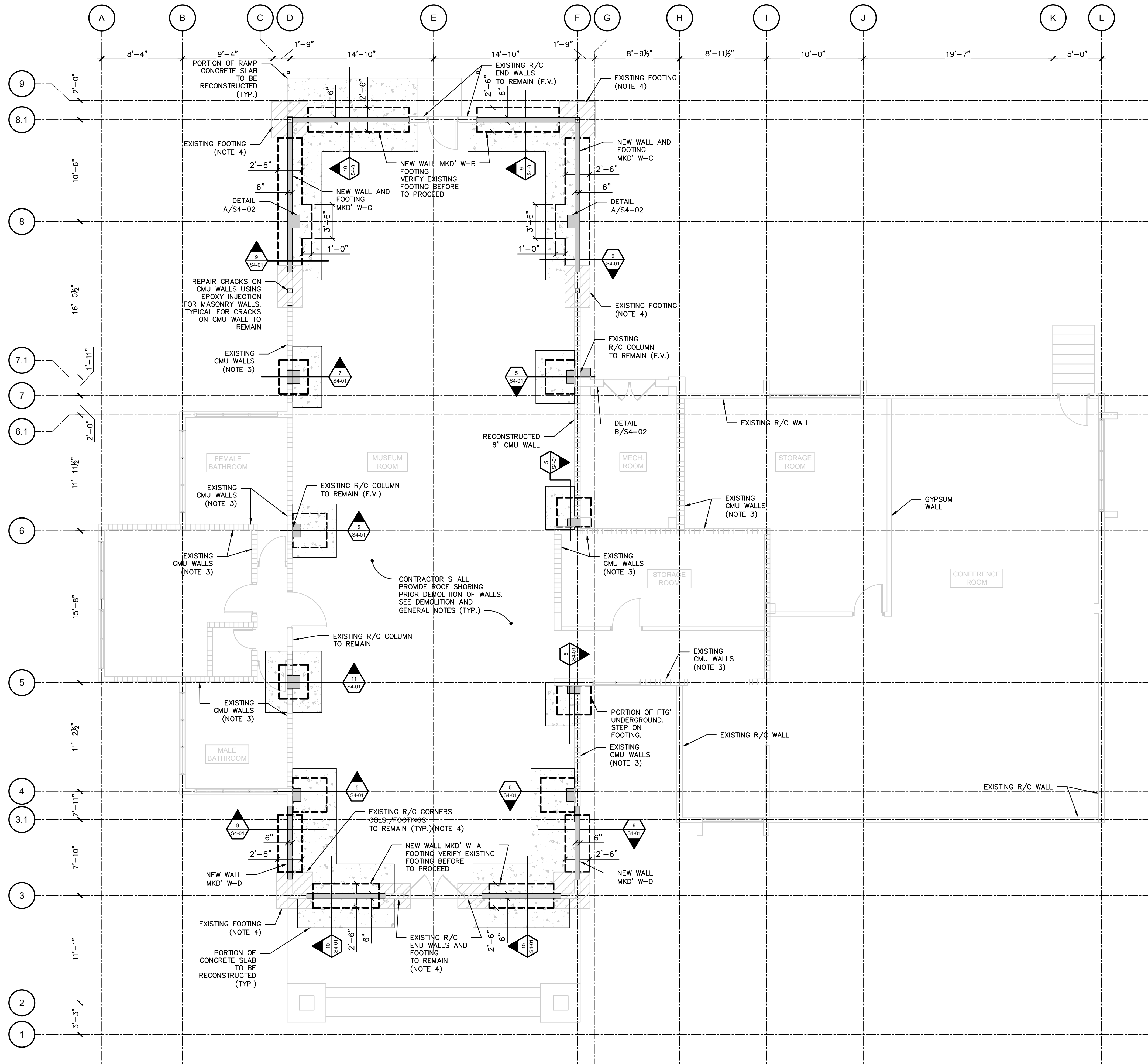
SEISMIC RETROFIT OF MUSEUM BUILDING
CAMP SANTIAGO, SALINAS, PUERTO RICO

GENERAL NOTES

REVISIONS

DESIGN: ELVIN PEREZ	
DRAWN: FELIX MELENDEZ	
SUPERVISOR: ALVIN RODRIGUEZ	
DATE: 02/11/2022	SCALE: AS SHOWN
SHEET: 03	TOTAL SHEETS: 10
SHEET NAME: S0-01	

DATE: February 11, 2022 3:58 PM USER: Felix S. Melendez FILE: C:\DM\WORKSPACE\20073-03\CHECKOUT\S0-01.DWG



MODIFIED FOUNDATION & SLAB ON GRADE PLAN
SCALE: 3/16" = 1'-0"

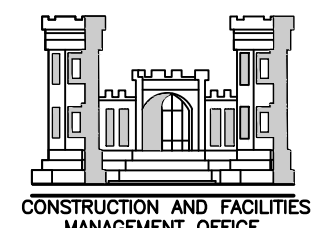
LEGEND:

- (E) EXISTING
(N) NEW
EXISTING WALL
EXISTING CMU WALL
NEW CONCRETE WALLS
NEW CONCRETE SLAB

NOTES:

- FOR GENERAL NOTES, SEE DRAWING S0-01.
- ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE GENERAL CONTRACTOR.
- ALL EXISTING CMU WALLS SHALL BE ANCHORED AT TOP. REFER TO LATERAL SUPPORT OF NON-LOAD CMU WALL DETAIL ON DWG. S6-01.
- CONTRACTOR TO VERIFY EXISTING FOOTINGS PRIOR CONSTRUCTION. SEE FOUNDATION NOTES ON S0-01.

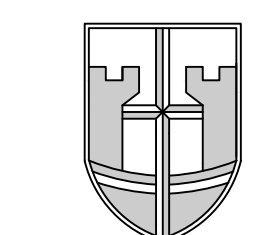
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SEISMIC RETROFIT OF MUSEUM BUILDING
CAMP SANTIAGO, SALINAS, PUERTO RICO
MODIFIED FOUNDATION & SLAB ON GRADE PLAN

PROJECT:
SHEET TITLE:
NO. 02/11/2022
CD 100% CD



DESIGN:
ELVIN PEREZ

DRAWN:
FELIX MELENDEZ

SUPERVISOR:
ALVIN RODRIGUEZ

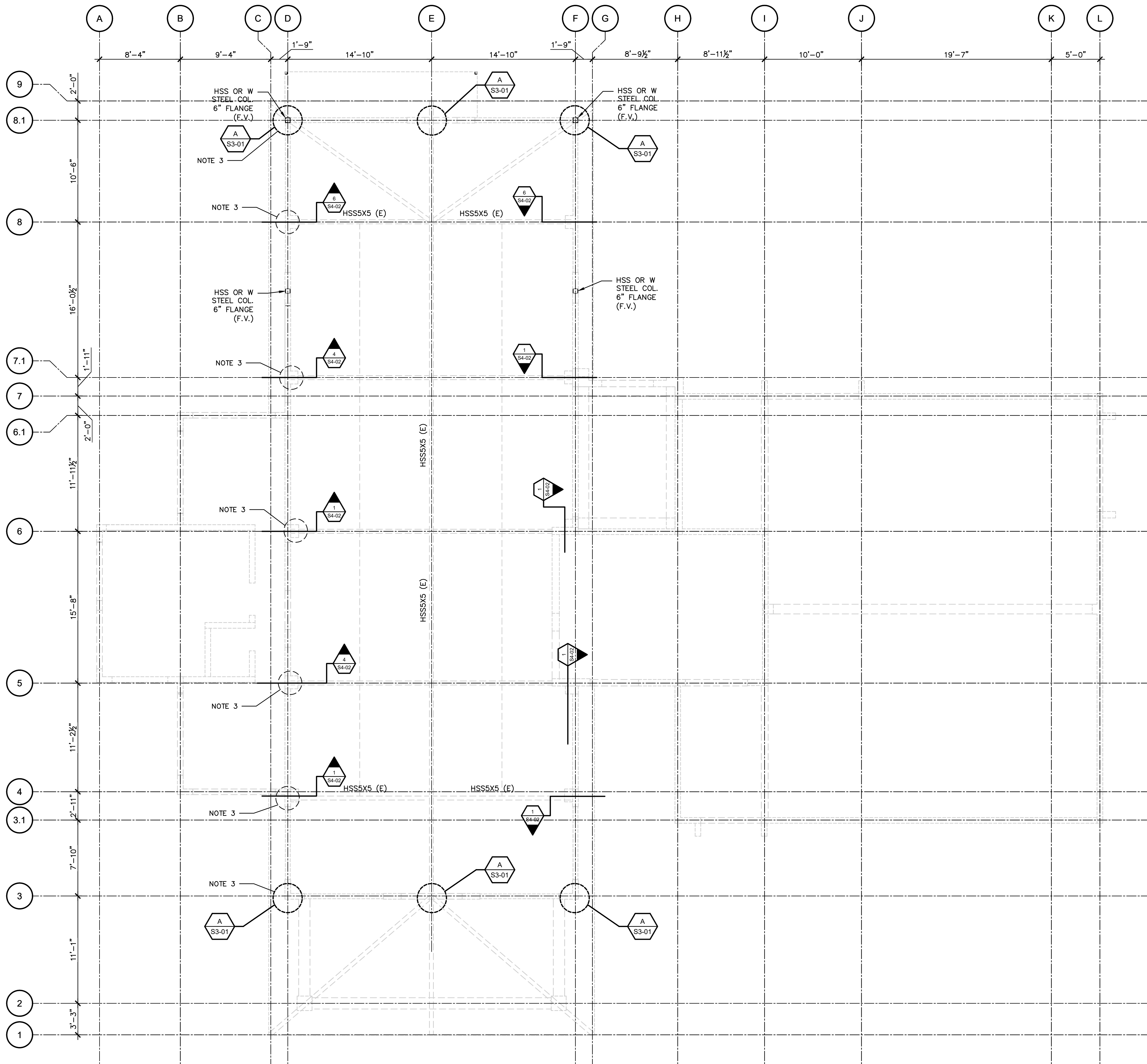
DATE:
02/11/2022

SHEET:
04

SCALE:
AS SHOWN

TOTAL SHEETS:
10

SHEET NAME:
S1-01



MODIFIED ROOF FRAMING PLAN
SCALE: 3/16" = 1'-0"

LEGEND:
(E) EXISTING
(N) NEW

NOTES:

1. FOR GENERAL NOTES, SEE DRAWING S0-01.
2. ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE GENERAL CONTRACTOR.
3. ALL ROOF TRUSS CONNECTIONS TO WALL OR R/C BEAM TO BE MODIFIED OR REPAIRED TYPICAL ALONG AXES ① AND ⑦

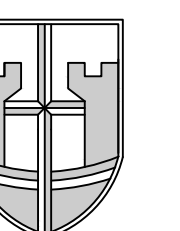
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CALLE GENERAL ESTEVES #100, SAN JUAN, PUERTO RICO 00901 - 2104

SEISMIC RETROFIT OF MUSEUM BUILDING
CAMP SANTIAGO, SALINAS, PUERTO RICO
MODIFIED ROOF FRAMING PLAN

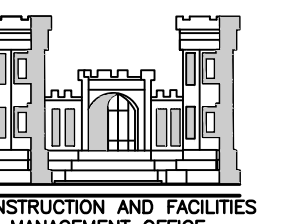
C A L L E N E	
PROJECT:	
SHEET TITLE:	
NO.	D E S C R I P T
a	100% CD



DESIGN:
ELVIN PEREZ
DRAWN:
FELIX MELENDEZ
SUPERVISOR:
ALVIN RODRIGUEZ
DATE:
02/11/2022
SCALE:
AS SHOWN
SHEET:
05
TOTAL SHEETS:
10

SHEET NAME:
S2-01

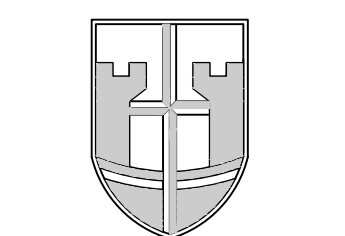
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CALLE GENERAL ESTEVES #100, SAN JUAN, PUERTO RICO 00901 - 2104

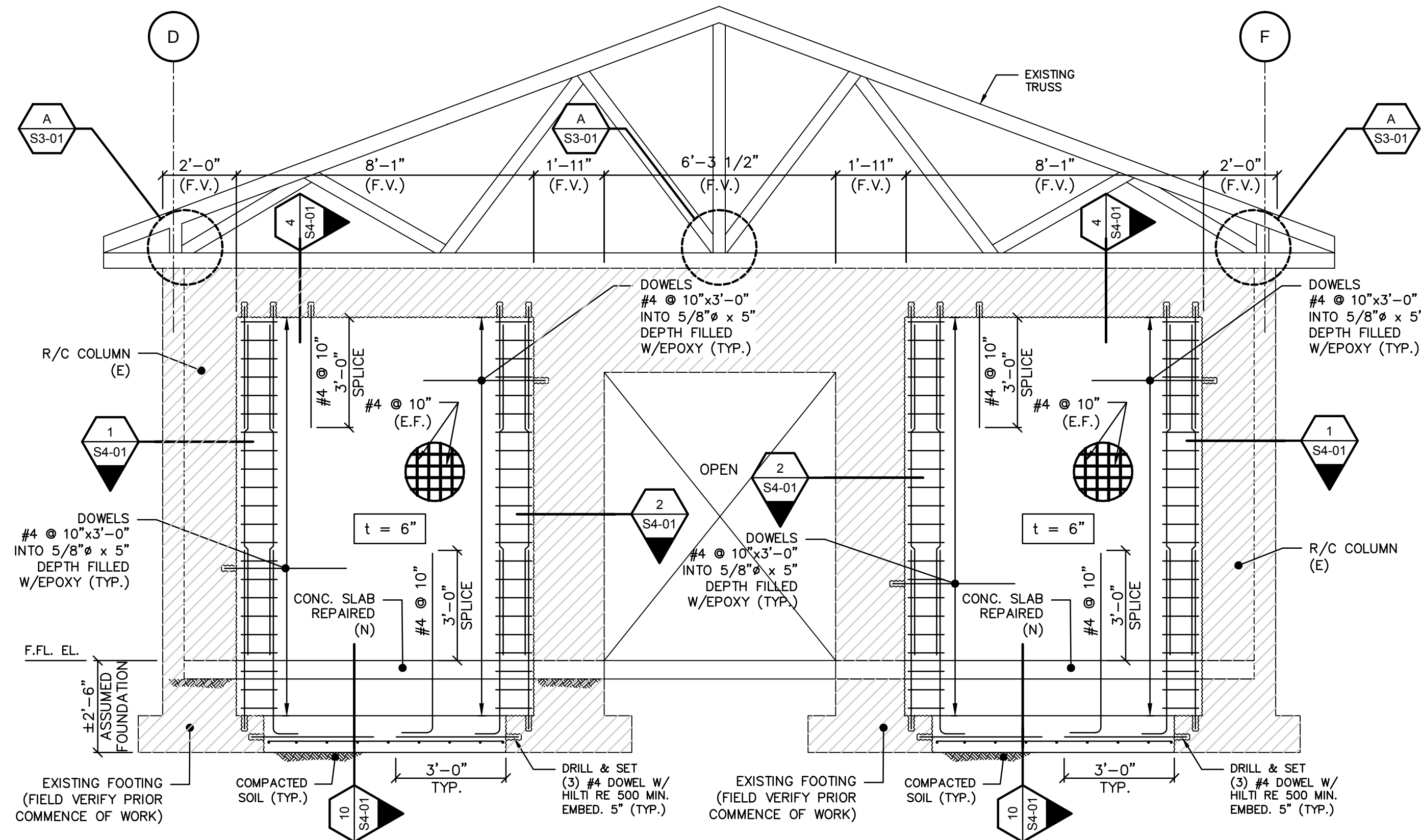
SEISMIC RETROFIT OF MUSEUM BUILDING
CAMP SANTIAGO, SALINAS, PUERTO RICO
NEW CONCRETE SHEAR WALLS ELEVATIONS

NO.	DESCRIPTION	DATE	REVISIONS
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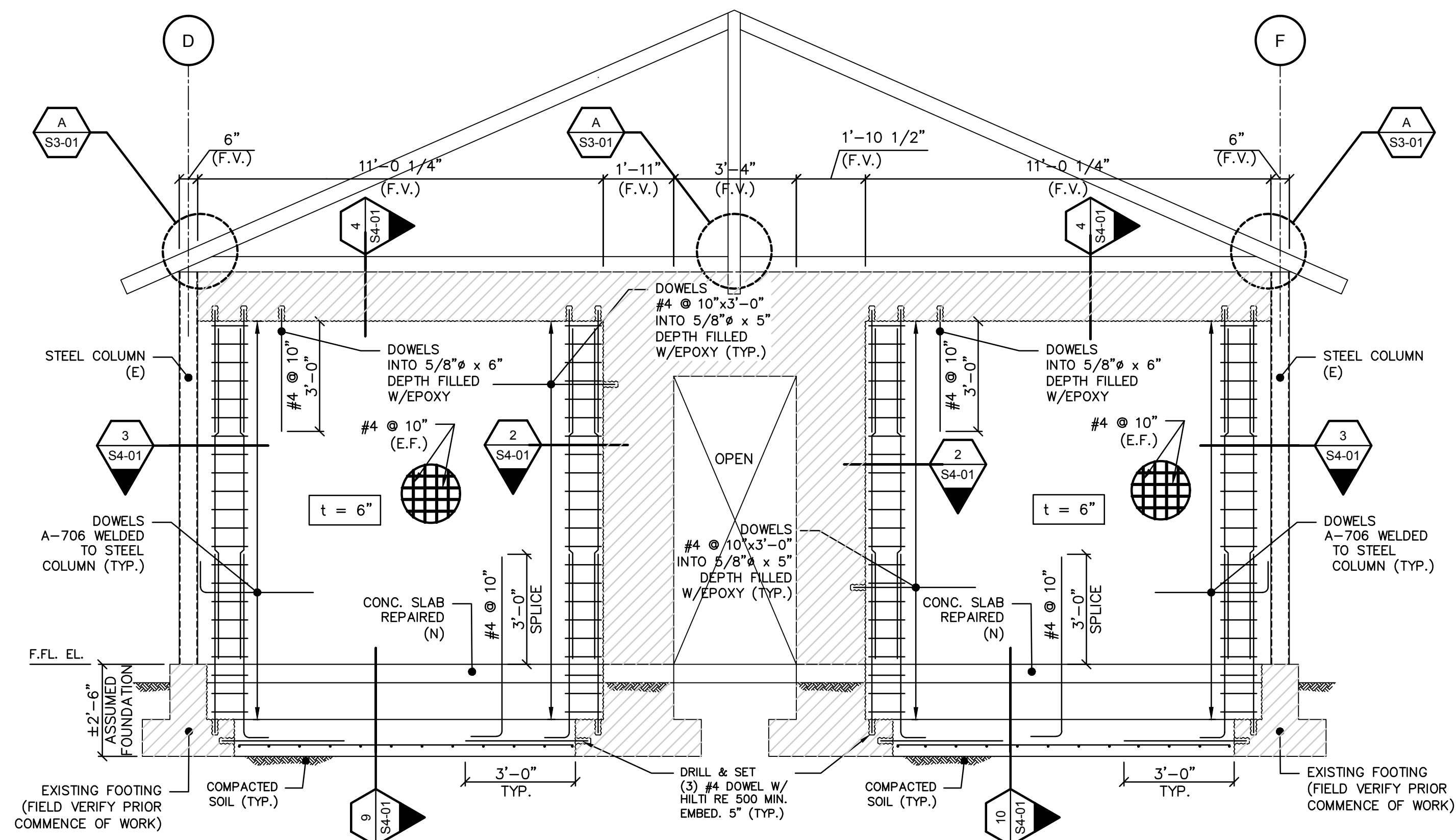


DESIGN:
ELVIN PEREZ
DRAWN:
FELIX MELENDEZ
SUPERVISOR:
ALVIN RODRIGUEZ
DATE:
02/11/2022
SCALE:
AS SHOWN
SHEET:
06
TOTAL SHEETS:
10

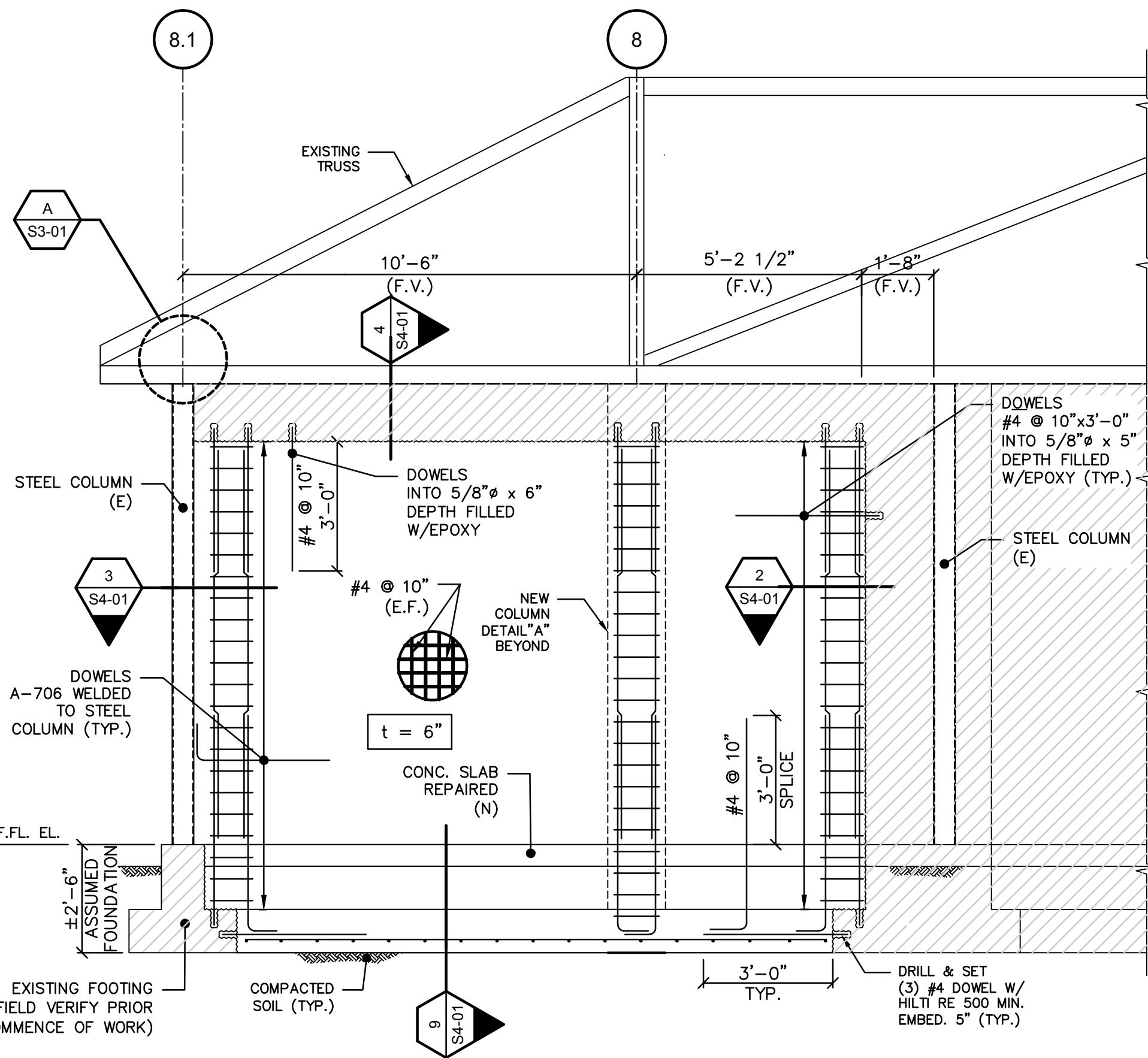
SHEET NAME:
S3-01



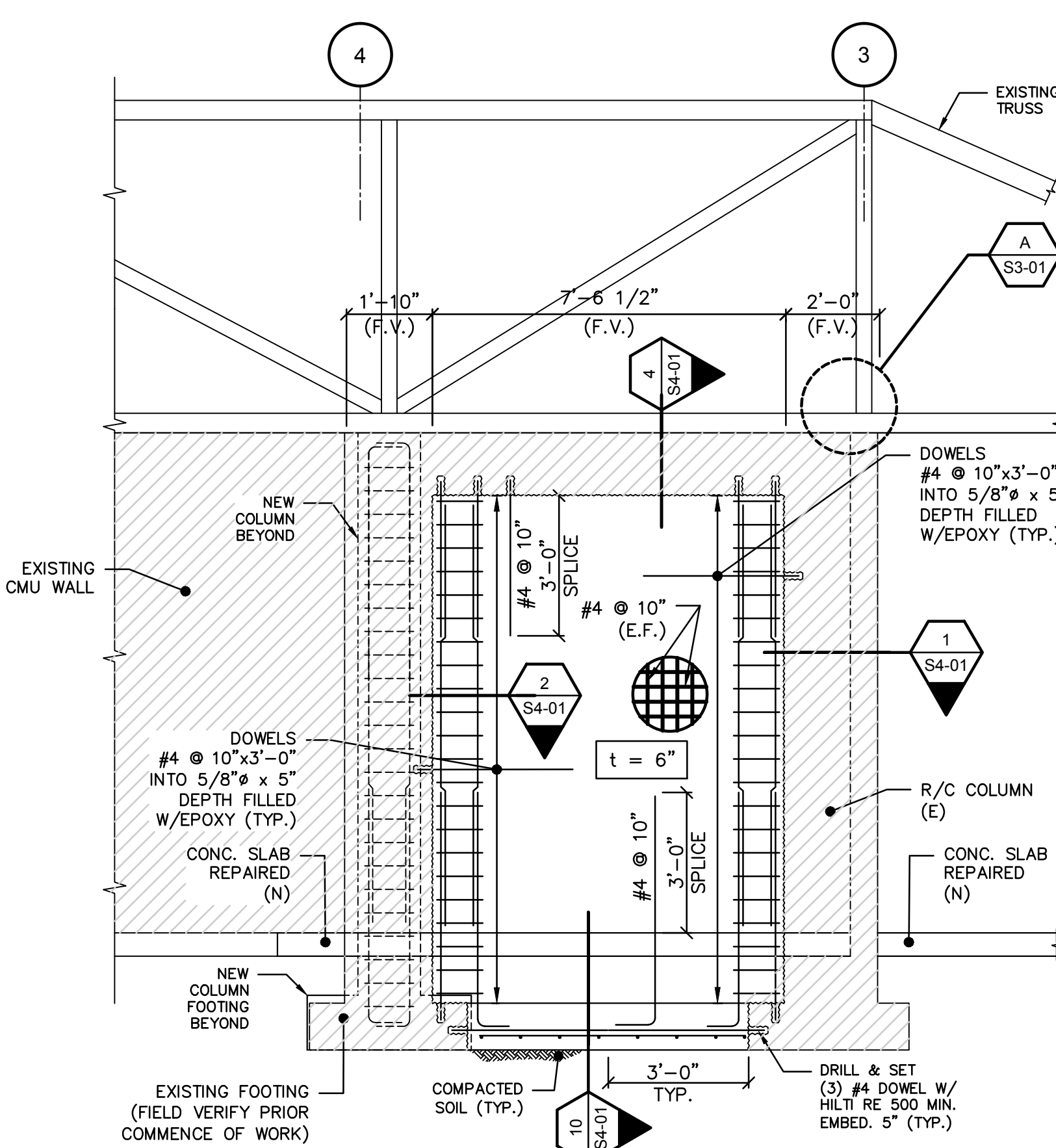
EXISTING MODIFIED WALL ELEVATION AT 3
SCALE: 3/8" = 1'-0" (WALL MKD' AS W-A)



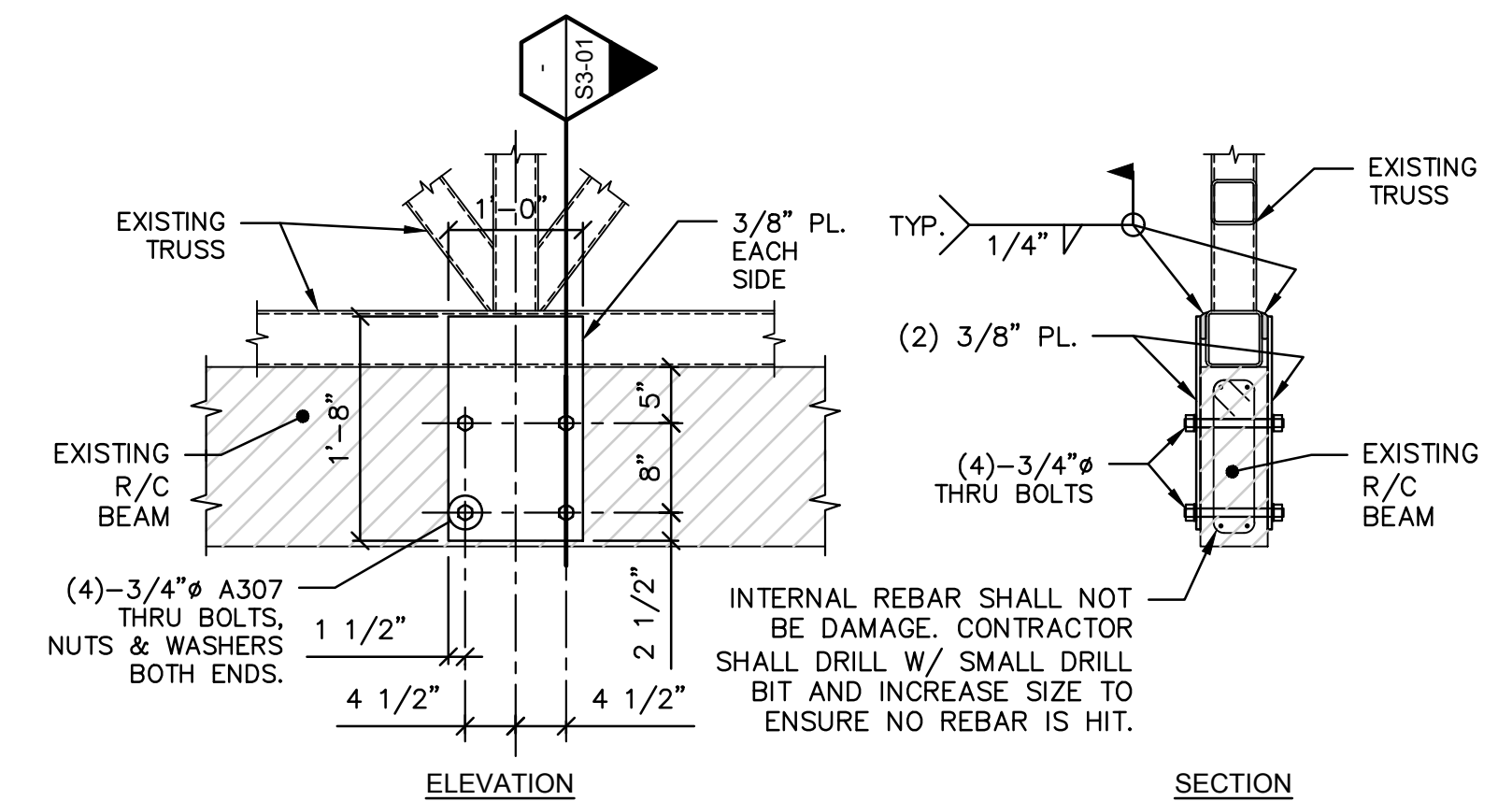
EXISTING MODIFIED WALL ELEVATION AT 8.1
SCALE: 3/8" = 1'-0" (WALL MKD' AS W-B)



EXISTING PARTIAL MODIFIED WALL ELEVATION AT D & F
SCALE: 3/8" = 1'-0" (WALL MKD' AS W-C)



EXISTING PARTIAL MODIFIED WALL ELEVATION AT D & F
SCALE: 3/8" = 1'-0" (WALL MKD' AS W-D)



TYPICAL STEEL TRUSS TO R/C BEAM CONNECTION DETAILS
ELEVATION
SECTION

DETAIL
SCALE: 3/4"=1'-0"

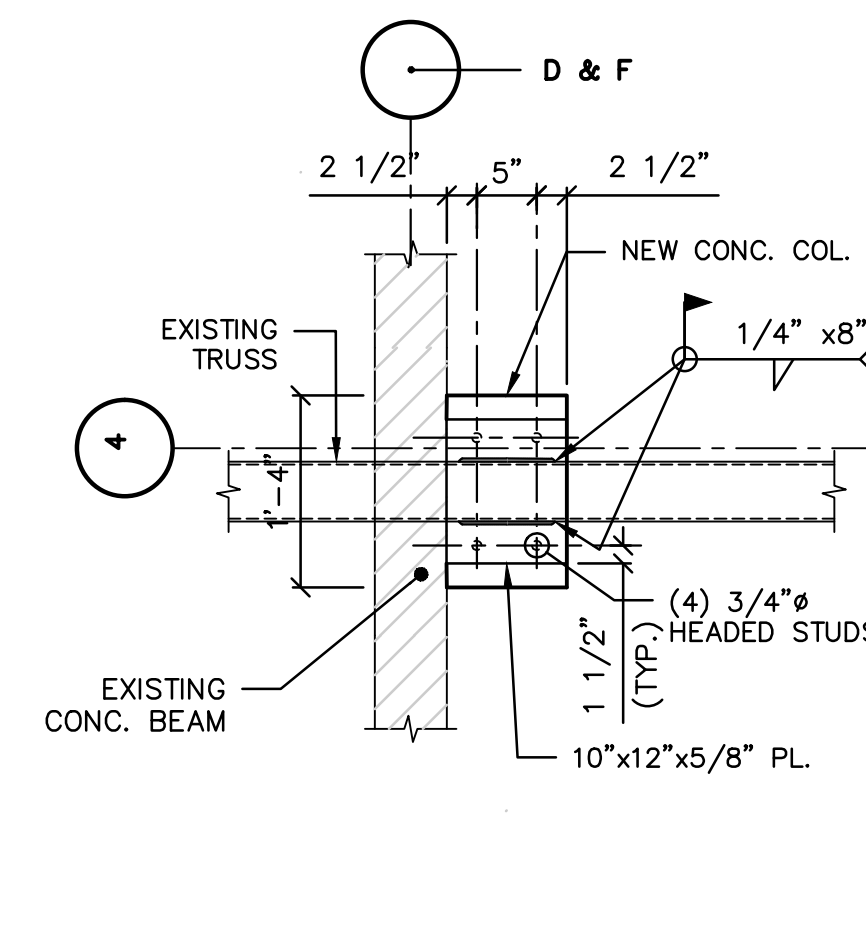
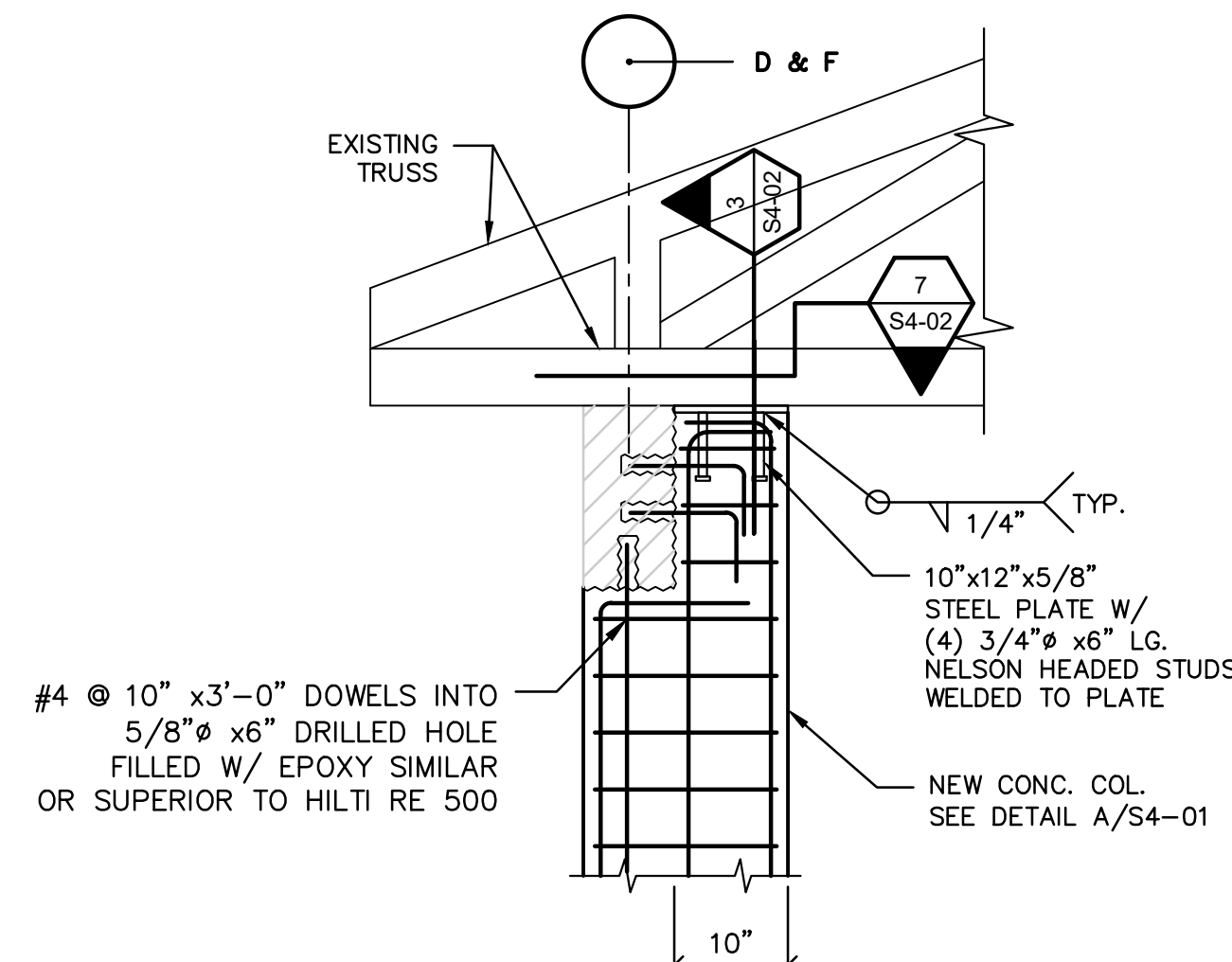
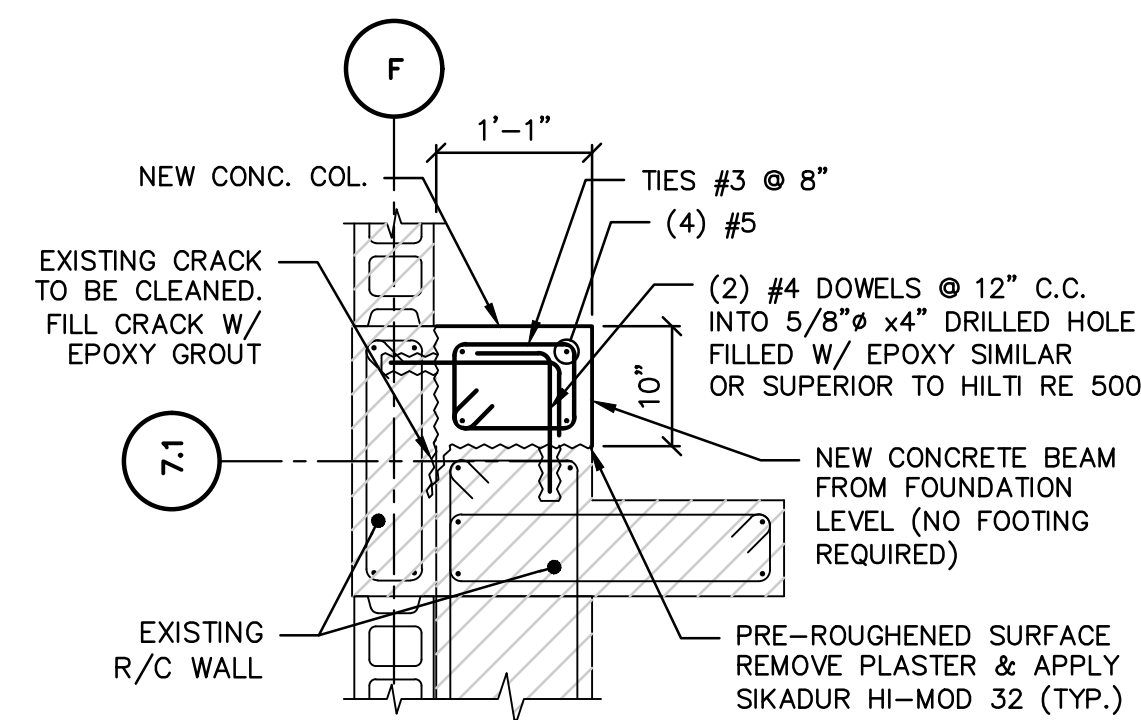
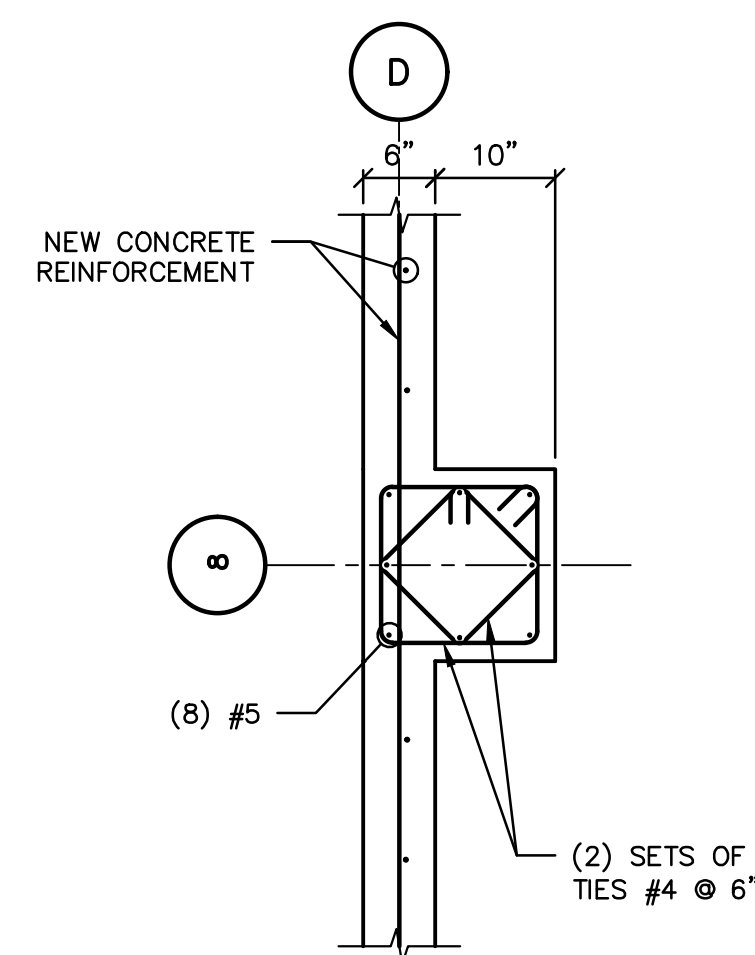
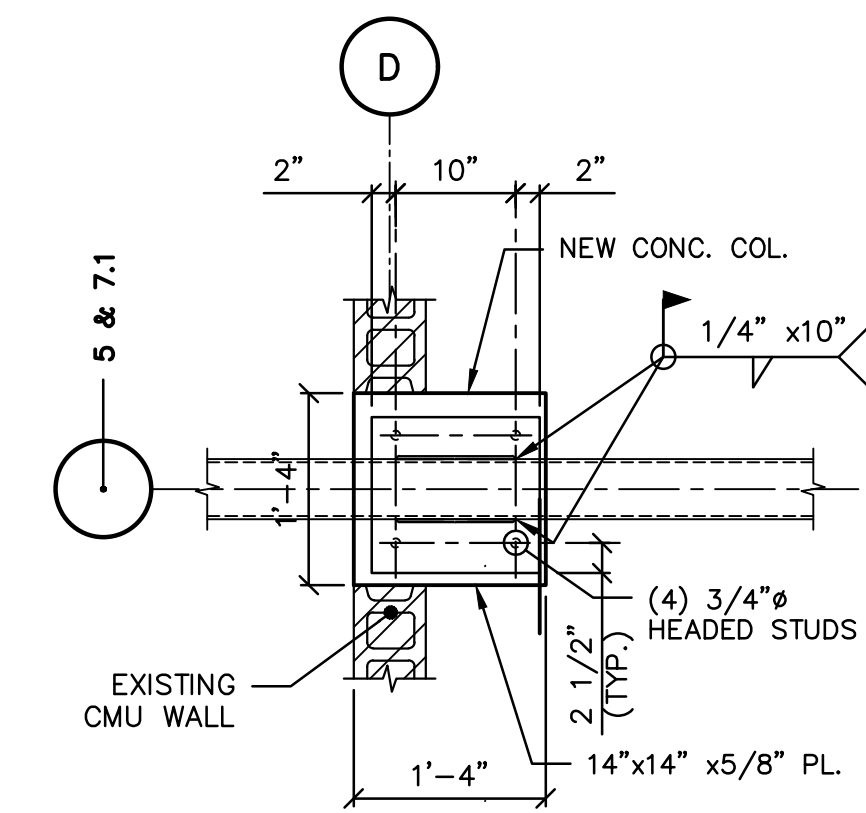
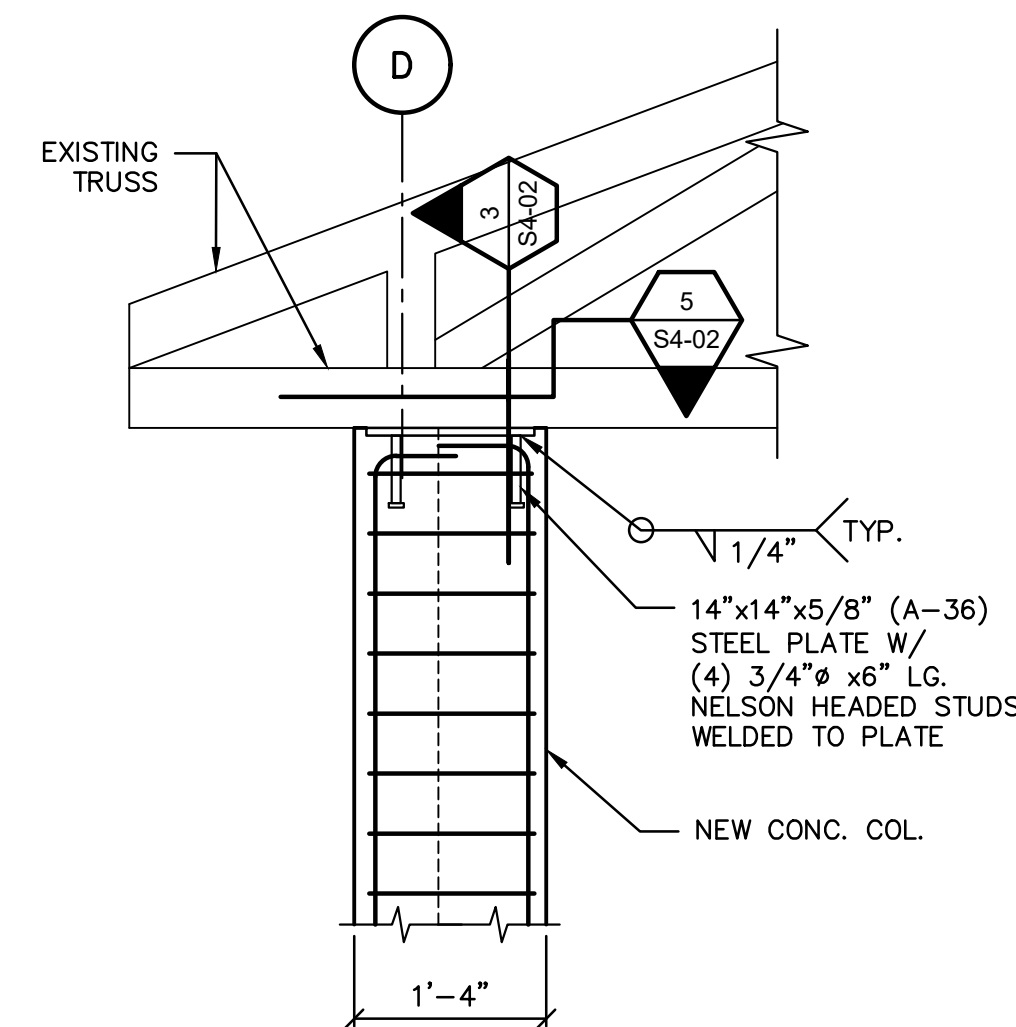
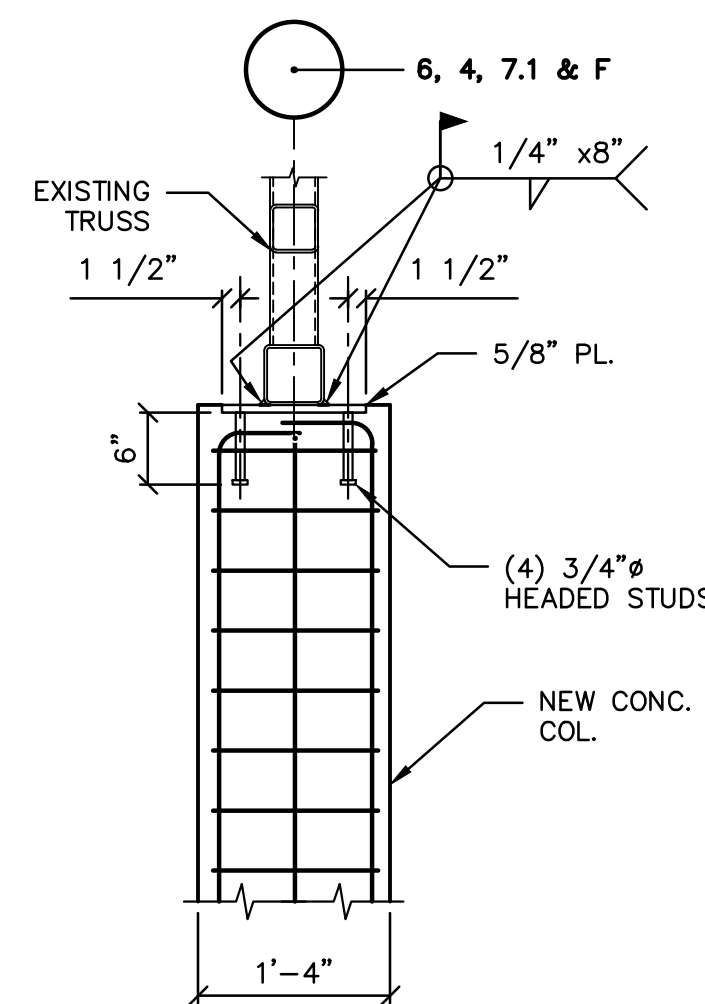
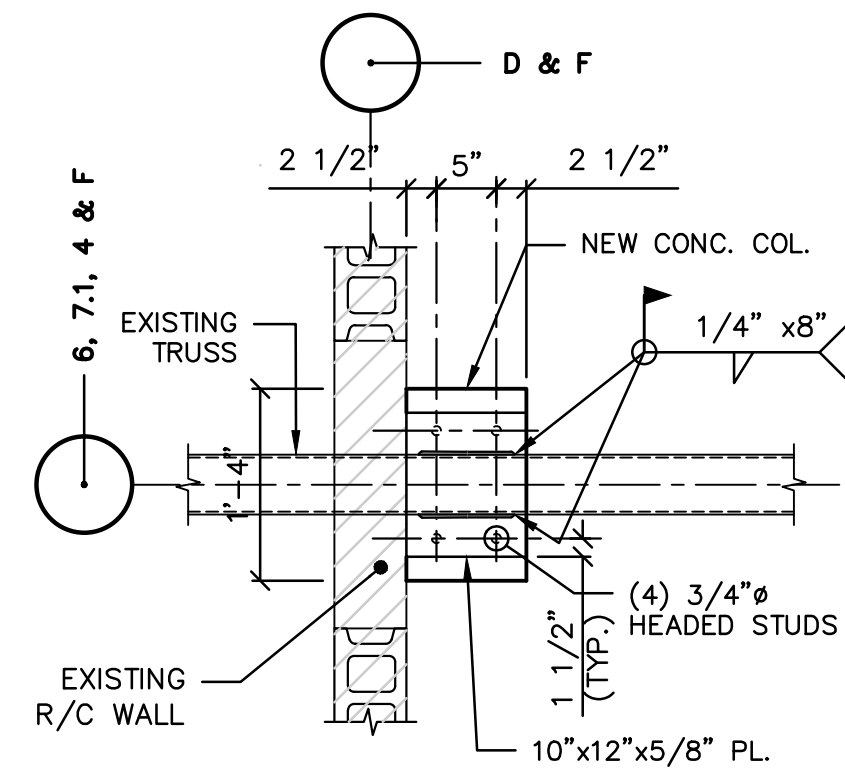
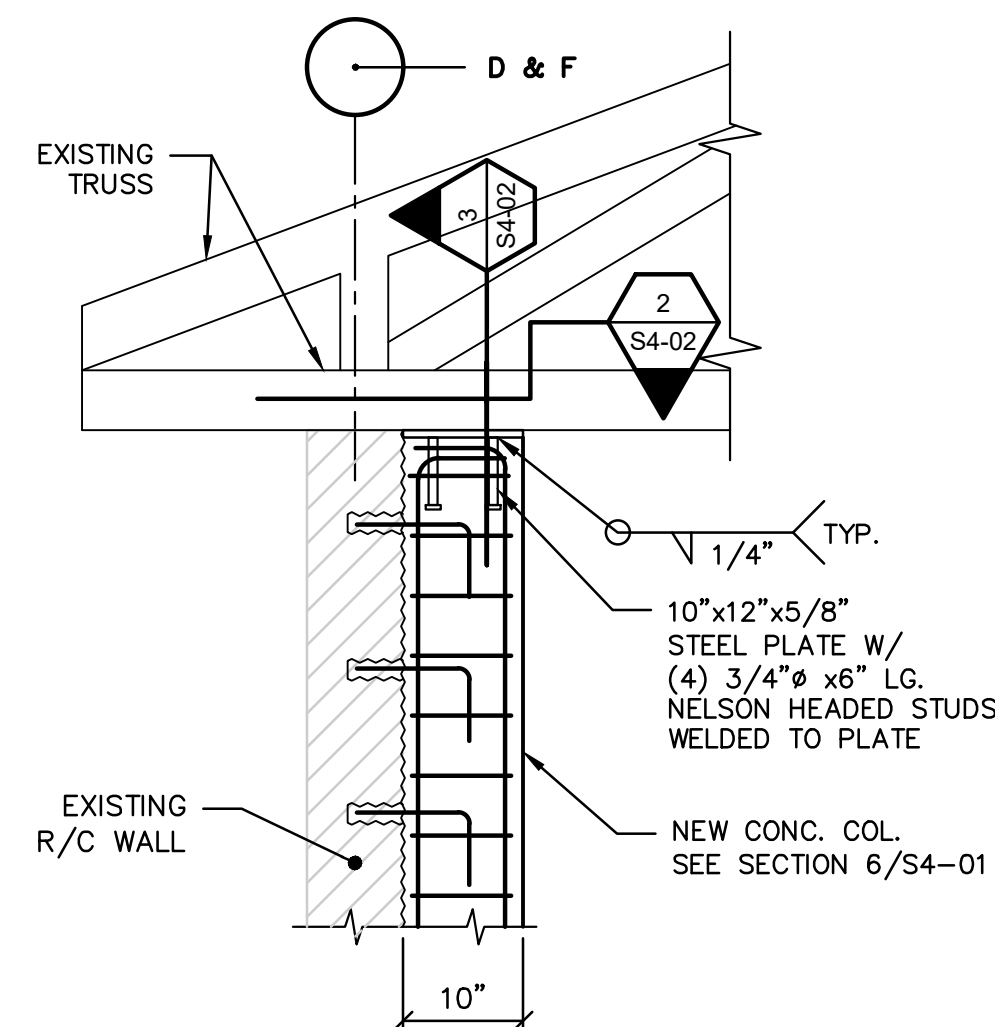
LEGEND:
(E) EXISTING COMPONENTS
(N) NEW COMPONENTS

EXISTING FOOTING NOTES:

- IN CASE OF DIFFERENT FIELD CONDITIONS GENERAL CONTRACTOR SHALL REPORT IN A WRITTEN MANNER SIZE, DEPTH AND SHAPE OF EXISTING FOOTINGS TO ADJUST STRUCTURAL DETAILS TO ACTUAL CONDITIONS

NOTES:

- FOR GENERAL NOTES, SEE DRAWING S0-01.
- CONTRACTOR SHALL VERIFY IN THE FIELD THE EXISTING BUILDING FOOTING DEPTH AND WIDTH BEFORE NEW FOOTINGS CONSTRUCTION.
- ALL BOTTOM OF FOOTINGS (*) ADJACENT TO EXISTING TO MATCH BOTTOM OF FOOTING ELEVATION.



NOTES FOR GENERAL CONTRACTOR:

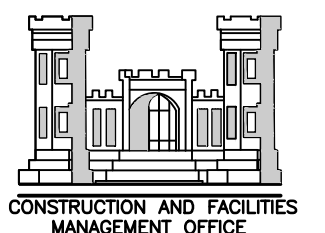
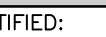
1. SELECTIVE DEMOLITION SHALL BE DONE CAREFULLY AVOIDING TO DAMAGE ANY EXISTING STRUCTURAL COMPONENT.
2. POURING OF NEW CONCRETE WALLS AGAINST EXISTING CMU WALLS ALONG FACADES AND CORRIDORS, SHALL REQUIRE LATERAL SUPPORT AND BRACING AGAINST LATERAL PRESSURE WHEN CONCRETE IS WET.
3. NEW FOOTINGS SHALL BE AT THE SAME BOTTOM LEVEL OF EXISTING MAIN STRUCTURAL FOUNDATIONS.
4. PROVIDE ADEQUATE SOIL PREPARATION AND COMPACTION OF NEW FOUNDATIONS. INSPECTION OF SOIL ENGINEER IS STRONGLY RECOMMENDED.
5. TO CUT OR PERFORATED ANY PRECAST CONCRETE JOISTS.
6. DURING INSTALLATION OF NEW STEEL DOWELS, GENERAL CONTRACTOR SHALL DETECT THE PRESENCE OF EXISTING REBARS TO AVOID CUT OR DAMAGE TO EXISTING STEEL REINFORCEMENT. THE USE OF A PACHOMETER OR FERROSCANNING DEVICE IS STRONGLY RECOMMENDED.
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LEGEND:

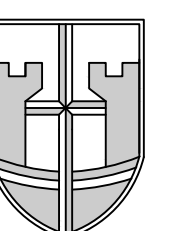
- (E) EXISTING
(N) NEW

NOTES:

1. FOR GENERAL NOTES, SEE DRAWING SO-01.
2. CONTRACTOR SHALL VERIFY IN THE FIELD THE EXISTING BUILDING FOOTING DEPTH AND WIDTH BEFORE NEW FOOTINGS CONSTRUCTION.
3. ALL BOTTOM OF FOOTINGS (*) ADJACENT TO EXISTING TO MATCH BOTTOM OF FOOTING ELEVATION.



PROJECT:					
PUERTO RICO ANTIMINERALS NATIONAL GUARD					
CALL GENERAL ESTEES #100, SAN JUAN PUERTO RICO 00901 - 2104					
SEISMIC RETROFIT OF MUSEUM BUILDING					
CAMP SANTIAGO, SALINAS, PUERTO RICO					
SHEET TITLE: STRUCTURAL SECTIONS & DETAILS					
NO.	DESCRIPTION	DATE	NO.	DESCRIPTION	DATE
a	100% CD	02/11/2022			
R E V I S I O N S					

DESIGN:
 ELVIN PEREZ

DRAWN:
FELIX MELENDEZ

SUPERVISOR:
ALVIN RODRIGUEZ

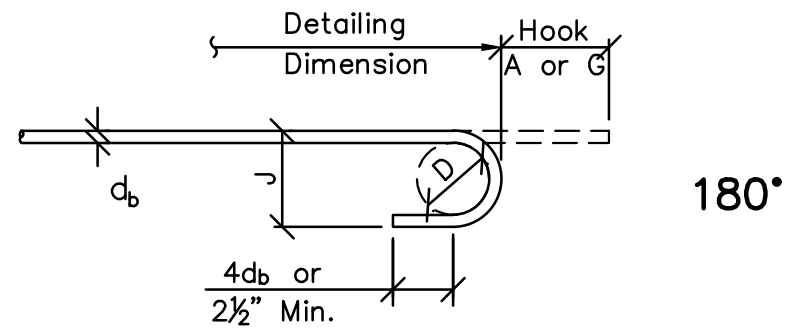
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SHEET:	TOTAL SHEETS:
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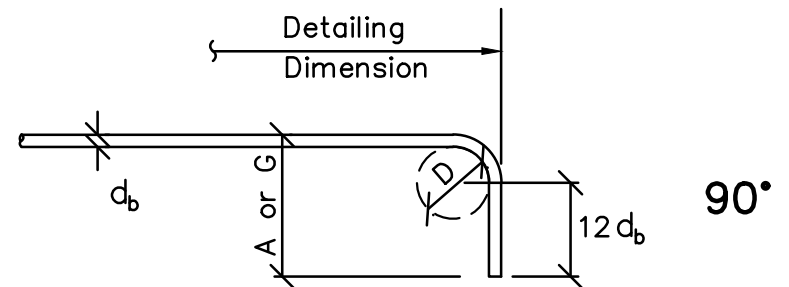
08 OF 10

SHEET NAME:
S4-02

RECOMMENDED END HOOKS, ALL GRADES OF STEEL				
BAR SIZE	D	180° HOOKS		90° HOOKS
		A OR G	J	A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	1'-0"
#7	5 1/4"	10"	7"	1'-2"
#8	6"	11"	8"	1'-4"
#9	9 1/2"	1'-3"	11 3/4"	1'-7"
#10	10 3/4"	1'-5"	1'-1 1/4"	1'-10"
#11	12"	1'-7"	1'-2 3/4"	2'-0"
#14	18 1/4"	2'-3"	1'-9 3/4"	2'-7"
#18	24"	3'-0"	2'-4 1/2"	3'-5"



180°



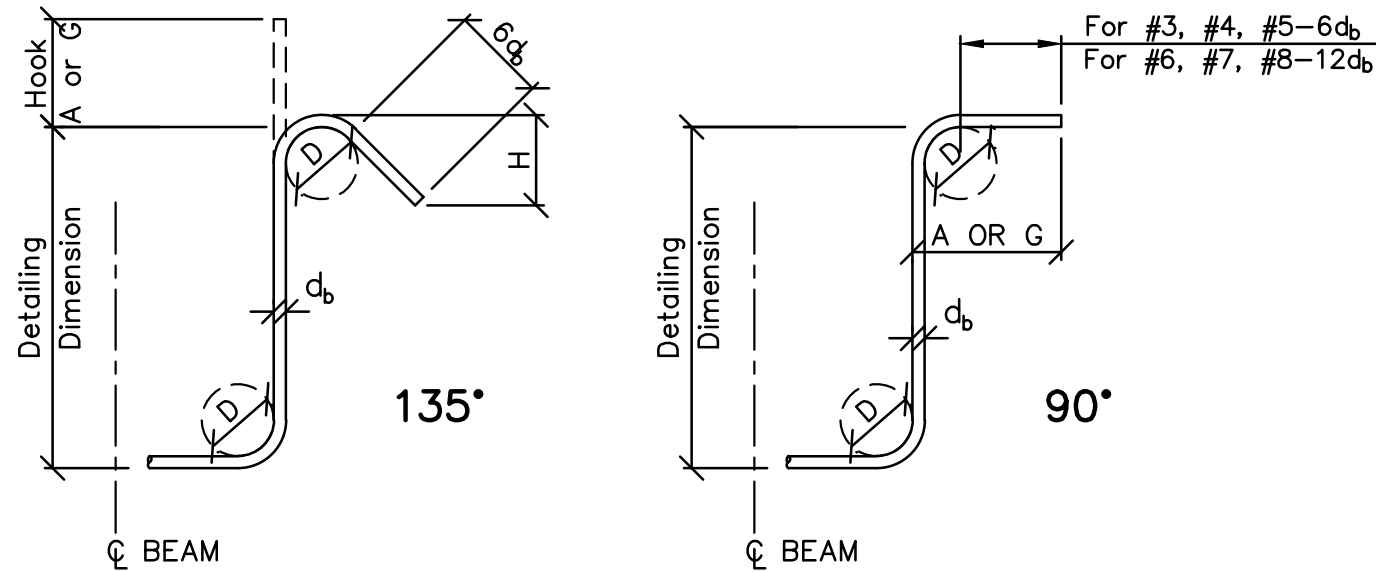
90°

ALL GRADES OF STEEL

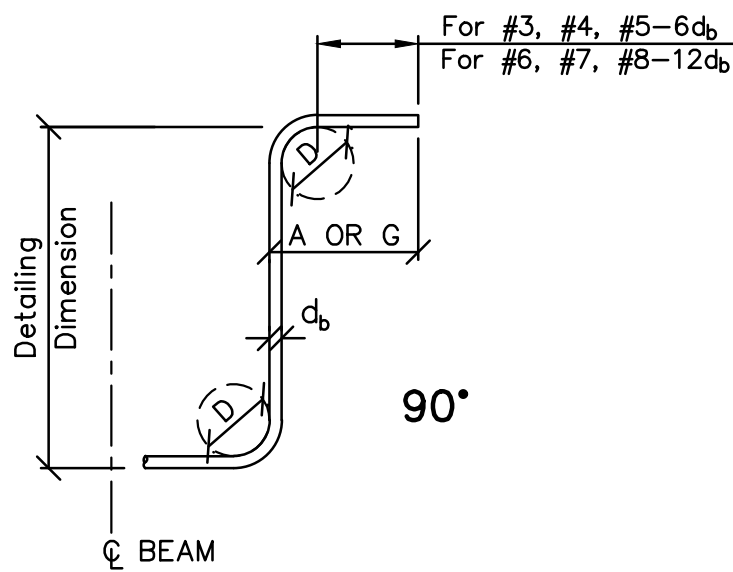
D = Finished Inside bend diameter
db = Nominal bar diameter
Min. D = 6db for #3 through #8
Min. D = 8db for #9, #10 and #11
Min. D = 10db for #14 and #18

SEISMIC STIRRUP/TIE			
BAR SIZE	135° SEISMIC HOOK		
	D	A OR G	H*
#3	1 1/2"	4 1/4"	3"
#4	2"	4 1/2"	3"
#5	2 1/2"	5 1/2"	3 3/4"
#6	4 1/2"	8"	4 1/2"
#7	5 1/4"	9"	5 1/4"
#8	6"	10 1/2"	6"

H* dimension is approximate.



135°



90°

STIRRUP HOOKS (TIE BENDS SIMILAR)				
BAR SIZE	D	135° HOOKS		90° HOOKS
		A OR G	H*	A OR G
#3	1 1/2"	4"	2 1/2"	4"
#4	2"	4 1/2"	3"	4 1/2"
#5	2 1/2"	5 1/2"	3 3/4"	6"
#6	4 1/2"	8"	4 1/2"	1'-0"
#7	5 1/4"	9"	5 1/4"	1'-2"
#8	6"	10 1/2"	6"	1'-4"

H* dimension is approximate.

ACI HOOK DEVELOPMENT LENGTHS "Ldh" PER f'c (psi)		
BAR SIZE	3,000	4,000
#3	9	7
#4	11	10
#5	14	12
#6	17	15
#7	19	17
#8	22	19
#9	25	22
#10	28	24

* IF SIDE COVER > 2 1/2" AND END COVER > 2",
VALUES Ldh CAN BE MULTIPLIED BY 0.7. Ldh min = 6".

BAR SPLICES						
BAR SIZE	CONCRETE f'c :					
	3 ksi		4 ksi		5 ksi	
	Top Bars	Others Bars	Top Bars	Others Bars		
#3	28	22	25	19	22	17
#4	38	30	33	25	29	23
#5	48	36	41	32	36	28
#6	56	43	49	37	44	34
#7	81	63	71	54	63	49
#8	93	72	81	62	72	56
#9	105	81	91	70	81	63
#10	116	90	101	78	90	69
#11	128	98	111	85	99	76

NOTE:

- #14 AND #18 CANNOT BE SPLICED.
- SPLICED ARE LISTED FOR 60ksi REINFORCEMENT.
- SPLICED LENGTHS ARE CLASS B TENSION SPLICES. CLEAR SPACING OF BARS BEING SPLICES SHALL BE 2db MINIMUM. CLEAR COVER ON BARS BEING SPLICED SHALL BE db MINIMUM. FOR OTHER CONDITION, SPLICE LENGTHS SHALL BE INCREASED IN ACCORDANCE WITH ACI.
- FOR INTERMEDIATE STRENGTH, SPLICE LENGTH SHALL BE THAT FOR A LOWER STRENGTH CONCRETE.
- TOP BARS ARE DEFINED AS ANY HORIZONTAL BARS WITH MORE THAN 12" OF FRESH CONCRETE PLACED BELOW THE DEVELOPMENT LENGTH OR SPLICE.

LEGEND:

(E) EXISTING
(N) NEW

NOTES:

- FOR GENERAL NOTES, SEE DRAWING S0-01.
- BOTTOM OF FOOTING AT 3'-0" MIN. FROM EXISTING GRADE TO MATCH EXISTING FOOTING DEPTH. VERIFY IN THE FIELD IF LESS THAN 3'-0" CONTACT E.O.R. FOR VERIFICATION.
- IF REQUIRED, COLUMN SPLICE LOCATED AT MID HEIGHT OF COLUMN AND FOR WALLS ABOVE TOP OF SLAB ON GRADE. SPLICE 1.25 TIMES THE LENGTH PER SCHEDULE

CERTIFIED:

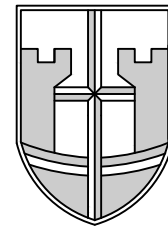


PUERTO RICO ARMY NATIONAL GUARD
CALLE GENERAL ESTEVES #100, SAN JUAN PUERTO RICO 00901 - 2104

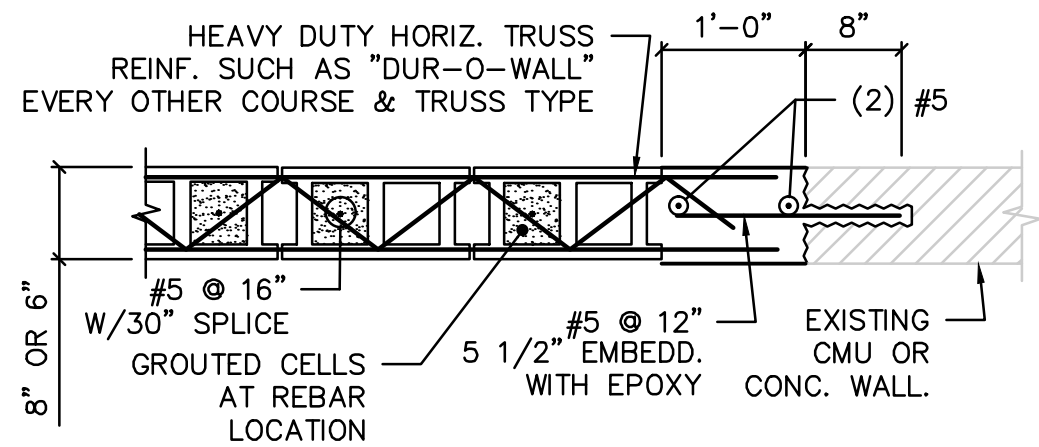
SEISMIC RETROFIT OF MUSEUM BUILDING
CAMP SANTIAGO, SALINAS, PUERTO RICO

TYPICAL REINFORCEMENT DETAILS

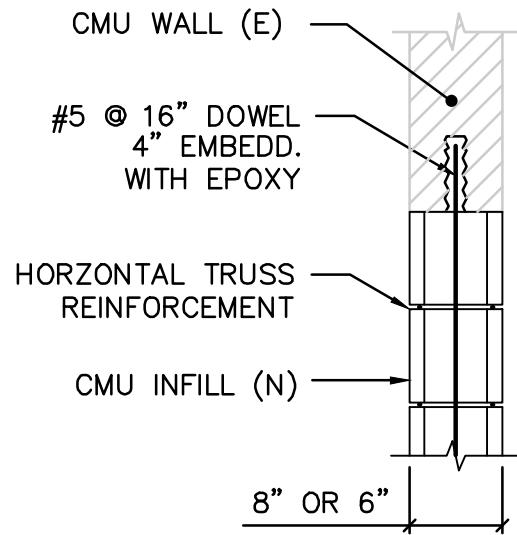
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NO.	DESCRIPTION	DATE	NO.	DESCRIPTION	DATE
1	100% CD	02/11/2022			



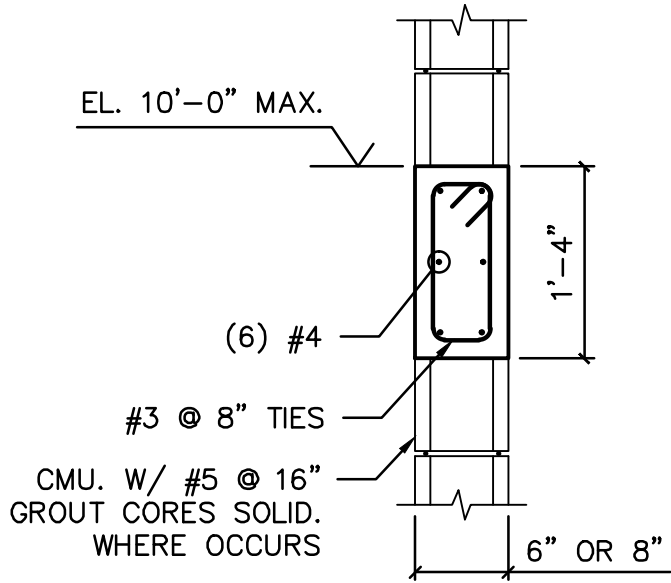
DESIGN: ELVIN PEREZ	SCALE: AS SHOWN
DRAWN: FELIX MELENDEZ	TOTAL SHEETS: 10
SUPERVISOR: ALVIN RODRIGUEZ	
DATE: 02/11/2022	
SHEET: 09	
SHEET NAME: S5-01	



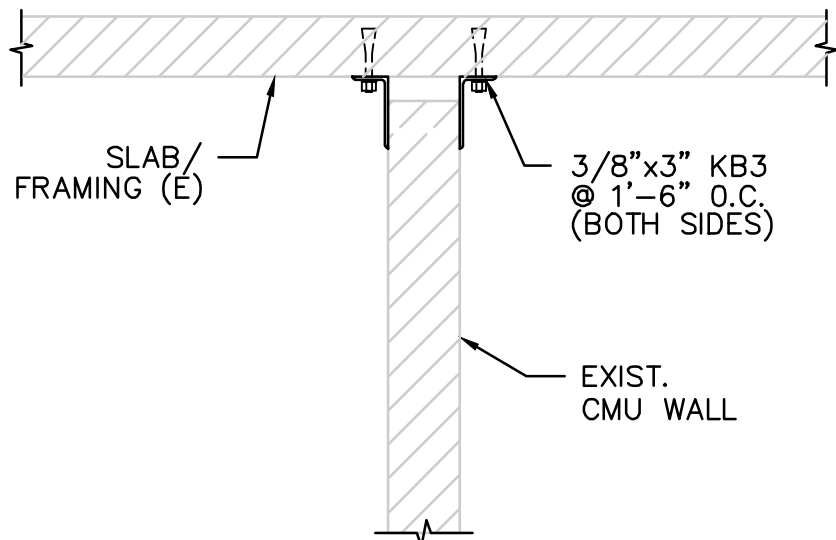
CMU AT NEW OR EXIST. R/C WALL
SCALE: 3/4" = 1'-0"



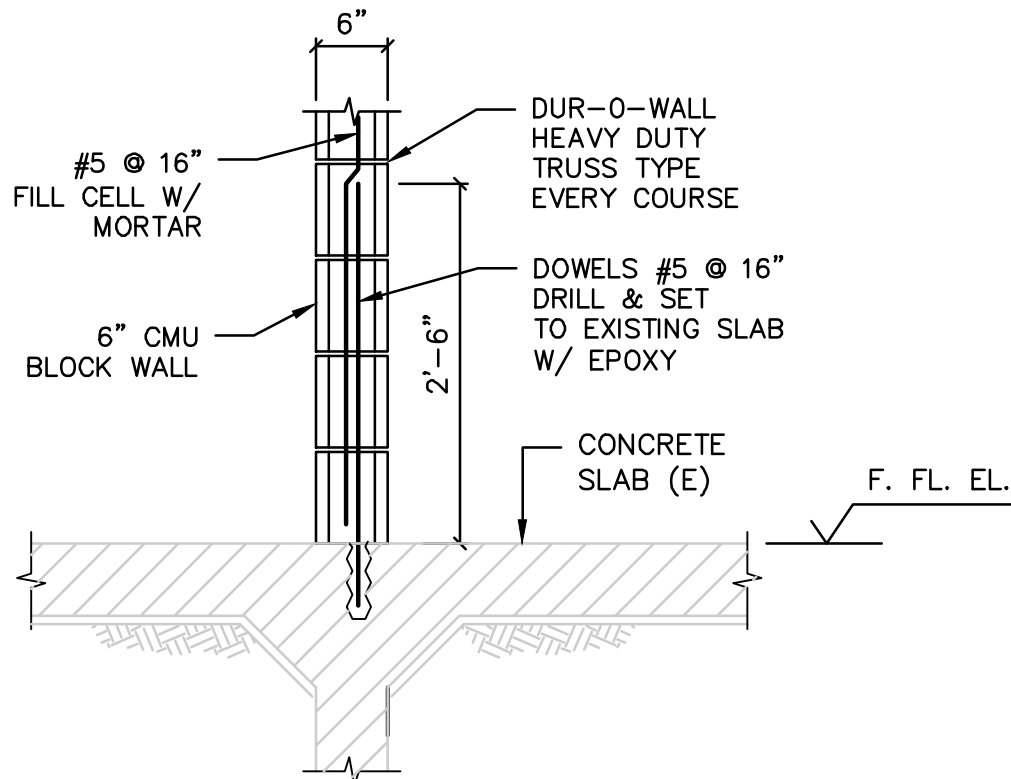
TYPICAL CMU AT TOP OF INFILL
CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



BOND/TIE/ CAP BEAM DETAIL
SCALE: 3/4" = 1'-0"



LATERAL SUPPORT OF NON-LOAD
CMU WALL DETAIL
SCALE: 3/4" = 1'-0"



TYPICAL NEW INTERIOR CMU WALL
PARTITION REINFORCEMENT DETAIL
SCALE: 3/4" = 1'-0"

NOTES:

1. FOR GENERAL NOTES, SEE DRAWING S0-01.

CERTIFIED:



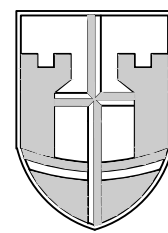
PUERTO RICO ARMY NATIONAL GUARD
CALLE GENERAL ESTEVES #100, SAN JUAN, PUERTO RICO 00901 - 2104

PROJECT:
SEISMIC RETROFIT OF MUSEUM BUILDING
CAMP SANTIAGO, SALINAS, PUERTO RICO

SHEET TITLE:
TYPICAL CMU WALL DETAILS

NO.	DESCRIPTION	DATE	NO.	DESCRIPTION	DATE
1	100% CD	02/11/2022			

R E V I S I O N S



DESIGN:
ELVIN PEREZ

DRAWN:
FELIX MELENDEZ

SUPERVISOR:
ALVIN RODRIGUEZ

DATE:
02/11/2022

SCALE:
AS SHOWN

SHEET:
10

TOTAL SHEETS:
10

SHEET NAME:

S6-01

TECHNICAL SPECIFICATIONS

Seismic Retrofit of Museum Building
Camp Santiago, Salinas, Puerto Rico

100% Construction Documents



PR ARMY NATIONAL GUARD
Salinas, Puerto Rico

February 11, 2022



CMA
ARCHITECTS &
ENGINEERS LLC

DOCUMENT 00 01 07

SEALS PAGE

1.1 DESIGN PROFESSIONALS OF RECORD

A. Structural Engineer:

1. Alvin M. Rodríguez, P.E.
2. CIAPR, ASCE, ACI, Earthquake Engineering Research Institute,
Seismological Society of America
3. License #14215
4. CMA Architects & Engineers LLC

END OF DOCUMENT

DOCUMENT 00 01 10

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		<u>Status</u>	<u>Revision</u>	<u>Dated</u>
DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS				
INTRODUCTORY INFORMATION				
00 01 07	Seals Page	100% CD	a	02/11/2022
00 01 10	Table of Contents	100% CD	a	02/11/2022
01 10 15	List of Drawing Sheets	100% CD	a	02/11/2022
DIVISION 01 – GENERAL REQUIREMENTS				
01 10 00	Summary of Work	100% CD	a	02/11/2022
01 14 23	Coordination with Owner's Operations	100% CD	a	02/11/2022
01 25 00	Substitution Procedures	100% CD	a	02/11/2022
	Attachment: Substitution Request Form: CSI Form 13.1A			
01 31 00	Administrative Requirements	100% CD	a	02/11/2022
01 33 00	Submittal Procedures	100% CD	a	02/11/2022
	Attachment: Transmittal Form: ENG Form 4025			
01 35 23	Safety Requirements	100% CD	a	02/11/2022
01 40 00	Quality Requirements	100% CD	a	02/11/2022
	Attachment: Request for Information (RFI) Form			
01 42 00	References	100% CD	a	02/11/2022
01 50 00	Temporary Facilities and Controls	100% CD	a	02/11/2022
01 60 00	Product Requirements	100% CD	a	02/11/2022
01 73 00	Execution and Closeout Requirements	100% CD	a	02/11/2022
01 74 19	Construction Waste Management	100% CD	a	02/11/2022
01 98 00	Permits, Fees and Notices	100% CD	a	02/11/2022
DIVISION 02 – EXISTING CONDITIONS				
02 41 13	Selective Site Demolition	100% CD	a	02/11/2022
02 41 19	Selective Structure Demolition	100% CD	a	02/11/2022
DIVISION 03 – CONCRETE				
03 11 13	Cast In Place Concrete Forming	100% CD	a	02/11/2022
03 21 00	Reinforcing Steel	100% CD	a	02/11/2022
03 30 00	Cast In Place Concrete	100% CD	a	02/11/2022
03 37 29	Lean Concrete Backfill	100% CD	a	02/11/2022
DIVISION 07 – THERMAL AND MOISTURE PROTECTION				
07 26 16	Underslab Waterproofing Membrane	100% CD	a	02/11/2022
07 92 13	Elastomeric Joint Sealants	100% CD	a	02/11/2022

DIVISION 09 – FINISHES

09 24 23	Portland Cement Plastering	100% CD	a	02/11/2022
09 91 23	Interior Painting	100% CD	a	02/11/2022

100% CD = 100% Construction Documents

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DOCUMENT 00 01 15

LIST OF DRAWINGS

<u>DRAWING NO.</u>	<u>TITLE</u>	<u>STATUS</u>	<u>REVISION</u>	<u>DATE</u>
T-01	Title Sheet and Index of Drawings	100% CD	a	02/11/22
DS1-01	Demolition Floor Plan	100% CD	a	02/11/22
S0-01	General Notes	100% CD	a	02/11/22
S1-01	Modified Foundation & Slab on Grade Plan	100% CD	a	02/11/22
S2-01	Modified Roof Framing Plan	100% CD	a	02/11/22
S3-01	New Concrete Shear Walls Elevations	100% CD	a	02/11/22
S4-01	Structural Sections & Details	100% CD	a	02/11/22
S4-02	Structural Sections & Details	100% CD	a	02/11/22
S5-01	Typical Reinforcement Details	100% CD	a	02/11/22
S6-01	Typical CMU Wall Details	100% CD	a	02/11/22

100% CD – 100% Construction Documents

END OF DOCUMENT

SECTION 01 10 00

SUMMARY OF WORK

PART 1 - GENERAL

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- A. Work of this Contract comprises the general construction for the Seismic Retrofit of CS Museum in Salinas, Puerto Rico.
- B. The Contractor shall use only tools and equipment which satisfies the requirements imposed by the general characteristics of the work areas.
- C. The Contractor shall furnish all necessary materials, labor, supervision, and any other necessary incidentals required to complete the Scope of Work as described herein or as indicated on the drawings and specifications.

1.2 CONTRACT METHOD

- A. Construct the Work under a lump sum contract.

1.3 RELATED DOCUMENTS AND SECTIONS

- A. Division 0 - Bidding Requirements and Contracting Requirements.
- B. Division 1 - General Requirements.
- C. Divisions 2 through 34 - Technical Specifications.

1.4 DEFINITIONS

- A. For means of clarification and definition the following terms shall be used throughout these specifications:
 - 1. Owner: Puerto Rico Army National Guard.
 - 2. Architect-Engineer: CMA Architects & Engineers LLC.
 - 3. Inspector: To be appointed by the Owner.
 - 4. Contractor: To be determined by the Owner.
 - 5. Subcontractor: To be determined.
 - 6. Safety Representative: To be appointed by Contractor.

1.5 INTENT OF DRAWINGS

- A. The drawings show the arrangement, general design, and extent of the systems.
- B. The drawings are not intended to be scaled for rough-in measurements, nor to serve as shop drawings. Where drawings are required for these purposes, or have to be made from field measurements, they shall be prepared by the Contractor.

1.6 LAND FOR CONSTRUCTION PURPOSES

- A. Contractor will be permitted to use available land belonging to Owner, on or near the site of the Work, for construction purposes and for the storage of materials and equipment. The location and extent of the areas so used shall be as directed by the Owner's On Site Representative. Contractor will be responsible for the safety of onsite materials and equipment stored at project site.
- B. Contractor shall immediately move stored material or equipment if any occasion arises, as determined by the Owner's On Site Representative, requiring access to the storage area. Materials or equipment shall not be placed on the property of Owner until the Owner's On Site Representative has agreed to the location to be used for storage.
- C. Contractor shall assume full responsibility for protection and safekeeping of products under this Contract.

1.7 OPERATION OF EXISTING FACILITIES

- A. The existing facilities must be kept in continuous operations and production throughout the entire construction period. No interruptions will be permitted during normal production hours.
- B. Contractor shall provide temporary facilities and make temporary modifications as necessary to keep the existing facilities in operation during the construction period. Refer to Specification 01 50 00 – Temporary Facilities and Controls.

1.8 UNFAVORABLE CONSTRUCTION CONDITIONS

- A. During unfavorable weather, wet ground, unsuitable construction conditions, the Contractor shall confine his operations to work which will not be affected by such conditions. No portion of the work shall be constructed under conditions which would affect adversely the quality or efficiency thereof, unless special means or precautions by Contractor to perform the work in a proper and satisfactory manner. Refer to Specification 31 20 00 – Earth Moving.

1.9 NOTICES TO OWNER

- A. Contractor shall notify Owner's On Site Representative via email when prosecution of the Work may affect the Owner. Submit Project Schedule if affected by Work.

1.10 OWNER's ACCESS TO WORK AREA

- A. The Contractor shall permit the Owner, Owner's On Site Representative, Designer and Inspector free and open access to all portions of the work area and shall obtain permission for each of these, either together or independently, to visit other locations where portions of this work is being carried out for the purpose of inspecting materials, workmanship and/or working conditions for compliance with all requirements set forth in this Contract.

1.11 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Contractor shall stay within project limits and shall not interfere with any Owner's operation.
- B. On-Site Work Hours: Limit work to between 7:00 a.m. to 4:00 p.m., Monday through Friday.
 1. Weekend & Holiday Hours: Do not perform work.
 2. Early Morning Hours: Secure Owner's On Site Representative's authorization.
 3. Hours for Utility Shutdowns: Secure Owner's On Site Representative's authorization.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 1. Notify Owner's On Site Representative not less than seven days in advance of proposed utility interruptions.
 2. Obtain Owner's On Site Representative's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy.
 1. Notify Owner's On Site Representative not less than seven days in advance of proposed disruptive operations.
 2. Obtain Owner's On Site Representative's written permission before proceeding with disruptive operations.
- E. Employee Identification: Provide identification tags for Contractor personnel working on the facilities. Require personnel to use identification tags at all times. Name, photo, social security number and identification number shall be included in Employee Identification.

1.12 SMOKING

- A. Smoking is not permitted anywhere in the project site. Anyone caught smoking will be permanently expelled from the job site.

1.13 SAFETY REQUIREMENTS

- A. For safety requirements refer to Specification 01 35 23.

1.14 APPLICABLE CODES

- A. References in the Contract Documents to local codes mean the Puerto Rico Building Code, 2018 Edition.
- B. Other standard codes which apply to the Work are designated the specifications.

1.15 REFERENCE STANDARDS

- A. Reference to the standards of any technical society, organization, or association, or to codes of local or state authorities, shall mean the latest standard, code, specification, or

tentative standard adopted or published at the date of receipt of bids, unless specifically stated otherwise.

END OF SECTION

SECTION 01 14 23

COORDINATION WITH OWNER'S OPERATIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:

1. This Section specifies requirements for coordinating with OWNER's operations during the Work, and provides requirements for tie-ins and shutdowns necessary to complete the Work without impact on OWNER's operations other than as allowed herein.
2. CONTRACTOR shall provide labor, materials, tools, equipment and incidentals shown, specified and required to coordinate with OWNER's operations during the Work.

B. Coordination:

1. Review installation procedures under other Specification sections and coordinate work that must be performed with or before Work specified herein.
- C.** Except for the shutdowns specified herein, the Work shall be performed such that the OWNER's facility remains in continuous satisfactory operation during the Project. Work shall be scheduled and conducted by CONTRACTOR such that it does not impede the OWNER's production or processes, create potential hazards to operating equipment and personnel or cause other nuisances.
- D.** Work not specifically covered herein and in the referenced Specification sections may, in general, be completed at any time during normal work hours, subject to operating requirements described herein.
- E.** CONTRACTOR has the option of providing additional temporary facilities that can eliminate or mitigate a constraint without additional cost to the OWNER, provided it does not present hazards to personnel, structures, and/or equipment, that it does not adversely affect the Owner's ability to comply with permits and operating requirements, that it does not generate other nuisances, and that requirements of the Contract Documents are fulfilled.
- F.** Coordinate shutdowns with OWNER and ARCHITECT-ENGINEER. When possible, combine multiple tie-ins into a single shutdown to minimize impacts on OWNER'S operations and processes.
- G.** Do not shut off or disconnect the existing operating systems unless approved by the ARCHITECT-ENGINEER in writing. Operation of existing equipment will be by OWNER unless specified otherwise. Where necessary for the Work, CONTRACTOR shall seal or bulkhead OWNER-operated gates and valves to prevent leakage that may affect the Work or OWNER's operations. Provide temporary watertight plugs, bulkheads, and/or line stops as required. After the Work is complete, CONTRACTOR shall remove the seals, plugs, bulkhead, and/or line stops to the satisfaction of ARCHITECT-ENGINEER.
- H.** Operation of temporary equipment will be by CONTRACTOR unless specified otherwise.

1.2 SUBMITTALS

- A. Section 01 33 00 – Submittals Procedures: Requirements of submittals.
- B. Substitute Sequence Submittal: When deviation from the specified sequence is proposed, provide a submittal to ARCHITECT-ENGINEER explaining in detail the proposed sequence change and its effects, including evidence that OWNER's operations will not be adversely affected by the proposed change. List benefits of the proposed sequence change, including benefits to the Progress Schedule.
- C. Shutdown Submittals:
 - 1. Shutdown Planning Submittal: For each shutdown, CONTRACTOR shall prepare an inventory of labor and materials required to perform the shutdown and tie-in tasks, an estimate of the time required for the shutdown including time for OWNER to take down and start up existing equipment, systems, or conduits, and a written description of steps required to complete the Work associated with the shutdown. Submit the inventory, time estimate, schedule of activities during the shutdown period, written procedures, and proposed date(s) of the shutdown to the ARCHITECT-ENGINEER for review at least forty-five (45) calendar days prior to the proposed shutdown start date. Do not start shutdown until the ARCHITECT-ENGINEER reviews and accept the shutdown submittal.
 - 2. Shutdown Notification: After acceptance of shutdown planning submittal and prior to the shutdown, provide written notification to OWNER and ARCHITECT-ENGINEER of the date and time each shutdown is to start. Provide notification at least 14 days in advance of each shutdown.
- D. Startup Submittals
 - 1. Administrative Submittals:
 - a. Functional and performance test schedules and plan for equipment, units, and systems at least 14 days prior to start of related testing. Include test plan, procedures, and log format.
 - b. Schedule and plan facility startup activities at least 21 days prior to commencement.
 - 2. Quality Control Submittals:
 - a. Manufacturer's Certificate of Proper Installation as required.
 - b. Test Reports: Functional and performance testing, in format acceptable to OWNER's Representative and certification of functional and performance test for each piece of equipment or system specified.
 - c. Certifications of Calibration: Testing equipment.

1.3 GENERAL CONSTRAINTS

- A. Specified below are the sequence and shutdown durations, where applicable, for OWNER'S equipment, systems, and conduits that are to be taken out of service temporarily

for the Work. New systems may be used after the specified testing is completed and the units are accepted by ARCHITECT-ENGINEER in writing.

B. These constraints apply to coordination with OWNER's operations:

1. CONTRACTOR shall not schedule and perform shutdowns for Monday through Thursday. Equipment and systems shall not be taken out of service on Friday, Saturday, or Sunday without prior approval of OWNER.
2. Dead End Valve or Pipe: CONTRACTOR shall provide blind flanges, watertight bulkheads, or valve at the temporary or permanent terminus of a pipe or conduit. Blind flanges and bulkheads shall be suitable for the service and braced and blocked, as required or as directed by ARCHITECT-ENGINEER. Temporary valves shall be suitable for the service. Where a valve is provided at a permanent terminus of a pipe, also provide on the downstream side of the valve a blind flange with a drain/flushing connection.
3. CONTRACTOR shall maintain a clean and dry work area by pumping and properly disposing of fluid that accumulates in work areas.

1.4 TIE-INS

- A. CONTRACTOR shall perform all tie-ins required to complete the Work. CONTRACTOR shall obtain requirements for tie-ins from ARCHITECT-ENGINEER.

1.5 SHUTDOWNS

A. General:

1. A shutdown is defined as when a portion of the normal operation of OWNER's facility, whether equipment, systems, or conduit, has to be temporarily suspended or taken out of service to perform the Work.
2. Work that may interrupt normal operations shall be accomplished at times convenient to OWNER, including night and dawn hours.
3. Provide at the Site in close proximity to the shutdown and tie-in work areas tools, Equipment, spare parts and materials, both temporary and permanent, necessary to successfully complete the shutdown. Prefabrication of piping and other assemblies shall be completed to the degree possible prior to their associated shutdown. Demonstrate to ENGINEER's satisfaction that CONTRACTOR has complied with these requirements before starting shutdown.
4. If CONTRACTOR's operations cause an unscheduled interruption of OWNER'S operations, CONTRACTOR shall immediately re-establish satisfactory operation for OWNER.
5. Unscheduled shutdowns or interruptions of continued safe and satisfactory operation of OWNER's facilities that result in fines or penalties by authorities having jurisdiction shall be the responsibility of CONTRACTOR if; in the ARCHITECT-ENGINEER's opinion, CONTRACTOR was negligent in the Work or did not exercise proper precautions in conducting the Work.

6. Shutdowns shall be per Table O1143-A. Work requiring service interruptions for tie-ins shall be performed during the scheduled shutdowns.
 7. Temporary, short-term shutdowns of smaller pipes and systems may not be included in Table O1143-A. Coordinate requirements for these shutdowns with the ARCHITECT-ENGINEER and OWNER.
- B. Shutdowns of Electrical Systems: Comply with the National Electric Code. CONTRACTOR shall lock out and tag circuit breakers and switches operated by OWNER and shall check cables and wires to verify that they are de-energized to ground potential before Work is started. Upon completion of Work associated with the shutdown, CONTRACTOR shall remove the locks and tags and notify ARCHITECT-ENGINEER that the facilities are available for use.

1.6 CONTRACTOR FACILITY STARTUP RESPONSIBILITIES

A. General:

1. Perform Work for tests specified except for items furnished by OWNER.
2. Provide the OWNER-furnished equipment contractor access to the Work area and assist as necessary in functional and performance testing.
3. Demonstrate proper installation, adjustment, function, performance, and operation of equipment, systems, control devices, and required interfaces individually and in conjunction with process instrumentation and control system.

1.7 OWNER'S REPRESENTATIVE FACILITY STARTUP RESPONSIBILITIES

A. General:

1. Review CONTRACTOR's test plan and schedule.
2. Witness each functional or performance test.
3. Coordinate other facility operations, if necessary, to facilitate CONTRACTOR's tests.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 GENERAL

- A. Work shall conform to requirements of Section 01 10 00 – SUMMARY OF WORK.
- B. Owner reserves the right to perform work related to the Project with its own forces, and to award separate contracts in connection with other portions of the Project or another work on the Project Site which are not part of the Work. Owner shall provide for the coordination of the work of its own and of each separate contractor with the Work of Contractor who shall cooperate therewith as provided herewith. Contractor shall afford Owner and separate contractors reasonable opportunity for the introduction and storage of their materials and equipment and for the execution of their work. Contractor shall connect and coordinate the work with the work of Owner and separate contractors as required by the Contract

Documents. If any part of the Work depends for proper execution or results upon the work of Owner or any other separate contractor, Contractor shall, prior to proceeding with Work, promptly report to the Owner's On Site Representative any discrepancies or defects that are reasonably discoverable which render such work unsuitable for proper execution and results. Failure of Contractor so to report shall constitute an acceptance of Owner's or separate contractor's work as fit and proper to receive the Work. Any costs caused by defective or ill timed work shall be borne by the party responsible therefore. Should Contractor cause damage to the work or property of Owner, or to other work or property on the Project site, Contractor shall promptly remedy such damages.

3.2 DETAILED SHUTDOWN REQUIREMENTS

- A. Detailed shutdown requirements are indicated in Table 01143-A.

3.3 SCHEDULES

- A. The schedules listed below, following the "End of Section" designation, are a part of this Specification Section.
 - 1. Table 01143-A, Suggested Schedule of Shutdowns.
 - 2. The Suggested Schedule of Shutdowns table is indicating the major equipment shut downs and the major tie-in work expectations. The Contractor is responsible for completing all tie-ins and minor shut downs without affecting OWNER's operation.

END OF SECTION

TABLE 01143-A
SUGGESTED SCHEDULE OF SHUTDOWNS

Shutdown No.	Description	Shutdown Type	Notes/Comments	Maximum Duration

SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Section 01 60 00 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use CSI Form 13.1A, provided at the end of this Section.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.

- b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
 - i. Samples for verification of requested substitution: Submit full-size units or samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected.
 - j. Architect shall inspect all requested substitution materials, equipment or products at manufacturer facility for conformance with substitution approvals.
- B. Substitutions for Convenience: Architect will consider requests for substitution if received within 30 days after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - d. Substitution request is fully documented and properly submitted.
 - e. Requested substitution will not adversely affect Contractor's construction schedule.
 - f. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - g. Requested substitution is compatible with other portions of the Work.
 - h. Requested substitution has been coordinated with other portions of the Work.
 - i. Requested substitution provides specified warranty.
 - j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
 - k. Samples for verification of requested substitution: Submit full-size units or samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected.
 - l. Architect shall inspect all requested substitution materials, equipment or products at manufacturer facility for conformance with substitution approvals.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION



SUBSTITUTION REQUEST

(After the Bidding/Negotiating Stage)

Project: _____ Substitution Request Number: _____

To: _____ From: _____

Date: _____

A/E Project Number: _____
Re: _____ Contract For: _____

Specification Title: _____ Description: _____
Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____
Manufacturer: _____ Address: _____ Phone: _____
Trade Name: _____ Model No.: _____
Installer: _____ Address: _____ Phone: _____

History: ☐ New product ☐ 1-4 years old ☐ 5-10 years old ☐ More than 10 years old

Differences between proposed substitution and specified product: _____

☐ Point-by-point comparative data attached — REQUIRED BY A/E

Reason for not providing specified item: _____

Similar Installation:

Project: _____ Architect: _____
Address: _____ Owner: _____
_____ Date Installed: _____

Proposed substitution affects other parts of Work: ☐ No ☐ Yes; explain _____

Savings to Owner for accepting substitution: _____ (\$ _____).

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] _____ days.

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

SUBSTITUTION REQUEST

(After the Bidding/Negotiating Stage - Continued)

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

Telephone: _____

Attachments: _____

A/E's REVIEW AND ACTION

- ☐ Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- ☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- ☐ Substitution rejected - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed by: _____ Date: _____

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ A/E ☐ _____

SECTION 01 31 00

ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Coordination and project conditions.
- B. Field engineering.
- C. Preconstruction meeting.
- D. Site mobilization meeting (Overall project).
- E. Preconstruction Meeting.
- F. Progress meetings.
- G. Quality control meetings.
- H. Pre-installation meetings.
- I. Closeout meetings.

1.2 COORDINATION AND PROJECT CONDITIONS

- A. Coordinate scheduling, submittals, and Work of various sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

1.3 PRECONSTRUCTION MEETING

- A. Owner will schedule meeting after Notice of Award.
- B. Attendance Required: Owner, Architect/Engineer, Inspector and Contractor.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of list of Subcontractors, list of products, schedule of values, and progress schedule.
 - 5. Designation of personnel representing parties in Contract, and Architect/Engineer.
 - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 7. Scheduling.

8. Construction's personnel parking.
 9. Construction Compound.
 10. Status of Payments.
 11. Status of Modifications.
 12. Safety Issues.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect/Engineer, Owner, and those affected by decisions made.

1.4 SITE MOBILIZATION MEETING

- A. Owner will schedule meeting at Project site prior to Contractor occupancy.
- B. Attendance Required: Owner, Architect/Engineer, Contractor, Contractor's Superintendent, Safety Officer, and major Subcontractors.
- C. Agenda:
1. Use of premises by Owner and Contractor.
 2. Owner's requirements.
 3. Construction facilities and controls.
 4. Temporary utilities provided by Contractor.
 5. Survey and building layout.
 6. Security and housekeeping procedures.
 7. Schedules.
 8. Submittal Procedures.
 9. Application for payment procedures.
 10. Procedures for testing.
 11. Procedures for maintaining record documents.
 12. Requirements for start-up of equipment and systems.
- D. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect/Engineer, Owner, and those affected by decisions made.

1.5 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum weekly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

- C. Attendance Required: Job superintendent, major subcontractors and suppliers, Owner, Architect/Engineer, as appropriate to agenda topics for each meeting.
- D. Agenda:
1. Review minutes of previous meetings.
 2. Review of Work progress.
 3. Field observations, problems, and decisions.
 4. Identification of problems impeding planned progress.
 5. Review of submittals schedule and status of submittals.
 6. Review of off-site fabrication and delivery schedules.
 7. Maintenance of progress schedule.
 8. Corrective measures to regain projected schedules.
 9. Planned progress during succeeding work period.
 10. Coordination of projected progress.
 11. Maintenance of quality and work standards.
 12. Effect of proposed changes on progress schedule and coordination.
 13. Other business relating to Work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect/Engineer, Owner, and those affected by decisions made.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Submittal procedures.
- B. Construction progress schedules.
- C. Proposed products list.
- D. Product data.
- E. Shop drawings.
- F. Samples.
- G. Submittal Log.
- H. Design data.
- I. Test reports.
- J. Certificates.
- K. Manufacturer's instructions.
- L. Manufacturer's field reports.
- M. Erection drawings.
- N. Extra Material.

1.2 SUBMITTAL PROCEDURES

- A. Transmit each submittal with ENG Form 4025 (included at the end of this Section) or Architect/Engineer accepted form.
- B. Include the ENG Form 4288-R with Submittal Register updated.
- C. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.
- D. Submit one digital form and two (2) paper copies of each submittal unless otherwise indicated. At the end of Project, all approved submittals shall be included in 1 CD format.
- E. Identify Project, Contractor, subcontractor and supplier; pertinent drawing and detail number, and specification section number, appropriate to submittal. Submit
- F. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with requirements of the Work and Contract Documents.

- G. Schedule submittals to expedite Project and deliver to Architect/Engineer at business address. Coordinate submission of related items.
- H. For each submittal for review, allow 10 days excluding delivery time to and from Contractor.
- I. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of completed Work.
- J. Allow space on submittals for Contractor and Architect/Engineer review stamps.
- K. When revised for resubmission, identify changes made since previous submission.
- L. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.
- M. Submittals not requested will not be recognized or processed.
- N. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 73 00 - Execution Procedures.
- O. Refer to the Uniform General Conditions for Public Works Contracts in Puerto Rico.

1.3 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit initial schedules within 15 days after date of Owner-Contractor Agreement or date established in Notice to Proceed, whichever comes first. After review, resubmit required revised data within ten days.
- B. Submit revised Progress Schedules with each Application for Payment.
- C. Distribute copies of reviewed schedules to Project site file, subcontractors, suppliers, and other concerned parties.
- D. Instruct recipients to promptly report, in writing, problems anticipated by projections indicated in schedules.
- E. The construction schedule shall be in a detailed precedence-style critical path management ("CPM"), primavera-type format or Microsoft Project Manager format satisfactory to the Owner and Architect-Engineer. Schedule shall also provide the following:
 - 1. Graphic representation of all activities and events that will occur during performance of the Work.
 - 2. Identify each phase of construction and occupancy.
 - 3. Set forth dates that are critical in ensuring the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents (hereinafter referred to as "Milestone Dates").
- F. Upon review and acceptance by the Owner and the Architect-Engineer of the Milestone Dates, the construction schedule shall be deemed part of the Contract Documents.

- G. If not accepted, the construction schedule shall be promptly revised by the Contractor in accordance with the recommendations of the Owner and the Architect-Engineer and resubmitted for acceptance.
- H. The Contractor shall monitor the progress of the Work for conformance with the requirements of the construction schedule and shall promptly advise the Owner and Architect-Engineer of any delays or potential delays.
- I. The accepted construction schedule shall be updated to reflect actual conditions as set forth in the Uniform General Conditions for Public Works Contracts in Puerto Rico.
- J. In the event any progress report indicating and delays, the Contractor shall propose an affirmative plan to correct the delay, including overtime and/or additional labor, if necessary. In no event shall any progress report constitute an adjustment in the Contract Time, any Milestone Date, or the Contract Sum unless such adjustment is agreed to by the Owner and authorized pursuant to Change Order.

1.4 PRODUCT DATA

- A. Product Data: Submit to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents. Provide copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes described in Section 01 73 00.
- B. Submit number of copies Contractor requires, plus two copies Architect/Engineer will retain.
- C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- E. After review distribute in accordance with Submittal Procedures article above and provide copies for record documents described in Section 01 73 00.

1.5 SHOP DRAWINGS

- A. Shop Drawings: Submit to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents. Produce copies and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes described in Section 01 73 00:
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules. Include manufacturing time and activities affected by this item.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.

- f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
- B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Submit in form of one reproducible transparency and one opaque reproduction.
- D. Refer to the Uniform General Conditions for Public Works Contracts in Puerto Rico.

1.6 SAMPLES

- A. Samples: Submit to Architect/Engineer for review for limited purpose of checking for conformance with information given and design concept expressed in Contract Documents. Produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes described in Section 01 73 00.
- B. Samples For Selection as Specified in Product Sections:
 - 1. Submit to Architect/Engineer for aesthetic, color, or finish selection.
 - 2. Submit samples of finishes from full range of manufacturers' standard colors or in custom colors selected, textures, and patterns for Architect/Engineer selection.
 - 3. After review, produce duplicates and distribute in accordance with SUBMITTAL PROCEDURES article and for record documents purposes described in Section 01 73 00.
- C. Submit samples to illustrate functional and aesthetic characteristics of Products, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- D. Include identification on each sample, with full Project information.
- E. Submit number of samples specified in individual specification sections; Architect/Engineer will retain one sample.
- F. Reviewed samples which may be used in the Work are indicated in individual specification sections.
- G. Samples will not be used for testing purposes unless specifically stated in specification section.
- H. Refer to the Uniform General Conditions for Public Works Contracts in Puerto Rico.

1.7 DESIGN DATA

- A. Submit for Architect/Engineer's knowledge as contract administrator or for Owner.
- B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.8 TEST REPORTS

- A. Submit for Architect/Engineer's knowledge as contract administrator or for Owner.

- B. Submit test reports for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.
- C. Owner reserves the right to solicit additional information of the testing performed.

1.9 CERTIFICATES

- A. When specified in individual specification sections, submit certification by manufacturer, installation/application subcontractor, or Contractor to Architect/Engineer, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect/Engineer.

1.10 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to Architect/Engineer for delivery to Owner in quantities specified for Product Data.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.11 MANUFACTURER'S FIELD REPORTS

- A. Submit reports for Architect/Engineer's benefit as contract administrator or for Owner.
- B. Submit report in duplicate within 30 days of observation to Architect/Engineer for information.
- C. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.

1.12 ERECTION DRAWINGS

- A. Submit drawings for Architect/Engineer's benefit as contract administrator or for Owner.
- B. Submit for information for limited purpose of assessing conformance with information given and design concept expressed in Contract Documents.
- C. Data indicating inappropriate or unacceptable Work may be subject to action by Architect/Engineer or Owner.

1.13 EXTRA MATERIAL

- A. In the various sections, where a certain percentage of additional or extra material is required to be delivered to the Owner, obtain from the Owner's representative to whom the material is delivered a signed receipt stating the nature of the material, the quantity, and the place and date. Delivery such receipts to the Architect-Engineer upon completion of the work.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE For use of this form, see ER 415-1-10; the proponent agency is CECW-CE.					DATE		TRANSMITTAL NO.	
SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS <i>(This section will be initiated by the contractor)</i>								
TO:		FROM:		CONTRACT NO.			CHECK ONE: <input type="checkbox"/> THIS IS A NEW TRANSMITTAL <input type="checkbox"/> THIS IS A RESUBMITTAL OF TRANSMITTAL _____	
SPECIFICATION SEC. NO. <i>(Cover only one section with each transmittal)</i>			PROJECT TITLE AND LOCATION			THIS TRANSMITTAL IS FOR: <i>(Check one)</i> <input type="checkbox"/> FIO <input type="checkbox"/> GA <input type="checkbox"/> DA <input type="checkbox"/> CR <input type="checkbox"/> DA/CR <input type="checkbox"/> DA/GA		
ITEM NO. <small>(See Note 3)</small> a.	DESCRIPTION OF SUBMITTAL ITEM <small>(Type size, model number/etc.)</small> b.	SUBMITTAL TYPE CODE <small>(See Note 8)</small> c.	NO. OF COPIES d.	CONTRACT DOCUMENT REFERENCE		CONTRACTOR REVIEW CODE g.	VARIATION <small>Enter "Y" if requesting a variation (See Note 6)</small> h.	USACE ACTION CODE <small>(Note 9)</small> i.
				SPEC. PARA. NO. e.	DRAWING SHEET NO. f.			
REMARKS				I certify that the above submitted items had been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.				
				NAME OF CONTRACTOR			SIGNATURE OF CONTRACTOR	
SECTION II - APPROVAL ACTION								
ENCLOSURES RETURNED <i>(List by item No.)</i>		NAME AND TITLE OF APPROVING AUTHORITY			SIGNATURE OF APPROVING AUTHORITY		DATE	

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.
2. Each Transmittal shall be numbered consecutively. The Transmittal Number typically includes two parts separated by a dash (-). The first part is the specification section number. The second part is a sequential number for the submittals under that spec section. If the Transmittal is a resubmittal, then add a decimal point to the end of the original Transmittal Number and begin numbering the resubmittal packages sequentially after the decimal.
3. The "Item No." for each entry on this form will be the same "Item No." as indicated on ENG FORM 4288-R.
4. Submittals requiring expeditious handling will be submitted on a separate ENG Form 4025-R.
5. Items transmitted on each transmittal form will be from the same specification section. Do not combine submittal information from different specification sections in a single transmittal.
6. If the data submitted are intentionally in variance with the contract requirements, indicate a variation in column h, and enter a statement in the Remarks block describing the detailed reason for the variation.
7. ENG Form 4025-R is self-transmitting - a letter of transmittal is not required.
8. When submittal items are transmitted, indicate the "Submittal Type" (*SD-01 through SD-11*) in column c of Section I.
Submittal types are the following:

SD-01 - Preconstruction	SD-02 - Shop Drawings	SD-03 - Product Data	SD-04 - Samples	SD-05 - Design Data	SD-06 - Test Reports
SD-07 - Certificates	SD-08 - Manufacturer's Instructions	SD-09 - Manufacturer's Field Reports	SD-10 - O&M Data	SD-11 - Closeout	
9. For each submittal item, the Contractor will assign Submittal Action Codes in column g of Section I. The U.S. Army Corps of Engineers approving authority will assign Submittal Action Codes in column i of Section I. The Submittal Action Codes are:

A -- Approved as submitted.	F -- Receipt acknowledged.
B -- Approved, except as noted on drawings. Resubmission not required.	X -- Receipt acknowledged, does not comply with contract requirements, as noted.
C -- Approved, except as noted on drawings. Refer to attached comments. Resubmission required.	G -- Other action required (<i>Specify</i>)
D -- Will be returned by separate correspondence.	K -- Government concurs with intermediate design. (<i>For D-B contracts</i>)
E -- Disapproved. Refer to attached comments.	R -- Design submittal is acceptable for release for construction. (<i>For D-B contracts</i>)
10. Approval of items does not relieve the contractor from complying with all the requirements of the contract.

SECTION 01 35 23

SAFETY REQUIREMENTS

1.0 GENERAL

1.1 DESCRIPTION

- A. Safety and health requirements have been prepared to guide the management of health, safe work, practices and procedures minimizing accidents or exposures to hazard situations.

1.2 APPLICABLE PUBLICATIONS

- B. Latest publications listed below form part of this Article to extent referenced. Publications are referenced in text by basic designations only.

- C. American Society of Safety Engineers (ASSE):

A10.1-2011 Pre-Project & Pre-Task Safety and Health Planning

A10.34-2012 Protection of the Public on or Adjacent to Construction Sites

A10.38-2013 Basic Elements of an Employer's Program to Provide a Safe and Healthful Work Environment American National Standard Construction and Demolition Operations

- D. American Society for Testing and Materials (ASTM):

E84-2013 Surface Burning Characteristics of Building Materials

- E. The Facilities Guidelines Institute (FGI):

FGI Guidelines-2010 Guidelines for Design and Construction of Healthcare Facilities

- F. National Fire Protection Association (NFPA):

10-2013 Standard for Portable Fire Extinguishers

30-2012 Flammable and Combustible Liquids Code

51B-2014 Standard for Fire Prevention During Welding, Cutting and Other Hot Work

70-2014 National Electrical Code

- 70B-2013..... Recommended Practice for Electrical Equipment Maintenance
- 70E-2015 Standard for Electrical Safety in the Workplace
- 99-2012 Health Care Facilities Code
- 241-2013 Standard for Safeguarding Construction, Alteration, and Demolition Operations
- G. The Joint Commission (TJC)
 - TJC Manual Comprehensive Accreditation and Certification Manual
- H. U.S. Nuclear Regulatory Commission
 - 10 CFR 20 Standards for Protection Against Radiation
- I. U.S. Occupational Safety and Health Administration (OSHA):
 - 29 CFR 1904 Reporting and Recording Injuries & Illnesses
 - 29 CFR 1910 Safety and Health Regulations for General Industry
 - 29 CFR 1926 Safety and Health Regulations for Construction Industry
 - CPL 2-0.124 Multi-Employer Citation Policy

1.3 DEFINITIONS

- A. Critical Lift. A lift with the hoisted load exceeding 75% of the crane's maximum capacity; lifts made out of the view of the operator (blind picks); lifts involving two or more cranes; personnel being hoisted; and special hazards such as lifts over occupied facilities, loads lifted close to power-lines, and lifts in high winds or where other adverse environmental conditions exist; and any lift which the crane operator believes is critical.
- B. OSHA "Competent Person" (CP). One who is capable of identifying existing and predictable hazards in the surroundings and working conditions which are unsanitary, hazardous or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them (see 29 CFR 1926.32(f)).
- C. "Qualified Person" means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, has

successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the project.

D. High Visibility Accident. Any mishap which may generate publicity or high visibility.

E. Accident/Incident Criticality Categories:

No impact – near miss incidents that should be investigated but are not required to be reported to the Owner;

Minor incident/impact – incidents that require first aid or result in minor equipment damage (less than \$5000). These incidents must be investigated but are not required to be reported to the Owner;

Moderate incident/impact – Any work-related injury or illness that results in:

1. Days away from work (any time lost after day of injury/illness onset);
2. Restricted work;
3. Transfer to another job;
4. Medical treatment beyond first aid;
5. Loss of consciousness;
6. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (5) above or,
7. any incident that leads to major equipment damage (greater than \$5,000).

These incidents must be investigated and are required to be reported to the Owner;

Major incident/impact – Any mishap that leads to fatalities, hospitalizations, amputations, and losses of an eye as a result of contractors' activities. Or any incident which leads to major property damage (greater than \$20,000) and/or may generate publicity or high visibility. These incidents must be investigated and are required to be reported to the Owner as soon as practical, but not later than 2 hours after the incident.

E. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.

1.4 REGULATORY REQUIREMENTS

- A. In addition to the detailed requirements included in the provisions of this contract, comply with 29 CFR 1926, comply with 29 CFR 1910 as incorporated by reference within 29 CFR 1926, comply with ASSE A10.34, and all applicable state, and local laws, ordinances, criteria, rules and regulations. Submit matters of interpretation of standards for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern except with specific approval and acceptance by the Contracting Officer Representative or Government Designated Authority.

1.5 ACCIDENT PREVENTION PLAN (APP)

- A. The APP (aka Construction Safety & Health Plan) shall interface with the Contractor's overall safety and health program. Include any portions of the Contractor's overall safety and health program referenced in the APP in the applicable APP element and ensure it is site-specific. The Owner considers the Prime Contractor to be the "controlling authority" for all worksite safety and health of each subcontractor(s). Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out.
- B. The APP shall be prepared as follows:
1. Written in English by a qualified person who is employed by the Prime Contractor articulating the specific work and hazards pertaining to the contract.
 2. Address both the Prime Contractors and the subcontractors work operations.
 3. State measures to be taken to control hazards associated with materials, services, or equipment provided by suppliers.
 4. Address all the elements/sub-elements and in order as follows:
 - a. SIGNATURE SHEET. Title, signature, and phone number of the following:
 - 1) Plan preparer (Qualified Person such as corporate safety staff person or contracted Certified Safety Professional with construction safety experience);

- 2) Plan approver (company/corporate officers authorized to obligate the company);
- 3) Plan concurrence (e.g., Chief of Operations, Corporate Chief of Safety, Corporate Industrial Hygienist, project manager or superintendent, project safety professional). Provide concurrence of other applicable corporate and project personnel (Contractor).

b. BACKGROUND INFORMATION. List the following:

- 1) Contractor;
- 2) Contract number;
- 3) Project name;
- 4) Brief project description, description of work to be performed, and location; phases of work anticipated.

c. STATEMENT OF SAFETY AND HEALTH POLICY. Provide a copy of current corporate/company Safety and Health Policy Statement, detailing commitment to providing a safe and healthful workplace for all employees. The Contractor's written safety program goals, objectives, and accident experience goals for this contract should be provided.

d. RESPONSIBILITIES AND LINES OF AUTHORITIES. Provide the following:

- 1) A statement of the employer's ultimate responsibility for the implementation of his SOH program;
- 2) Identification and accountability of personnel responsible for safety at both corporate and project level. Contracts specifically requiring safety or industrial hygiene personnel shall include a copy of their resumes.
- 3) The names of Competent and/or Qualified Person(s) and proof of competency/qualification to meet specific OSHA Competent/Qualified Person(s) requirements must be attached.;
- 4) Requirements that no work shall be performed unless a designated competent person is present on the job site;
- 5) Requirements for pre-task Activity Hazard Analysis (AHAs);

- 6) Lines of authority;
 - 7) Policies and procedures regarding noncompliance with safety requirements (to include disciplinary actions for violation of safety requirements) should be identified;
- e. SUBCONTRACTORS AND SUPPLIERS. If applicable, provide procedures for coordinating SOH activities with other employers on the job site:
- 1) Identification of subcontractors and suppliers (if known);
 - 2) Safety responsibilities of subcontractors and suppliers.
- f. TRAINING.
- 1) Site-specific SOH orientation training at the time of initial hire or assignment to the project for every employee before working on the project site is required.
 - 2) Mandatory training and certifications that are applicable to this project (e.g., explosive actuated tools, crane operator, rigger, crane signal person, fall protection, electrical lockout/NFPA 70E, machine/equipment lockout, confined space, etc.) and any requirements for periodic retraining/recertification are required.
 - 3) Procedures for ongoing safety and health training for supervisors and employees shall be established to address changes in site hazards/conditions.
 - 4) OSHA 10-hour training is required for all workers on site and the OSHA 30-hour training is required for Trade Competent Persons (CPs)
- g. SAFETY AND HEALTH INSPECTIONS.
- 1) Specific assignment of responsibilities for a minimum daily job site safety and health inspection during periods of work activity: Who will conduct (e.g., "Site Safety and Health CP"), proof of inspector's training/qualifications, when inspections will be conducted, procedures for documentation, deficiency tracking system, and follow-up procedures.
 - 2) Any external inspections/certifications that may be required (e.g., contracted CSP or CSHT)

- h. ACCIDENT/INCIDENT INVESTIGATION & REPORTING. The Contractor shall conduct mishap investigations of all Moderate and Major as well as all High Visibility Incidents. The APP shall include accident/incident investigation procedure and identify person(s) responsible to provide the following to the // Resident Engineer // Project Manager // and Facility Safety // Manager // Officer // or Contracting Officer Representative // or Government Designated Authority:
 - 1) Exposure data (man-hours worked);
 - 2) Accident investigation reports;
 - 3) Project site injury and illness logs.
- i. PLANS (PROGRAMS, PROCEDURES) REQUIRED. Based on a risk assessment of contracted activities and on mandatory OSHA compliance programs, the Contractor shall address all applicable occupational, patient, and public safety risks in site-specific compliance and accident prevention plans. These Plans shall include but are not be limited to procedures for addressing the risks associates with the following:
 - 1) Emergency response;
 - 2) Contingency for severe weather;
 - 3) Fire Prevention;
 - 4) Medical Support;
 - 5) Posting of emergency telephone numbers;
 - 6) Prevention of alcohol and drug abuse;
 - 7) Site sanitation (housekeeping, drinking water, toilets);
 - 8) Night operations and lighting;
 - 9) Hazard communication program;
 - 10) Welding/Cutting "Hot" work;
 - 11) Electrical Safe Work Practices (Electrical LOTO/NFPA 70E);
 - 12) General Electrical Safety;

- 13) Hazardous energy control (Machine LOTO);
- 14) Site-Specific Fall Protection & Prevention;
- 15) Excavation/trenching;
- 16) Asbestos abatement;
- 17) Lead abatement;
- 18) Crane Critical lift;
- 19) Respiratory protection;
- 20) Health hazard control program;
- 21) Radiation Safety Program;
- 22) Abrasive blasting;
- 23) Heat/Cold Stress Monitoring;
- 24) Crystalline Silica Monitoring (Assessment);
- 25) Demolition plan (to include engineering survey);
- 26) Formwork and shoring erection and removal;
- 27) Pre-Cast Concrete;
- 28) Public (Mandatory compliance with ANSI/ASSE A10.34-2012).

- C. Submit the APP to the Contracting Officer Representative or Government Designated Authority for review for compliance with contract requirements in accordance with Section 01 33 00 at least 15 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP.
- D. Once accepted by the Contracting Officer Representative or Government Designated Authority, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work.
- E. Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Project Manager, project overall designated OSHA Competent Person, and facility Contracting Officer Representative. Should any severe hazard exposure, i.e.

imminent danger, become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate/remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public and the environment.

1.6 ACTIVITY HAZARD ANALYSES (AHAS)

- A. AHAs are also known as Job Hazard Analyses, Job Safety Analyses, and Activity Safety Analyses. Before beginning each work activity involving a type of work presenting hazards not experienced in previous project operations or where a new work crew or sub-contractor is to perform the work, the Contractor(s) performing that work activity shall prepare an AHA.
- B. AHAs shall define the activities being performed and identify the work sequences, the specific anticipated hazards, site conditions, equipment, materials, and the control measures to be implemented to eliminate or reduce each hazard to an acceptable level of risk.
- C. Work shall not begin until the AHA for the work activity has been accepted by the Contracting Officer Representative or Government Designated Authority and discussed with all engaged in the activity, including the Contractor, subcontractor(s), and Government on-site representatives at preparatory and initial control phase meetings.
 - 1. The names of the Competent/Qualified Person(s) required for a particular activity (for example, excavations, scaffolding, fall protection, other activities as specified by OSHA and/or other State and Local agencies) shall be identified and included in the AHA. Certification of their competency/qualification shall be submitted to the Government Designated Authority (GDA) for acceptance prior to the start of that work activity.
 - 2. The AHA shall be reviewed and modified as necessary to address changing site conditions, operations, or change of competent/qualified person(s).
 - a. If more than one Competent/Qualified Person is used on the AHA activity, a list of names shall be submitted as an attachment to the AHA. Those listed must be Competent/Qualified for the type of work involved in the AHA and familiar with current site safety issues.

- b. If a new Competent/Qualified Person (not on the original list) is added, the list shall be updated (an administrative action not requiring an updated AHA). The new person shall acknowledge in writing that he or she has reviewed the AHA and is familiar with current site safety issues.
3. Submit AHAs to the Project Manager or Contracting Officer Representative or Government Designated Authority for review for compliance with contract requirements in accordance with Section 01 33 00 for review at least 15 calendar days prior to the start of each phase. Subsequent AHAs as shall be formatted as amendments to the APP. The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity's safety and health controls.
4. The AHA list will be reviewed periodically (at least monthly) at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change.
5. Develop the activity hazard analyses using the project schedule as the basis for the activities performed. All activities listed on the project schedule will require an AHA. The AHAs will be developed by the contractor, supplier, or subcontractor and provided to the prime contractor for review and approval and then submitted to the Contracting Officer Representative or Government Designated Authority.

1.7 PRECONSTRUCTION CONFERENCE

- A. Contractor representatives who have a responsibility or significant role in implementation of the accident prevention program, as required by 29 CFR 1926.20(b)(1), on the project shall attend the preconstruction conference to gain a mutual understanding of its implementation. This includes the project superintendent, subcontractor superintendents, and any other assigned safety and health professionals.
- B. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Contracting Officer's representative as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, review, and acceptance of AHAs to preclude project delays.

1.8 “SITE SAFETY AND HEALTH OFFICER” (SSHO) AND “COMPETENT PERSON” (CP)

- A. The Prime Contractor shall designate a minimum of one SSHO at each project site that will be identified as the SSHO to administer the Contractor's safety program and government-accepted Accident Prevention Plan. Each subcontractor shall designate a minimum of one CP in compliance with 29 CFR 1926.20 (b)(2) that will be identified as a CP to administer their individual safety programs.
- B. Further, all specialized Competent Persons for the work crews will be supplied by the respective contractor as required by 29 CFR 1926 (i.e. Asbestos, Electrical, Cranes, & Derricks, Demolition, Fall Protection, Fire Safety/Life Safety, Ladder, Rigging, Scaffolds, and Trenches/Excavations).
- C. These Competent Persons can have collateral duties as the subcontractor's superintendent and/or work crew lead persons as well as fill more than one specialized CP role (i.e. Asbestos, Electrical, Cranes, & Derricks, Demolition, Fall Protection, Fire Safety/Life Safety, Ladder, Rigging, Scaffolds, and Trenches/Excavations). However, the SSHO has be a separate qualified individual from the Prime Contractor's Superintendent and/or Quality Control Manager with duties only as the SSHO.
- D. The SSHO or an equally-qualified Designated Representative/alternate will maintain a presence on the site during construction operations in accordance with FAR Clause 52.236-6: *Superintendence by the Contractor*. CPs will maintain presence during their construction activities in accordance with above mentioned clause. A listing of the designated SSHO and all known CPs shall be submitted prior to the start of work as part of the APP with the training documentation and/or AHA as listed in Section 1.8 below.

1.9 TRAINING

- A. The designated Prime Contractor SSHO must meet the requirements of all applicable OSHA standards and be capable (through training, experience, and qualifications) of ensuring that the requirements of 29 CFR 1926.16 and other appropriate Federal, State and local requirements are met for the project. As a minimum the SSHO must have completed the OSHA 30-hour Construction Safety class and have five (5) years of construction industry safety experience or three (3) years if he/she possesses a Certified Safety Professional (CSP) or certified Construction Safety and Health Technician (CSHT) certification or have a safety and health degree from an accredited university or college.

- B. All designated CPs shall have completed the OSHA 30-hour Construction Safety course within the past 5 years.
- C. In addition to the OSHA 30 Hour Construction Safety Course, all CPs with high hazard work operations such as operations involving asbestos, electrical, cranes, demolition, work at heights/fall protection, fire safety/life safety, ladder, rigging, scaffolds, and trenches/excavations shall have a specialized formal course in the hazard recognition & control associated with those high hazard work operations. Documented “repeat” deficiencies in the execution of safety requirements will require retaking the requisite formal course.
- D. All other construction workers shall have the OSHA 10-hour Construction Safety Outreach course and any necessary safety training to be able to identify hazards within their work environment.
- E. Submit training records associated with the above training requirements to the Contracting Officer Representative or Government Designated Authority for review for compliance with contract requirements in accordance with Section 01 33 00 at least 15 calendar days prior to the date of the preconstruction conference for acceptance.
- F. Prior to any worker for the contractor or subcontractors beginning work, they shall undergo a safety briefing provided by the SSHO or his/her designated representative. As a minimum, this briefing shall include information on the site-specific hazards, construction limits, means of egress, break areas, work hours, locations of restrooms, emergency procedures, accident reporting etc... Documentation shall be provided to the Resident Engineer that individuals have undergone contractor’s safety briefing.
- G. Ongoing safety training will be accomplished in the form of weekly documented safety meeting.

1.10 INSPECTIONS

- A. The SSHO shall conduct frequent and regular safety inspections (daily) of the site and each of the subcontractors CPs shall conduct frequent and regular safety inspections (daily) of the their work operations as required by 29 CFR 1926.20(b)(2). Each week, the SSHO shall conduct a formal documented inspection of the entire construction areas with the subcontractors’ “Trade Safety and Health CPs” present in their work areas. Coordinate

with, and report findings and corrective actions weekly to Contracting Officer Representative or Government Designated Authority.

1.11 ACCIDENTS, OSHA 300 LOGS, AND MAN-HOURS

- A. The prime contractor shall establish and maintain an accident reporting, recordkeeping, and analysis system to track and analyze all injuries and illnesses, high visibility incidents, and accidental property damage (both government and contractor) that occur on site. Notify the Contracting Officer Representative or Government Designated Authority as soon as practical, but no more than four hours after any accident meeting the definition of a Moderate or Major incidents, High Visibility Incidents, , or any weight handling and hoisting equipment accident. Within notification include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the Contracting Officer Representative or Government Designated Authority determine whether a government investigation will be conducted.
- B. Conduct an accident investigation for all Minor, Moderate and Major incidents as defined in paragraph DEFINITIONS, and property damage accidents resulting in at least \$20,000 in damages, to establish the root cause(s) of the accident. Complete and provide the report to the Contracting Officer Representative or Government Designated Authority within 5 calendar days of the accident. The Contracting Officer Representative or Government Designated Authority will provide copies of any required or special forms.
- C. A summation of all man-hours worked by the contractor and associated sub-contractors for each month will be reported to the Contracting Officer Representative or Government Designated Authority monthly.
- D. A summation of all Minor, Moderate, and Major incidents experienced on site by the contractor and associated sub-contractors for each month will be provided to the Contracting Officer Representative or Government Designated Authority monthly. The contractor and associated sub-contractors' OSHA 300 logs will be made available to the Contracting Officer Representative or Government Designated Authority as requested.

1.12 PERSONAL PROTECTIVE EQUIPMENT (PPE)

- A. PPE is governed in all areas by the nature of the work the employee is performing. For example, specific PPE required for performing work on electrical equipment is identified in NFPA 70E, Standard for Electrical Safety in the Workplace.
- B. Mandatory PPE includes:
 - 1. Hard Hats – unless written authorization is given by the Contracting Officer Representative or Government Designated Authority in circumstances of work operations that have limited potential for falling object hazards such as during finishing work or minor remodeling. With authorization to relax the requirement of hard hats, if a worker becomes exposed to an overhead falling object hazard, then hard hats would be required in accordance with the OSHA regulations.
 - 2. Safety glasses - unless written authorization is given by the Contracting Officer Representative or Government Designated Authority in circumstances of no eye hazards, appropriate safety glasses meeting the ANSI Z.87.1 standard must be worn by each person on site.
 - 3. Appropriate Safety Shoes – based on the hazards present, safety shoes meeting the requirements of ASTM F2413-11 shall be worn by each person on site unless written authorization is given by the Contracting Officer Representative or Government Designated Authority in circumstances of no foot hazards.
 - 4. Hearing protection - Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks.

1.13 SAFETY REQUIREMENTS

- A. The work site is within an operating facility and the Contractor shall comply at all times with the Owner's safety requirements.
- B. All Contractors and Subcontractors working on the Project shall have in effect a Safety Plan. Only one Safety Plan shall be submitted for Owner's approval. Also, Contractors and Subcontractors shall provide a Certification from the "Departamento del Trabajo y Recursos Humanos" of the Government of Puerto Rico including the "Autocertificacion Patronal" and "Plan de Control de Exposicion al COVID-19". This plan shall comply with PR OSHA and CDC requirements.
- C. All Contractors and Subcontractors working on the Project shall designate a Full-Time Safety Representative.

1. Contractor's Safety Representative shall be responsible for initiating the safety program, ensuring that jobsite safety requirements and procedures are being accomplished, conducting safety inspections of Work being performed, conducting weekly safety meetings with craft employees and submitting a weekly report to Company documenting safety activities. The Safety representative will also be responsible for a continuing survey of its operations, to ensure that the probable causes of injury or accident are controlled and that operating equipment, tools and facilities are used, inspected and maintained as required by applicable safety and health regulations.
 2. Owner will have the right to stop Work whenever safety violations are observed which could jeopardize the well being of personnel and equipment. The expense of any such Work stoppage and resultant standby time shall be for Contractor's account. The failure or refusal of Contractor to correct the observed violation may result in the termination of the Contract, and/or the dismissal from the jobsite of those responsible for such failure or refusal.
 3. Contractor shall provide to the Owner a copy of all reports made to government agencies or insurance companies relating to any jobsite accident or injury during Contractor's performance of the Work.
- D. It is the Contractor's and Subcontractor's responsibility to provide safety equipment required to protect the Owner's personnel and Owner's property to the satisfaction of OSHA Standards for the Construction Industry (29 CFR Part 1926). This includes but is not limited to the follows:
1. Personnel Clothing and Equipment
 - a. Contractor's personnel must wear hard hats clearly marked with employee name, company logo, safety boots, safety glasses and all other necessary and required safety equipment and clothing. Personnel not adhering to these requirements may be subject to dismissal.
 - b. Comply with the color code requirements of Specification 01 35 23 - Safety Requirements.
 2. OSHA Permits and Programs
 - a. Contractor shall initiate and maintain such permits and programs as may be necessary to comply with requirements set forth by the Occupational Safety and Health Administration (OSHA) and any other local, state and federal regulations.
 - b. Voluntary Program from PR-OSHA will be authorized by Owner.
 3. Provide Owner approved fire blankets and welding boxes as required for welding.
 4. Provide fire hoses with pressure to nozzle at all times when performing hot work. The hose will be manned at all times during working hours. Fire hoses shall be inspected and recharged during execution of the Project.

5. Provide adequate fire extinguishers when performing hot work. Fire extinguishers shall be inspected and recharged during execution of the Project.
 6. A fire watch (with dedicated extinguisher) shall be posted for the duration of any hot work and 30 minutes thereafter to ensure that sparks or drops of hot metal do not start fires. All openings in floors shall be safely covered or closed. Fire extinguishers shall be inspected and recharged during execution of the Project.
 7. In addition to the above, the Contractor shall bring, special emphasis to bear on the subject to safety by use of posters and other visual reminders and such other methods as he may devise. The Contractor's proposed safety program is to be reviewed with the Owner's On Site Representative prior to the start of field construction and integrated into the overall safety program. Any additional new activities need to be modified and submitted for Owner's approval.
- E. The Contractor shall conduct an indoctrination session of the "Contractor Safety Regulations" with his own forces and subcontractors employees within the first week of employment. Each Contractor and Sub-Contractor employee receiving this indoctrination will be required to sign a Contractor's form stating that he has received this training. Contractor shall conduct weekly safety meetings with his employees. Contractor shall submit evidence of weekly toolbox meetings.
- F. All cranes and heavy equipment shall have updated certifications displayed, spill kits and Maintenance Log available for review at all times. Any repair shall be done outside of the facility.
- G. Submittals in accordance with Section 01 33 00.
1. Welding and cutting procedures for Owner's review and approval fifteen (15) days prior to commencing welding.
 2. All lifting and rigging procedures for review and approval fifteen (15) prior to lifting or erecting equipment.
 3. Review and approval by Owner or Architect/Engineer of Contractor's rigging, scaffolding and other construction plans will not constitute or be construed as an assumption of Contractor's responsibility or liability for scaffolding or safety under the Contract or at law and does not relieve Contractor from full compliance with its legal and contractual obligations.
- H. Contractor shall obtain from the Owner's Safety Department a Hot Work and/or Welding Permit prior to start any torch cutting, welding, brazing or any other hot type of Work.

1.14 FIRE SAFETY

- A. Fire Safety Plan: Establish and maintain a site-specific fire protection program in accordance with 29 CFR 1926. Prior to start of work, prepare a plan detailing project-specific fire safety measures, including periodic status reports, and submit to Contracting

Officer Representative or Government Designated Authority for review for compliance with contract requirements in accordance with Section 01 33 00. This plan may be an element of the Accident Prevention Plan.

- B. Site and Building Access: Maintain free and unobstructed access to facility emergency services and for fire, police and other emergency response forces in accordance with NFPA 241.
- C. Separate temporary facilities, such as trailers, storage sheds, and dumpsters, from existing buildings and new construction by distances in accordance with NFPA 241. For small facilities with less than 6 m (20 feet) exposing overall length, separate by 3m (10 feet).

1.15 ELECTRICAL

- A. All electrical work shall comply with NFPA 70 (NEC), NFPA 70B, NFPA 70E, 29 CFR Part 1910 Subpart J – General Environmental Controls, 29 CFR Part 1910 Subpart S – Electrical, and 29 CFR 1926 Subpart K in addition to other references required by contract.
- B. All qualified persons performing electrical work under this contract shall be licensed journeyman or master electricians. All apprentice electricians performing under this contract shall be deemed unqualified persons unless they are working under the immediate supervision of a licensed electrician or master electrician.
- C. All electrical work will be accomplished de-energized and in the Electrically Safe Work Condition (refer to NFPA 70E for Work Involving Electrical Hazards, including Exemptions to Work Permit). Any Contractor, subcontractor or temporary worker who fails to fully comply with this requirement is subject to immediate termination in accordance with FAR clause 52.236-5(c). Only in rare circumstance where achieving an electrically safe work condition prior to beginning work would increase or cause additional hazards, or is infeasible due to equipment design or operational limitations is energized work permitted. The Contracting Officer Representative or Government Designated Authority with approval of the Medical Center Director will make the determination if the circumstances would meet the exception outlined above. An AHA and permit specific to energized work activities will be developed, reviewed, and accepted by the Owner prior to the start of that activity.

1. Development of a Hazardous Electrical Energy Control Procedure is required prior to de-energization. A single Simple Lockout/Tagout Procedure for multiple work operations can only be used for work involving qualified person(s) de-energizing one set of conductors or circuit part source. Task specific Complex Lockout/Tagout Procedures are required at all other times.
 2. Verification of the absence of voltage after de-energization and lockout/tagout is considered “energized electrical work” (live work) under NFPA 70E, and shall only be performed by qualified persons wearing appropriate shock protective (voltage rated) gloves and arc rate personal protective clothing and equipment, using Underwriters Laboratories (UL) tested and appropriately rated contact electrical testing instruments or equipment appropriate for the environment in which they will be used.
 3. Personal Protective Equipment (PPE) and electrical testing instruments will be readily available for inspection by the The Contracting Officer Representative or Government Designated Authority.
- D. Before beginning any electrical work, an Activity Hazard Analysis (AHA) will be conducted to include Shock Hazard and Arc Flash Hazard analyses (NFPA Tables can be used only as a last alternative and it is strongly suggested a full Arc Flash Hazard Analyses be conducted). Work shall not begin until the AHA for the work activity and permit for energized work has been reviewed and accepted by the Contracting Officer Representative or Government Designated Authority and discussed with all engaged in the activity, including the Contractor, subcontractor(s), and Government on-site representatives at preparatory and initial control phase meetings.
- E. Ground-fault circuit interrupters. GFCI protection shall be provided where an employee is operating or using cord- and plug-connected tools related to construction activity supplied by 125-volt, 15-, 20-, or 30- ampere circuits. Where employees operate or use equipment supplied by greater than 125-volt, 15-, 20-, or 30- ampere circuits, GFCI protection or an assured equipment grounding conductor program shall be implemented in accordance with NFPA 70E - 2015, Chapter 1, Article 110.4(C)(2).

1.16 FALL PROTECTION

- A. The fall protection (FP) threshold height requirement is 6 ft (1.8 m) for ALL WORK, unless specified differently or the OSHA 29 CFR 1926 requirements are more stringent, to include

steel erection activities, systems-engineered activities (prefabricated) metal buildings, residential (wood) construction and scaffolding work.

1. The use of a Safety Monitoring System (SMS) as a fall protection method is prohibited.
2. The use of Controlled Access Zone (CAZ) as a fall protection method is prohibited.
3. A Warning Line System (WLS) may ONLY be used on floors or flat or low-sloped roofs (between 0 - 18.4 degrees or 4:12 slope) and shall be erected around all sides of the work area (See 29 CFR 1926.502(f) for construction of WLS requirements). Working within the WLS does not require FP. No worker shall be allowed in the area between the roof or floor edge and the WLS without FP. FP is required when working outside the WLS.
4. Fall protection while using a ladder will be governed by the OSHA requirements.

1.17 EXCAVATION AND TRENCHES

- A. All excavation and trenching work shall comply with 29 CFR 1926 Subpart P. Excavations less than 5 feet in depth require evaluation by the contractor's "Competent Person" (CP) for determination of the necessity of an excavation protective system where kneeling, laying in, or stooping within the excavation is required.
- B. All excavations and trenches 24 inches in depth or greater shall require a written trenching and excavation permit.
- C. Excavations will be hand dug or excavated by other similar safe and acceptable means as excavation operations approach within 3 to 5 feet of identified underground utilities. Exploratory bar or other detection equipment will be utilized as necessary to further identify the location of underground utilities.
- D. Excavations greater than 20 feet in depth require a Professional Engineer designed excavation protective system.

1.18 CRANES

- A. All crane work shall comply with 29 CFR 1926 Subpart CC.
- B. Prior to operating a crane, the operator must be licensed, qualified or certified to operate the crane. Thus, all the provisions contained with Subpart CC are effective and there is no "Phase In" date.

- C. A detailed lift plan for all lifts shall be submitted to the Government Designated Authority 14 days prior to the scheduled lift complete with route for truck carrying load, crane load analysis, siting of crane and path of swing and all other elements of a critical lift plan where the lift meets the definition of a critical lift. Critical lifts require a more comprehensive lift plan to minimize the potential of crane failure and/or catastrophic loss. The plan must be reviewed and accepted by the General Contractor before being submitted to the Owner for review. The lift will not be allowed to proceed without prior acceptance of this document.
- D. Crane operators shall not carry loads
 - 1. over the general public or facility personnel
 - 2. over any occupied building unless
 - a. the top two floors are vacated
 - b. or overhead protection with a design live load of 300 psf is provided

1.19 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

- A. All installation, maintenance, and servicing of equipment or machinery shall comply with 29 CFR 1910.147 except for specifically referenced operations in 29 CFR 1926 such as concrete & masonry equipment 1926.702(j), heavy machinery & equipment 1926.600(a)(3)(i), and process safety management of highly hazardous chemicals (1926.64). Control of hazardous electrical energy during the installation, maintenance, or servicing of electrical equipment shall comply with Section 1.15 to include NFPA 70E and other Owner specific requirements discussed in the section.

1.20 CONFINED SPACE ENTRY

- A. All confined space entry shall comply with 29 CFR 1926, Subpart AA except for specifically referenced operations in 29 CFR 1926 such as excavations/trenches 1926.651(g).
- B. A site-specific Confined Space Entry Plan (including permitting process) shall be developed and submitted to the Government Designated Authority.

1.21 WELDING AND CUTTING

- A. As specified in section 1.14, Hot Work: Perform and safeguard hot work operations in accordance with NFPA 241 and NFPA 51B. Coordinate with Government Designated Authority at least 48 hours in advance. Designate contractor's responsible project-site fire prevention program manager to permit hot work.

1.22 LADDERS

- A. All Ladder use shall comply with 29 CFR 1926 Subpart X.
- B. All portable ladders shall be of sufficient length and shall be placed so that workers will not stretch or assume a hazardous position.
- C. Manufacturer safety labels shall be in place on ladders
- D. Step Ladders shall not be used in the closed position
- E. Top steps or cap of step ladders shall not be used as a step
 - i. Portable ladders, used as temporary access, shall extend at least 3 ft above the upper landing surface.
 - 1. When a 3 ft extension is not possible, a grasping device (such as a grab rail) shall be provided to assist workers in mounting and dismounting the ladder.
 - 2. In no case shall the length of the ladder be such that ladder deflection under a load would, by itself, cause the ladder to slip from its support.
- G. Ladders shall be inspected for visible defects on a daily basis and after any occurrence that could affect their safe use. Broken or damaged ladders shall be immediately tagged "DO NOT USE," or with similar wording, and withdrawn from service until restored to a condition meeting their original design.

1.23 FLOOR & WALL OPENINGS

- A. All floor and wall openings shall comply with 29 CFR 1926 Subpart M.
- B. Floor and roof holes/openings are any that measure over 2 in in any direction of a walking/working surface which persons may trip or fall into or where objects may fall to the level below. Skylights located in floors or roofs are considered floor or roof hole/openings.
- C. All floor, roof openings or hole into which a person can accidentally walk or fall through shall be guarded either by a railing system with toeboards along all exposed sides or a load-bearing cover. When the cover is not in place, the opening or hole shall be protected by a removable guardrail system or shall be attended when the guarding system has been removed, or other fall protection system.
 - 1. Covers shall be capable of supporting, without failure, at least twice the weight of the worker, equipment and material combined.

2. Covers shall be secured when installed, clearly marked with the word "HOLE", "COVER" or "Danger, Roof Opening-Do Not Remove" or color-coded or equivalent methods (e.g., red or orange "X"). Workers must be made aware of the meaning for color coding and equivalent methods.
3. Roofing material, such as roofing membrane, insulation or felts, covering or partly covering openings or holes, shall be immediately cut out. No hole or opening shall be left unattended unless covered.
4. Non-load-bearing skylights shall be guarded by a load-bearing skylight screen, cover, or railing system along all exposed sides.
5. Workers are prohibited from standing/walking on skylights.

2.0 PRODUCTS

Not Used.

3.0 EXECUTION

Not Used.

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Quality control and control of installation.
- B. Tolerances.
- C. References.
- D. Testing and inspection services.
- E. Manufacturers' field services.
- F. Request for Information.
- G. Examination.
- H. Preparation.

1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. When manufacturers' instructions conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.3 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, complies with requirements of standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date for receiving bids except where specific date is established by code.
- C. Obtain copies of standards where required by product specification sections.
- D. When specified reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.
- E. Neither contractual relationships nor duties or responsibilities of parties in Contract nor those of Architect/Engineer shall be altered from Contract Documents by mention or inference otherwise in reference documents.

1.5 TESTING AND INSPECTION SERVICES

- A. Contractor shall employ and pay for specified services of an independent firm to perform testing and inspection services.
 - 1. Prior to start of Work, submit testing laboratory name, address, and telephone number, and names of full time registered Engineer specialist and responsible officer.
 - 2. Submit copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of deficiencies reported by inspection.
- B. The independent firm will perform tests, inspections and other services specified in individual specification sections and as required by Architect/Engineer.
 - 1. Laboratory: Authorized to operate in the Commonwealth of Puerto Rico.
 - 2. Laboratory Staff: Maintain full time registered Engineer on staff to review services.
 - 3. Testing Equipment: Calibrated at reasonable intervals with devices of accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.
- C. Testing, inspections and source quality control may occur on or off project site. Perform off-site testing as required by Architect/Engineer or Owner.
- D. Reports will be submitted by independent firm to Architect/Engineer and Contractor, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- E. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - 1. Notify Architect/Engineer and independent firm 24 hours prior to expected time for operations requiring services.

2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
- F. Testing and employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work in accordance with requirements of Contract Documents.
- G. Re-testing or re-inspection required because of non-conformance to specified requirements shall be performed by same independent firm on instructions by Architect/Engineer. Payment for re-testing or re-inspection will be charged to Contractor by deducting testing charges from Contract Sum/Price.
- H. Agency Responsibilities:
1. Test samples of mixes submitted by Contractor.
 2. Provide qualified personnel at site. Cooperate with Architect/Engineer and Contractor in performance of services.
 3. Perform specified sampling and testing of products in accordance with specified standards.
 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 5. Promptly notify Architect/Engineer and Contractor of observed irregularities or non-conformance of Work or products.
 6. Perform additional tests required by Architect/Engineer.
 7. Attend preconstruction meetings and progress meetings.
- I. Agency Reports: After each test, promptly submit two copies of report to Architect/Engineer and to Contractor. When requested by Architect/Engineer, provide interpretation of test results. Include the following:
1. Date issued.
 2. Project title and number.
 3. Name of inspector.
 4. Date and time of sampling or inspection.
 5. Identification of product and specifications section.
 6. Location in Project.
 7. Type of inspection or test.
 8. Date of test.
 9. Results of tests.
 10. Conformance with Contract Documents.

J. Limits On Testing Authority:

1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency or laboratory may not approve or accept any portion of the Work.
3. Agency or laboratory may not assume duties of Contractor.
4. Agency or laboratory has no authority to stop the Work.

1.6 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment and as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Architect/Engineer 30 days in advance of required observations. Observer subject to approval of Architect/Engineer and Owner.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- D. Refer to Section 01 33 00 - SUBMITTAL PROCEDURES, MANUFACTURERS' FIELD REPORTS article.

1.7 REQUEST FOR INFORMATION

- A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to the Owner's Representative using the specified RFI format. See attached Request For Information (RFI) Form to be used by Contractor.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.
- B. Verify existing substrate is capable of structural support or attachment of new Work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Verify utility services are available, of correct characteristics, and in correct locations.

3.2 PREPARATION

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying new material or substance in contact or bond.

END OF SECTION

Contractors
Company
Logo

REQUEST FOR INFORMATION - RFI NO. ____

Project Title – Project Sub-title
Owner Main Name – Owner Sub-name
_____, Puerto Rico

TO: _____
ATTN: _____
FROM: _____

DATE: _____
RFI No.: _____
CONTRACTOR: _____

DISCIPLINE: _____
DRAWINGS: (List specific documents researched when seeking the information requested) _____
SPECIFICATIONS: (List specific documents researched when seeking the information requested) _____

QUESTION: (Fully describe the question or type of information requested.)

Need answer by: _____ Signature: _____

RESPONSE: (Provide answer to RFI, including cost/or schedule considerations.)

Response by:

Name

Date

Signature

Note: This reply is not an authorization to proceed with work involving additional cost, time or both. If any reply requires a change to the Contract Documents, a Change Order, Construction Change Directive or a Minor Change in the work must be executed in accordance with the Contract Documents.

SECTION 01 42 00

REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect-Engineer's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect-Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect-Engineer. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by Authorities Having Jurisdiction (AHJ), and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Installer": An installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, or similar operations. Installers are required to be experienced in the operations they are engaged to perform.
 - 1. The term "experienced," when used with the term "installer," means having a minimum of five (5) previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of authorities having jurisdiction.
 - 2. Trades: Using terms such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.
 - 3. Assigning Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in

those operations. The specialists must be engaged for those activities, and their assignments are requirements over which the Contractor has no option. However, the ultimate responsibility for fulfilling contract requirements remains with the Contractor.

- a. This requirement shall not be interpreted to conflict with enforcing building codes and similar regulations governing the Work. It is also not intended to interfere with local trade-union jurisdictional settlements and similar conventions.
- J. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Conflicting Requirements: Where compliance with two (2) or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent and highest quality requirement. Request a decision from the Architect before proceeding on requirements that are different but apparently equal, and where it is uncertain which requirement is the most stringent.
 - 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum acceptable. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Request a clarification from the Architect regarding uncertainties before proceeding.
- D. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.
- E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authorities having jurisdiction, or other entity applicable to the context of the text provision. Refer to Thompson Gale's "Encyclopedia of Associations," available in most libraries.

1.3 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Thomson Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

AABC	Associated Air Balance Council www.aabchq.com	(202) 737-0202
AAMA	American Architectural Manufacturers Association www.aamanet.org	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials www.transportation.org	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists www.aatcc.org	(919) 549-8141
ABMA	American Bearing Manufacturers Association www.abma-dc.org	(202) 367-1155
ACI	American Concrete Institute www.concrete.org	(248) 848-3700
ACPA	American Concrete Pipe Association www.concrete-pipe.org	(972) 506-7216
AEIC	Association of Edison Illuminating Companies, Inc. (The) www.aeic.org	(205) 257-2530
AF&PA	American Forest & Paper Association www.afandpa.org	(800) 878-8878 (202) 463-2700
AGA	American Gas Association www.aga.org	(202) 824-7000
AHAM	Association of Home Appliance Manufacturers www.aham.org	(202) 872-5955
AHRI	Air-Conditioning, Heating, and Refrigeration Institute www.ahrinet.org	(703) 524-8800
AI	Asphalt Institute	(859) 288-4960

	www.asphaltinstitute.org	
AIA	American Institute of Architects (The) www.aia.org	(800) 242-3837 (202) 626-7300
AISC	American Institute of Steel Construction www.aisc.org	(800) 644-2400 (312) 670-2400
AISI	American Iron and Steel Institute www.steel.org	(202) 452-7100
AITC	American Institute of Timber Construction www.aitc-glulam.org	(303) 792-9559
AMCA	Air Movement and Control Association International, Inc. www.amca.org	(847) 394-0150
ANSI	American National Standards Institute www.ansi.org	(202) 293-8020
AOSA	Association of Official Seed Analysts, Inc. www.aosaseed.com	(405) 780-7372
APA	APA - The Engineered Wood Association www.apawood.org	(253) 565-6600
APA	Architectural Precast Association www.archprecast.org	(239) 454-6989
API	American Petroleum Institute www.api.org	(202) 682-8000
ARI	Air-Conditioning & Refrigeration Institute www.ari.org	
ARI	Air-Conditioning & Refrigeration Institute (See AHRI)	
ARMA	Asphalt Roofing Manufacturers Association www.asphaltroofing.org	(202) 207-0917
ASCE	American Society of Civil Engineers www.asce.org	(800) 548-2723 (703) 295-6300
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE)	
ASHRAE	American Society of Heating, Refrigerating and Air- Conditioning Engineers	(800) 527-4723

	www.ashrae.org	(404) 636-8400
ASME	ASME International (American Society of Mechanical Engineers International) www.asme.org	(800) 843-2763 (973) 882-1170
ASSE	American Society of Safety Engineering www.asse.org	(847) 699-2929
ASSE	American Society of Sanitary Engineering www.asse-plumbing.org	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) www.astm.org	(610) 832-9500
ATIS	Alliance for Telecommunications Industry Solutions www.atis.org	(202) 628-6380
AWEA	American Wind Energy Association www.awea.org	(202) 383-2500
AWI	Architectural Woodwork Institute www.awinet.org	(571) 323-3636
AWMAC	Architectural Woodwork Manufacturers Association of Canada www.awmac.com	(403) 453-7387
AWPA	American Wood Protection Association (Formerly: American Wood Preservers' Association) www.awpa.com	(205) 733-4077
AWS	American Welding Society www.aws.org	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association www.awwa.org	(800) 926-7337 (303) 794-7711
BHMA	Builders Hardware Manufacturers Association www.buildershardware.com	(212) 297-2122
BIA	Brick Industry Association (The) www.bia.org	(703) 620-0010
BICSI	BICSI, Inc. www.bicsi.org	(800) 242-7405 (813) 979-1991

BIFMA	BIFMA International (Business and Institutional Furniture Manufacturer's Association International) www.bifma.com	(616) 285-3963
BISSC	Baking Industry Sanitation Standards Committee www.bissc.org	(866) 342-4772
BOCA	BOCA (Building Officials and Code Administrators International Inc.) (See ICC)	
BWF	Badminton World Federation (Formerly: International Badminton Federation) www.bwfbadminton.org	60 3 9283 7155
CDA	Copper Development Association www.copper.org	(800) 232-3282 (212) 251-7200
CEA	Canadian Electricity Association www.canelect.ca	(613) 230-9263
CEA	Consumer Electronics Association www.ce.org	(866) 858-1555 (703) 907-7600
CGA	Compressed Gas Association www.cganet.com	(703) 788-2700
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org	(888) 881-2462 (937) 222-2462
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute www.cispi.org	(423) 892-0137
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org	(301) 596-2583
CPA	Composite Panel Association www.pbmdf.com	(703) 724-1128
CRI	Carpet and Rug Institute (The) www.carpet-rug.com	(800) 882-8846 (706) 278-3176
CRRC	Cool Roof Rating Council www.coolroofs.org	(866) 465-2523 (510) 485-7175

CRSI	Concrete Reinforcing Steel Institute www.crsi.org	(847) 517-1200 (800) 328-6306
CRRC	Cool Roof Rating Council www.coolroofs.org	(866) 465-2523 (510) 485-7175
CSA	Canadian Standards Association www.csa.ca	(800) 463-6727 (416) 747-4000
CSA	CSA International (Formerly: IAS - International Approval Services) www.csa-international.org	(866) 797-4272 (416) 747-4000
CSI	Construction Specifications Institute (The) www.csinet.org	(800) 689-2900 (703) 684-0300
CSSB	Cedar Shake & Shingle Bureau www.cedarbureau.org	(604) 820-7700
CTI	Cooling Technology Institute (Formerly: Cooling Tower Institute) www.cti.org	(281) 583-4087
CWC	Composite Wood Council (See CPA)	
DASMA	Door and Access Systems Manufacturers Association www.dasma.com	(216) 241-7333
DHI	Door and Hardware Institute www.dhi.org	(703) 222-2010
ECA	Electrical Components Association www.ec-central.org	(703) 907-8024
ECAMA	Electronic Components Assemblies & Materials Association (See ECA)	
EIA	Electronic Industries Alliance www.eia.org	(703) 907-7500
EIMA	EIFS Industry Members Association www.eima.com	(800) 294-3462 (770) 968-7945
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org	(914) 332-0040
ESD	ESD Association (Electrostatic Discharge Association)	(315) 339-6937

	www.esda.org	
ESTA	Entertainment Services and Technology Association (See PLASA)	
EVO	Efficiency Valuation Organization www.evo-world.org	(415) 367-3643 44 20 88 167 857
FIBA	Federation Internationale de Basketball (The International Basketball Federation) www.fiba.com	41 22 545 00 00
FIVB	Federation Internationale de Volleyball (The International Volleyball Federation) www.fivb.ch	41 21 345 35 35
FM Approvals	FM Approvals LLC www.fmglobal.com	(781) 762-4300
FM Global	FM Global (Formerly: FMG - FM Global) www.fmglobal.com	(401) 275-3000
FRSA	Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc. www.floridarooft.com	(407) 671-3772
FSA	Fluid Sealing Association www.fluidsealing.com	(610) 971-4850
FSC	Forest Stewardship Council www.fsc.org	49 228 367 66 0
GA	Gypsum Association www.gypsum.org	(301) 277-8686
GANA	Glass Association of North America www.glasswebsite.com	(785) 271-0208
GS	Green Seal www.greenseal.org	(202) 872-6400
HI	Hydronics Institute www.gamanet.org	(908) 464-8200
HI/GAMA	Hydronics Institute/Gas Appliance Manufacturers Association Division of Air-Conditioning, Heating, and Refrigeration Institute (AHRI) www.ahrinet.org	(908) 464-8200

HMMA	Hollow Metal Manufacturers Association (Part of NAAMM)	
HPVA	Hardwood Plywood & Veneer Association www.hpva.org	(703) 435-2900
HPW	H. P. White Laboratory, Inc. www.hpwhite.com	(410) 838-6550
IAPSC	International Association of Professional Security Consultants www.iapsc.org	(515) 282-8192
IAS	International Approval Services (See CSA)	
ICBO	International Conference of Building Officials www.iccsafe.org	(888) 422-7233
ICC	International Code Council www.iccsafe.org	(888) 422-7233 (202) 370-1800
ICEA	Insulated Cable Engineers Association, Inc. www.icea.net	(770) 830-0369
ICPA	International Cast Polymer Association www.icpa-hq.org	(703) 525-0320
ICRI	International Concrete Repair Institute, Inc. www.icri.org	(847) 827-0830
IEC	International Electrotechnical Commission www.iec.ch	41 22 919 02 11
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) www.ieee.org	(212) 419-7900
IES	Illuminating Engineering Society of North America www.iesna.org	(703) 525-0320
IESNA	Illuminating Engineering Society of North America (See IES)	
IENT	Institute of Environmental Sciences and Technology www.ient.org	(847) 255-1561
IGMA	Insulating Glass Manufacturers Alliance www.igmaonline.org	(613) 233-1510

IGSHPA	International Ground Source Heat Pump Association www.igshpa.okstate.edu	(405) 744-5175
ILI	Indiana Limestone Institute of America, Inc. www.iliai.com	(812) 275-4426
Intertek	Intertek Group (Formerly: ETL SEMCO; Intertek Testing Service NA) www.intertek.com	(800) 967-5352
ISA	Instrumentation, Systems, and Automation Society, The www.isa.org	(919) 549-8411
ISAS	Instrumentation, Systems, and Automation Society (The) (See ISA)	
ISFA	International Surface Fabricators Association (Formerly: International Solid Surface Fabricators Association) www.isfanow.org	(877) 464-7732 (801) 341-7360
ISO	International Organization for Standardization www.iso.ch	41 22 749 01 11
ISSFA	International Solid Surface Fabricators Association www.issfa.net	(877) 464-7732 (801) 341-7360
ITU	International Telecommunication Union www.itu.int/home	41 22 730 51 11
KCMA	Kitchen Cabinet Manufacturers Association www.kcma.org	(703) 264-1690
LMA	Laminating Materials Association (Now part of CPA)	
LPI	Lightning Protection Institute www.lightning.org	(800) 488-6864
MBMA	Metal Building Manufacturers Association www.mbma.com	(216) 241-7333
MCA	Metal Construction Association www.metalconstruction.org	(847) 375-4718
MFMA	Maple Flooring Manufacturers Association, Inc.	(888) 480-9138

	www.maplefloor.org	
MFMA	Metal Framing Manufacturers Association, Inc. www.metalframingmfg.org	(312) 644-6610
MHIA	Material Handling Industry of America www.mhia.org	(800) 345-1815 (704) 676-1190
MIA	Marble Institute of America www.marble-institute.com	(440) 250-9222
MMPA	Moulding & Millwork Producers Association (Formerly: Wood Moulding & Millwork Producers Association) www.wmmpa.com	(800) 550-7889 (530) 661-9591
MPI	Master Painters Institute www.paintinfo.com	(888) 674-8937 (604) 298-7578
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc. www.mss-hq.com	(703) 281-6613
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org	(630) 942-6591
NACE	NACE International (National Association of Corrosion Engineers International) www.nace.org	(800) 797-6223 (281) 228-6200
NADCA	National Air Duct Cleaners Association www.nadca.com	(202) 737-2926
NAGWS	National Association for Girls and Women in Sport www.aahperd.org/nagws/	(800) 213-7193, ext. 453
NAIMA	North American Insulation Manufacturers Association www.naima.org	(703) 684-0084
NBGQA	National Building Granite Quarries Association, Inc. www.nbgqa.com	(800) 557-2848
NCAA	National Collegiate Athletic Association (The) www.ncaa.org	(317) 917-6222
NCMA	National Concrete Masonry Association www.ncma.org	(703) 713-1900

NEBB	National Environmental Balancing Bureau www.nebb.org	(301) 977-3698
NECA	National Electrical Contractors Association www.necanet.org	(301) 657-3110
NeLMA	Northeastern Lumber Manufacturers' Association www.nelma.org	(207) 829-6901
NEMA	National Electrical Manufacturers Association www.nema.org	(703) 841-3200
NETA	InterNational Electrical Testing Association www.netaworld.org	(888) 300-6382 (269) 488-6382
NFHS	National Federation of State High School Associations www.nfhs.org	(317) 972-6900
NFPA	NFPA (National Fire Protection Association) www.nfpa.org	(800) 344-3555 (617) 770-3000
NFPA	NFPA International (See NFPA)	
NFRC	National Fenestration Rating Council www.nfrc.org	(301) 589-1776
NHLA	National Hardwood Lumber Association www.natlhardwood.org	(800) 933-0318 (901) 377-1818
NLGA	National Lumber Grades Authority www.nlga.org	(604) 524-2393
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association) www.nofma.org	(901) 526-5016
NOMMA	National Ornamental & Miscellaneous Metals Association www.nomma.org	(888) 516-8585
NRCA	National Roofing Contractors Association www.nrca.net	(800) 323-9545 (847) 299-9070
NRMCA	National Ready Mixed Concrete Association	(888) 846-7622

	www.nrmca.org	(301) 587-1400
NSF	NSF International (National Sanitation Foundation International) www.nsf.org	(800) 673-6275 (734) 769-8010
NSPE	National Society of Professional Engineers www.nspe.org	(703) 684-2800
NSSGA	National Stone, Sand & Gravel Association www.nssga.org	(800) 342-1415 (703) 525-8788
NTMA	National Terrazzo & Mosaic Association, Inc. (The) www.ntma.com	(800) 323-9736 (540) 751-0930
NWFA	National Wood Flooring Association www.nwfa.org	(800) 422-4556 (636) 519-9663
PCI	Precast/Prestressed Concrete Institute www.pci.org	(312) 786-0300
PDI	Plumbing & Drainage Institute www.pdionline.org	(800) 589-8956 (978) 557-0720
PLASA	PLASA (Formerly: ESTA - Entertainment Services and Technology Association) www.plasa.org	(212) 244-1505
RCSC	Research Council on Structural Connections www.boltcouncil.org	
RFCI	Resilient Floor Covering Institute www.rfci.com	(706) 882-3833
RIS	Redwood Inspection Service www.redwoodinspection.com	(925) 935-1499
SAE	SAE International www.sae.org	(877) 606-7323 (724) 776-4841
SBCCI	Southern Building Code Congress International, Inc. (See ICC)	
SCTE	Society of Cable Telecommunications Engineers www.scte.org	(800) 542-5040 (610) 363-6888
SDI	Steel Deck Institute www.sdi.org	(847) 458-4647

SDI	Steel Door Institute www.steeldoor.org	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association www.sefalabs.com	(877) 294-5424 (516) 294-5424
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE)	
SIA	Security Industry Association www.siaonline.org	(866) 817-8888 (703) 683-2075
SJI	Steel Joist Institute www.steeljoist.org	(843) 626-1995
SMA	Screen Manufacturers Association www.smacentral.org	(561) 533-0991
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org	(703) 803-2980
SMPTE	Society of Motion Picture and Television Engineers www.smpte.org	(914) 761-1100
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) www.sprayfoam.org	(800) 523-6154
SPIB	Southern Pine Inspection Bureau (The) www.spib.org	(850) 434-2611
SPRI	Single Ply Roofing Industry www.spri.org	(781) 647-7026
SRCC	Solar Rating and Certification Corporation www.solar-rating.org	(321) 638-1537
SSINA	Specialty Steel Industry of North America www.ssina.com	(800) 982-0355 (202) 342-8630
SSPC	SSPC: The Society for Protective Coatings www.sspc.org	(877) 281-7772 (412) 281-2331
STI	Steel Tank Institute www.steeltank.com	(847) 438-8265
SWI	Steel Window Institute www.steelwindows.com	(216) 241-7333

SWPA	Submersible Wastewater Pump Association www.swpa.org	(847) 681-1868
TCA	Tilt-Up Concrete Association www.tilt-up.org	(319) 895-6911
TCNA	Tile Council of North America, Inc. www.tileusa.com	(864) 646-8453
TEMA	Tubular Exchanger Manufacturers Association www.tema.org	(914) 332-0040
TIA	Telecommunications Industry Association (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance) www.tiaonline.org	(703) 907-7700
TIA/EIA	Telecommunications Industry Association/Electronic Industries Alliance (See TIA)	
TMS	The Masonry Society www.masonrysociety.org	(303) 939-9700
TPI	Truss Plate Institute, Inc. www.tpinst.org	(703) 683-1010
TPI	Turfgrass Producers International www.turfgrasssod.org	(800) 405-8873 (847) 649-5555
TRI	Tile Roofing Institute www.tilerroofing.org	(312) 670-4177
UL	Underwriters Laboratories Inc. www.ul.com	(877) 854-3577 (847) 272-8800
UNI	Uni-Bell PVC Pipe Association www.uni-bell.org	(972) 243-3902
USAV	USA Volleyball www.usavolleyball.org	(888) 786-5539 (719) 228-6800
USGBC	U.S. Green Building Council www.usgbc.org	(800) 795-1747
USITT	United States Institute for Theatre Technology, Inc. www.usitt.org	(800) 938-7488 (315) 463-6463
WASTEC	Waste Equipment Technology Association www.wastec.org	(800) 424-2869 (202) 244-4700

WCLIB	West Coast Lumber Inspection Bureau www.wclib.org	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association www.wcmanet.org	(212) 297-2122
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com	(800) 223-2301 (312) 321-6802
WI	Woodwork Institute (Formerly: WIC - Woodwork Institute of California) www.wicnet.org	(916) 372-9943
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com	(800) 550-7889 (530) 661-9591
WSRCA	Western States Roofing Contractors Association www.wsrca.com	(800) 725-0333 (650) 570-5441
WWPA	Western Wood Products Association www.wwpa.org	(503) 224-3930

- C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

DIN	Deutsches Institut für Normung e.V. www.din.de	49 30 2601-0
IAPMO	International Association of Plumbing and Mechanical Officials www.iapmo.org	(909) 472-4100
ICC	International Code Council www.iccsafe.org	(888) 422-7233
ICC-ES	ICC Evaluation Service, Inc. www.icc-es.org	(800) 423-6587 (562) 699-0543

- D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

COE	Army Corps of Engineers www.usace.army.mil	(202) 761-0011
CPSC	Consumer Product Safety Commission	(800) 638-2772

	www.cpsc.gov	(301) 504-7923
DOC	Department of Commerce www.commerce.gov	(202) 482-2000
DOD	Department of Defense http://dodssp.daps.dla.mil	(215) 697-6257
DOE	Department of Energy www.energy.gov	(202) 586-9220
EPA	Environmental Protection Agency www.epa.gov	(202) 272-0167
FAA	Federal Aviation Administration www.faa.gov	(866) 835-5322
FG	Federal Government Publications www.gpo.gov	(202) 512-1800
GSA	General Services Administration www.gsa.gov	(800) 488-3111
HUD	Department of Housing and Urban Development www.hud.gov	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory www.lbl.gov	(510) 486-4000
OSHA	Occupational Safety & Health Administration www.osha.gov	(800) 321-6742 (202) 693-1999
SD	State Department www.state.gov	(202) 647-4000
TRB	Transportation Research Board http://gulliver.trb.org	(202) 334-2934
USDA	Department of Agriculture Agriculture Research Service U.S. Salinity Laboratory www.ars.usda.gov	(202) 720-3656
USDA	Department of Agriculture Rural Utilities Service www.usda.gov	(202) 720-2791
USDJ	Department of Justice Office of Justice Programs National Institute of Justice www.ojp.usdoj.gov	(202) 307-0703

USP	U.S. Pharmacopeia www.usp.org	(800) 227-8772
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USPS	Postal Service www.usps.com	(202) 268-2000
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- E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CFR	Code of Federal Regulations Available from Government Printing Office www.gpoaccess.gov/cfr/index.html	(866) 512-1800 (202) 512-1800
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DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	(215) 697-2664
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DSCC	Defense Supply Center Columbus (See FS)	
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FED-STD	Federal Standard (See FS)	
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FS	Federal Specification Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil/	(215) 697-2664
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Available from Defense Standardization Program
www.dsp.dla.mil

Available from General Services Administration www.gsa.gov	(800) 488-3111 (202) 619-8925
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Available from National Institute of Building Sciences www.wbdg.org/ccb	(202) 289-7800
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MILSPEC	Military Specification and Standards Available from Department of Defense Single Stock Point http://dodssp.daps.dla.mil	
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UFAS	Uniform Federal Accessibility Standards Available from Access Board	(800) 872-2253 (202) 272-0080
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www.access-board.gov

USATBCB U.S. Architectural & Transportation Barriers Compliance
Board
(See USAB)

- F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CBHF State of California, Department of Consumer Affairs Bureau (800) 952-5210
of Home Furnishings and Thermal Insulation
www.dca.ca.gov/bhfti (916) 574-2041

CCR California Code of Regulations (916) 323-6815
www.calregs.com

CDH California Department of Health Services (916) 445-4171
S
www.dhcs.ca.gov

CDP California Department of Public Health, Indoor Air Quality
H Section
www.cal-iaq.org

CPU California Public Utilities Commission (415) 703-2782
C
www.cpuc.ca.gov

SCA South Coast Air Quality Management District (909) 396-2000
QMD www.aqmd.gov

TFS Texas Forest Service
Forest Resource Development (979) 458-6606
<http://txforests-service.tamu.edu>

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Temporary Utilities:
 - 1. Temporary electricity.
 - 2. Telephone service.
 - 3. Internet service.
 - 4. Temporary water service.
 - 5. Temporary sanitary facilities.
- B. Construction Facilities:
 - 1. Parking.
 - 2. Progress cleaning and waste removal.
- C. Temporary Controls:
 - 1. Barriers.
 - 2. Security.
 - 3. Water control.
 - 4. Dust control.
 - 5. Noise control.
 - 6. Pollution control.
- D. Removal of utilities, facilities, and controls.

1.2 TEMPORARY ELECTRICITY

- A. Owner will provide and pay for power service require from utility source as needed for construction operations.
- B. Provide temporary electric feeder from utility source.
- C. Provide power outlets, with branch wiring and distribution boxes located at each floor or as required for construction operations. Provide flexible power cords as required for portable construction tools and equipment.
- D. Provide main service disconnect and over-current protection at convenient location.

1.3 TELEPHONE SERVICE

- A. Contractor shall provide, maintain, and pay for telephone service to Contractor's field office at time of project mobilization.

1.4 INTERNET SERVICE

- A. Contractor shall provide, maintain and pay for internet service dedicated to Contractor's field office, Owner's On Site Representative and Inspector's office at time of project mobilization.

1.5 TEMPORARY WATER SERVICE

- A. Contractor shall provide and pay for suitable water service as needed to maintain specified conditions for construction operations.
- B. Extend branch piping with outlets located so water is available by hoses with threaded connections.

1.6 TEMPORARY SANITARY FACILITIES

- A. Contractor shall provide and maintain required facilities and enclosures. Existing facility use is not permitted. Provide facilities at time of project mobilization.
- B. At end of construction, return existing facilities used for construction operations to same or better condition as original condition.

1.7 PARKING

- A. Use of existing parking facilities used by construction personnel is not permitted.
- B. Do not allow vehicle parking on existing pavement.

1.8 PROGRESS CLEANING AND WASTE REMOVAL

- A. Maintain areas under Contractor's control free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to closing the space.
- C. Contractor shall keep the premises free at all times from accumulations of waste materials and rubbish. The Contractor shall provide and maintain adequate trash receptacles about the site and inside the buildings, and shall promptly empty the containers when filled.
- D. Contractor is responsible for maintaining a high standard of housekeeping (broom clean) inside buildings, storage areas and around temporary buildings at all times. Contractor shall store materials in a safe and organized manner. Contractor shall employ and pay a maintenance crew during the execution of this Contract to provide housekeeping practices at all times. In addition to this housekeeping requirement during the working hours, the inside of buildings shall be left free of debris (broom clean) at the end of each working day.
- E. If, in the opinion of the Owner's Site Representative the Contractor fails to respond satisfactorily within 24 hours to a written notice of poor housekeeping, the Owner's Site

Representative will, through a third party, execute a cleanup program. All costs incurred by the above shall be to the Contractor's account.

- F. Adequate cleanup will be a condition for recommendation of progress payment applications.
- G. Control cleaning operations so that dust and other particulates will not adhere to wet or newly-coated surfaces.
- H. Remove waste materials, debris, and rubbish from site on a daily basis and dispose of off-site.
- I. All wastes shall be removed from the site and disposed of in a manner complying with local ordinances and antipollution laws.

1.9 BARRIERS

- A. Provide barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

1.10 SECURITY

- A. Entry Control:
 - 1. Restrict entrance of persons and vehicles into Project site and existing facilities.
 - 2. Allow entrance only to authorized persons with proper identification.
 - 3. Maintain log of workers and visitors, make available to Owner on request.
 - 4. Owner will control entrance of persons and vehicles related to Owner's operations.
- B. Personnel Identification:
 - 1. Provide identification badge to each person authorized to enter premises.
 - 2. Badge To Include: Personal photograph, name and employer.
 - 3. Maintain list of accredited persons, submit copy to Owner on request.
 - 4. Require return of badges at expiration of their employment on the Work.
- C. Restrictions:
 - 1. Do not allow cameras on site or photographs taken except by written approval of Owner.

1.11 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion

1.12 DUST CONTROL

- A. Execute Work by methods to minimize raising dust from construction operations.
- B. Provide positive means to prevent air-borne dust from dispersing into atmosphere.

1.13 NOISE CONTROL

- A. Provide methods, means, and facilities to minimize noise produced by construction operations.

1.14 POLLUTION CONTROL

- A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.
- B. Comply with pollution and environmental control requirements of authorities having jurisdiction.

1.15 GENERAL PROTECTION WORK

- A. Protect all existing buildings, paving, site improvements and utilities from damage by construction operations by temporary shoring, dust protection, including dust barriers and sprinkling, barricades, or other material or labor required whenever and wherever these may occur on-site or adjacent to the site.
- B. Tag and identify existing trees which are to remain within the project limits prior to start of Work. Protect all such existing trees at all times from damage by men and equipment. Repair all minor damage to existing trees by using a licensed tree surgeon or other personnel approved by the Architect-Engineer. Remove such trees permanently disfigured or killed, including roots from the site and replace each such tree or trees with one of equal value as established by the Architect-Engineer, or reimburse the Owner the cost of said replacement. The Architect-Engineer shall be the sole judge of the cost of said replacement. The Architect-Engineer shall be the sole judge of the condition of any tree. Provide watering and feeding as directed.
- C. Protect concrete floor slabs from construction damage. Permit no equipment on the slabs until the concrete has obtained its designed strength. In addition, provide wood planking for all equipment which could damage the slabs.
- D. Perform no work on concrete floors including stairs and landings that will detrimentally affect the finish or appearance of uncovered floors or the application of finish flooring where called for. Do not permit operations such as cutting or threading pipe, burring, or welding, paint mixing or clean up of painting in these areas. Do not permit scissor scaffolds, vehicles, etc. with black rubber tires without wrapping tires to prevent marking.
- E. Take special care to protect all surfaces from welding damage.
- F. Maintain extreme caution and care not to damage waterproof membranes. Do not drag equipment and material across the surface. Cover area with 1/4 in. or thicker plywood or other approved materials for protection. Constantly police the area, picking up all scraps of

material, discard fasteners, etc., which when stepped on, could damage the membrane and cause leaks.

- G. If any damage occurs to any of the above because of the construction operation, repair, replace and clean at no cost to Owner. At the discretion of Architect-Engineer, major damage shall not be repaired if results would not be satisfactory, but will require replacement.

1.16 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Remove underground installations to minimum depth of 2 feet. Grade site as indicated on Drawings.
- C. Clean and repair damage caused by installation or use of temporary work.
- D. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Products.
- B. Product delivery requirements.
- C. Product storage and handling requirements.
- D. Product options.

1.2 PRODUCTS

- A. Furnish products of qualified manufacturers suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.
- C. Furnish interchangeable components from same manufacturer for components being replaced.

1.3 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products in accordance with manufacturer's printed instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products in accordance with manufacturers' printed instructions.

Store with seals and labels intact and legible.

- B. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- C. For exterior storage of fabricated products, place on sloped supports above ground.
- D. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

- F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- G. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: products of one of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit request for substitution for any manufacturer not named in accordance with the following article.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01 73 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Substantial Completion.
- B. Closeout procedures.
- C. Final cleaning.
- D. Protecting installed construction.
- E. Project record documents.
- F. Product warranties and product bonds.

1.2 SUBSTANTIAL COMPLETION

- A. The Owner shall consider the Work to be Substantial Complete when the following requirements are met:
 - 1. General
 - a. Final endorsement of government agencies is granted (if applicable).
 - b. All temporary construction items (not required for completion of the punch list) such as temporary walls, temporary fencing, scaffolding, rigging, supports, strainers, blanks, etc. are removed.
 - c. Record Drawings (Section 01 73 00) are transmitted and approved by the Owner.
 - d. Product Warranties and Bonds are transmitted to the Owner.
 - 2. Electrical
 - a. All power, lighting, control equipment, circuitry, systems, etc., complete, cleaned, tested and functional. Meggar readings submitted and approved.
 - b. All protective devices set and functionally tested.
 - c. All lighting fixtures lamped per Contract Documents.
 - d. All equipment and devices have been identified per the Contract Documents.
 - e. At least one (1) set of as built drawings available for switching and troubleshooting. Sized as presented in original drawings.

1.3 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Inspector and Architect/Engineer's final review.
- B. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due. The following documents shall be transmitted with the Final Application for Payment:
 - 1. Statement that all punch list items have been corrected and accepted by the Owner's On Site Representative and Architect-Engineer.
 - 2. Release from the Workmen Compensation Fund ("Fondo").
 - 3. Contractor's Affidavit of Payment of Debts and Claims.
 - 4. Contractor's Affidavit of Release of Liens.
 - 5. Consent of Surety to Final Payment.
 - 6. Municipal Tax Certification.
 - 7. No Debt Certification from "ASUME", "CRIM", "Departamento de Hacienda", "Departamento del Trabajo" and "Fondo".
 - 8. Certification from all Insurances Companies.

1.4 FINAL CLEANING

- A. Contractor shall execute final cleaning prior to final project assessment.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.
- D. Clean site; sweep paved areas, rake clean landscaped surfaces.
- E. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.5 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

1.6 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Permits.
 - 5. Request for Information (RFI's).
 - 6. Meeting Minutes.
 - 7. Change Orders and other modifications to the Contract.
 - 8. Reviewed Shop Drawings, Product Data, and Samples.
 - 9. Manufacturer's instruction for assembly, installation, and adjusting.
 - 10. Police Record Check.
- B. Maintain a complete set of drawings and specifications tagged "Record Documents" on the job for the sole purpose of marking in all deviations from the original documents and noting accurately the actual locations of underground lines, stubouts, etc. This information shall be kept current and shall be inserted by Contractor and subcontractors under the observation of the Owner's On Site Representative. Each person making a change shall identify the change marked with the date and initials in a code and manner approved by the Contractor and Architect-Engineer. Progress billings will not be paid until the Owner's On Site Representative has reported to the Architect-Engineer that Record Documents are complete, and up to date as of the billing.
- C. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- D. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish first floor datum.

2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 4. Field changes of dimension and detail.
 5. Details not on original Contract drawings.
- E. Submit documents (hardcopy and digital format) to Architect/Engineer at Date of Substantial Completion.

1.7 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
- B. Execute and assemble transferable warranty documents and bonds from subcontractors, suppliers, and manufacturers.
- C. Verify documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.
- E. Include Table of Contents and assemble in three D side ring binder with durable plastic cover.
- F. Submit prior to final Application for Payment.
- G. Time of Submittals:
 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
 2. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing date of acceptance as beginning of warranty or bond period.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous demolition and construction waste.
 - 2. Recycling nonhazardous demolition and construction waste.
 - 3. Disposing of nonhazardous demolition and construction waste.

1.2 RELATED SECTIONS

- A. Sections on Divisions 2 to 31 for management and disposal requirements for construction waste.

1.3 REFERENCES

- A. Construction Permits and Land Uses Joint Regulation, Puerto Rico Planning Board, November 29, 2010
 - 1. Chapter 9 Permits Adjudicative Procedures
- B. Solid Wastes Reduction and Recycling Law, Law No. 400, October 8, 2000 as amended.

1.4 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.5 PERFORMANCE REQUIREMENTS

- A. General: Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including the following:
 - 1. Demolition Waste:
 - a. Concrete.
 - b. Concrete reinforcing steel.
 - c. Steel.
 - d. Asphalt Pavement.
 - 2. Construction Waste:
 - a. Lumber.
 - b. Wood sheet materials.
 - c. Metals.
 - d. Roofing.
 - e. Piping.
 - f. Electrical conduit.
 - g. Packaging: Salvage or recycle the following uncontaminated packaging materials:
 - 1) Paper.
 - 2) Cardboard.
 - 3) Boxes.
 - 4) Plastic sheet and film.
 - 5) Polystyrene packaging.
 - 6) Wood crates.
 - 7) Plastic pails.

1.6 ACTION SUBMITTALS

- A. Waste Management Plan: Submit plan within 7 days of date established for the Notice to Proceed.
- B. Waste Management Plan shall be in accordance with Solid Wastes Reduction and Recycling Law including but not limited to the following:
 - 1. Analysis of estimated job-site waste to be generated, including types and quantities of compostable, recyclable and salvageable materials.

2. Description of means and methods to achieve diversion requirement for compostable, recyclable, and salvageable materials, including those that may be donated to charitable organizations.
 3. Identification of recycling contractors and haulers proposed for use in the project and locations accepting construction waste materials or entities providing related services.
- B. Construction Waste Recycling Plan and approval certification from the Solid Wastes Management Authority (SWMA). Copy of the SWMA Recycling Plan Questionnaire and instructions are included as appendix.
1. Construction Wastes Recycling Plan shall be in accordance with SWMA regulations including but not limited to: SWMA Construction Wastes Recycling Plan Questionnaire.
 2. Site Plan with the location of all recycling facilities.
 3. Descriptive Memoir with a detailed description of all the recycling activities.
 4. List of recycling contractors to be utilized.
 5. List of waste landfill or recycling facility.
 6. Letter of Commitment
- C. Quarterly Reports shall be submitted to the SWMA. Copy of the quarterly report form is included as appendix.

1.7 INFORMATIONAL SUBMITTALS

- A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Use Form CWM-7 for construction waste and Form CWM-8 for demolition waste. Include the following information:
1. Waste Management Form for each delivery of waste diverted or sent to the landfill. See Attachment A for Waste Management Form.
 2. Material category.
 3. Generation point of waste.
 4. Total quantity of waste in tons.
 5. Quantity of waste salvaged, both estimated and actual in tons.
 6. Quantity of waste recycled, both estimated and actual in tons.
 7. Total quantity of waste recovered (salvaged plus recycled) in tons.
 8. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

- C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- F. Landfill Disposal Records: Indicate receipt and acceptance of waste by landfills facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Qualification Data: For waste management coordinator and refrigerant recovery technician.
- H. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.8 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements, as waste management coordinator.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Waste Management Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 Administrative Requirements. Review methods and procedures related to waste management including, but not limited to, the following:
 - 1. Review and discuss waste management plan including responsibilities of waste management coordinator.
 - 2. Review requirements for documenting quantities of each type of waste and its disposition.
 - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - 5. Review waste management requirements for each trade.

1.9 WASTE MANAGEMENT PLAN

- A. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate

quantities by weight or volume, but use same units of measure throughout waste management plan. Use Waste Management Form for each delivery of waste diverted or sent to the landfill. See Attachment A for Waste Management Form.

- B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the Work. Use Form CWM-1 for construction waste and Form CWM-2 for demolition waste. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Use Form CWM-3 for construction waste and Form CWM-4 for demolition waste. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 - 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 - 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 - 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 - 6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 - 1. Comply with operation, termination, and removal requirements in Section 01 50 00 - Temporary Facilities and Controls.
 - 2. Fill and keep record of each Waste Management Form used for each delivery of waste diverted or sent to the landfill. See Attachment A for Waste Management Form.

- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
 - 1. Distribute waste management plan to everyone concerned within three days of submittal return.
 - 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 - 2. Comply with Section 01 50 00 - Temporary Facilities and Controls for controlling dust and dirt, environmental protection, and noise control.
- E. Waste Management in Historic Zones or Areas: Hauling equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, by 12 inches or more.
- F. Records: Maintain onsite logs for each load of materials removed from site:
 - 1. Landfill Log: Include type of material, load (by weight or volume), recycling/hauling service, date accepted by landfill, and facility fee.
 - 2. Waste Diversion: Include type of material, load (by weight or volume), recycling/hauling service, date accepted by recycling service, or non-profit receiver and facility fee.
 - 3. Where comingling occurs prior to collection, track the amount of construction waste diverted from landfill based on the weight or volume of the removed co-mingled waste and provide the documentation of percentages of recycled material from the sorting facility.

3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 - 3. Store items in a secure area until installation.
 - 4. Protect items from damage during transport and storage.

5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- B. Salvaged Items for Sale and Donation: Not permitted on Project site. Items shall be removed from the project site prior to sale or donation.
- C. Salvaged Items for Owner's Use: Salvage items for Owner's use and handle as follows:
 6. Clean salvaged items.
 7. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 8. Store items in a secure area until delivery to Owner.
 9. Transport items to Owner's storage area on-site.
 10. Protect items from damage during transport and storage.
- D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.
- E. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- F. Plumbing Fixtures: Separate by type and size.
- G. Lighting Fixtures: Separate lamps by type and protect from breakage.
- H. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Receivers and Processors: List below is provided for information only; available recycling receivers and processors include, but are not limited to, the following:
 1. Refer to Attachment J: "Listado de Centros de Acopio e Instalaciones de Reciclaje – ADS (Autoridad de Desperdicios Sólidos – Puerto Rico)".
- C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.
- D. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- E. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
2. Inspect containers and bins for contamination and remove contaminated materials if found.
3. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
4. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
5. Store components off the ground and protect from the weather.
6. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

- A. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
 1. Pulverize concrete to maximum size.
 2. Crush concrete and screen for use as satisfactory soil for fill or subbase.
- B. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
 1. Pulverize masonry to maximum size.
 - a. Crush masonry and screen for use as general fill in Earthwork.
 2. Clean and stack undamaged, whole masonry units on wood pallets.
- C. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- D. Metals: Separate metals by type.
 1. Structural Steel: Stack members according to size, type of member, and length.
 2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- E. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
- F. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
- G. Metal Suspension System: Separate metal members including trim, and other metals from acoustical panels and tile and sort with other metals.
- H. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.

1. Store clean, dry carpet and pad in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- I. Carpet Tile: Remove debris, trash, and adhesive.
 1. Stack tile on pallet and store clean, dry carpet in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- J. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- K. Conduit: Reduce conduit to straight lengths and store by type and size.

3.5 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 2. Polystyrene Packaging: Separate and bag materials.
 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Wood Materials:
 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

3.6 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill acceptable to authorities having jurisdiction.
 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

3.7 DRAWINGS

- A. Refer to Recycling Plan Drawing.

3.8 ATTACHMENTS

- A. Waste Management Form.
- B. “Listado de Centros de Acopio e Instalaciones de Reciclaje – ADS (Autoridad de Desperdicios Sólidos – Puerto Rico)”.
- C. SWMA Recycling Plan Questionnaire and Instructions.
- D. SWMA quarterly Report Form.
- E. Example of Letter of Commitment.
- F. “Forma PGC-012” from Environmental Quality Board (EQB).

END OF SECTION

Waste Management Form

Minimum products that shall be recycled, reused or salvaged may include but are not limited to: Asphalt paving, concrete, concrete reinforcing steel, concrete masonry units, wood studs, plywood and oriented strand board, wood paneling, wood trim, structural and miscellaneous steel, rough hardware, roofing, insulation, doors and frames, door hardware, windows, glazing, metal studs, gypsum board, acoustical tile and panels, carpet, carpet pad, demountable partitions, equipment, cabinets, plumbing fixtures, piping, supports and hangers, valves, sprinklers, mechanical equipment, refrigerants, electrical conduit, copper wiring, lighting fixtures, lamps, ballasts, electrical devices, switchgear and panelboards, and transformers.

Date	Type of Waste	Diversion Method or Name of Landfill		Diverted Materials (Tons)	Land filled Materials (Tons)
		Method of Diversion (Recycler, Charitable Organization, Reuse Center, Nonprofit Organization or use on other Building)	Landfill		

A. Total Waste Diverted (Tons)	
B. Total Waste Sent to Landfill (Tons)	
C. Total Quantity of Waste (Tons): $C = A + B$	
D. Percent of Waste Diverted (Total Waste Diverted/Total Quantity of Waste): $D = (A/C) \times 100$	%

Vendor or Material Receiver Company Name: _____.

Vendor or Material Receiver Representative's Name (please print):

_____.

Vendor or Material Receiver Representative's Signature:

_____.

Lista de Centros de Acopio e Instalaciones de Reciclaje



Porque todos merecemos una segunda oportunidad...

Revisado: mayo 2009

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NOTA: El propósito de esta lista es informar a la ciudadanía sobre los centros de acopio y empresas de reciclaje que la Autoridad de Desperdicios Sólidos (ADS) ha identificado. La ADS no recomienda ni favorece a ninguna compañía de las aquí descritas y no garantiza que estas cuenten con el endoso de nuestra agencia. De existir un centro o empresa que no esté incluido en esta lista o para conocer más información sobre alguna de las empresas, favor contactar la Oficina de Desarrollo de Mercados e Industrias, al teléfono (787) 765-7575 extensión 4150.

Aceite de Motor Usado Procesadores

Alternative Fuels
Carretera Núm. 2 Km. 26.7
Sector Guarisco Barrio Espinosa
Dorado
722-8820 / 8821

Olein Recovery Corp.
(Instalación de reciclaje)
Carretera 901 Km. 2.7
Barrio Camino Nuevo
Yabucoa
893-0224

Rubén Martínez Oil Collection Services
Carretera 887 km. 0.4
Urb. Julio N. Matos Bo. Martín González
Carolina
769-1111

EMSCO
Carretera 865 Km. 2
Barrio Campanilla
Toa Baja
794-0090

Oil Energy System
256 Concordia
Petrowest Plaza Piso 2
Mayagüez
832-5757 / 5790

PR Used Oil Collectors
Bayamón
250-0203

Aceite de Motor Usado Transportistas

EMSCO
Toa Baja
794-1985

Induchem Services
Guaynago
720-8787

PR Safety Transport
Ponce
844-9018

Safety Kleen Environmental System
Manatí
854-1090

Ashland Chemical Company
Bayamón
501-7359

Transporte Sánchez
Caguas
746-3322

Oil Energy System
Mayagüez
834-0555

Oil & Tramp
Rio Piedras
261-5871

PR Used Oil Collectors
Bayamón
250-0203

Rubén Martínez Oil Collection Services
Carolina
769-1100
769-1111

Septix Waste, Inc.
Ponce
840-9090

Indutech Environmental
Caguas
743-6868

Ensco Caribe
Cataño
788-8000

Díaz Transport
Yauco
399-2470

Olein Recovery Corp.
Yabucoa
266-2103
893-0224

Aceite Vegetal (de cocina)

Edelcar
(Instalación de reciclaje)
Calle Central Esquina San Pablo
Area Industrial
Cataño
(787) 783-4747

Biodiesel & Fuels de Puerto Rico
Carretera # 169 Km. 2.0
Barrio Camarones
Guaynabo
(787) 708-9046

Baterías de Autos (plomo-ácido)

Almacen Caraballo
Parcelas Rodríguez Olmos
Arecibo
878-2375

Borinquen Metal Scrap
Carretera Núm. 1 Km. 39.8
Caguas
747-5850

El Gran Tadeo Mill
Carretera Núm. 110 Km. 4
Moca
252-1816

Borinquen Metal Scrap
Carretera Núm. 189 Km. 9
Gurabo
737-4900

Isla Bonita Metals
Calle Léster Lote 8
Carolina
750-4172

Santurce Metal & Bag
Avenida Las Palmas 1104
Santurce
724-7880

The Battery Recycling
(Instalación de reciclaje)
Carretera Núm. 2
Barrio Cambalache
Arecibo
880-5373

Environics
Carretera Núm.1 km. 39
Ubr. Villa Esperanza Calle Bonanza
Caguas
745-7891

Safety Kleen Environmental System
Carretera Núm. 2 Km. 51
Manatí
884-4452

WR Recycling
Carretera Núm. 103 km. 2.3 Bo. Bajura
Cabo Rojo
255-4772 / 538-1486

Biosólidos / Cienos (Lodos de plantas de tratamiento)

Caribbean Composting
(Instalación de reciclaje)
Carretera 681 Km. 3.4 Islote II
Arecibo
(787)879-3156

Autoridad de Acueductos y
Alcantarillados Planta de Composta
(Instalación de reciclaje)
Carretera 342 Km. 0.5 Bo. Sabanetas
Mayagüez
(787) 834-7540

R-4 Enterprises (solo transportan)
Carretera 1 Km. 113.6 Bo. Pastilla
Juana Díaz
(787) 783-7721

Cartón

Guaynabo Recycling
Carretera Núm. 1 Km. 21.7
Barrio Mamey
273-7639

Corporación Comunitaria Reciclaje del
Norte, PT
Carretera Núm. 2 Km. 88.1
Hatillo
262-0305

Industrial Fibers, Corp (IFCO)
Carretera 872 Km. 1.3
Rio Plantation
Bayamón
653-4300

Corporación Comunitaria Reciclaje del
Norte, PT
División Península de Cantera
Calle Santa Elena 2425
Península de Cantera Bo. Obrero
San Juan
726-04446

IFCO Recycling
Carretera Núm. 1Km. 32.2 (int)
Barrio Bairoa
Caguas
653-4300

GC Reciclaje, PT
Carretera Núm. 3 Km. 71..9
Punta Santiago
Humacao
852-9100

Cartonera de PR
Carretera Núm. 167 Km. 24.3
Bayamón
787-0675

WR Recycling
Carretera 103 Km. 2.3 Barrio Bajura
Cabo Rojo
255-4772
538-1486

Smurfit Fibras Internacionales
Barrio Puerto Viejo
Playa de Ponce
Ponce
843-7145

Multi Recycling Systems
Vater Industrial Park
Carolina
762-2740

Pronatura
Parque Industrial Luchetti
Calle C Lote 30
Bayamón
622-4252

Cartuchos de Impresora

Alternative Kartridge
Carretera 194 Ext. Fajardo Gardens
Fajardo
801-0631
630-7818

PR Imagine Solutions
Riveras del Río B-32 C11
Bayamón
449-7747

La Casa de las Tintas
Calle Villas Plaza Sol de Borinquén Suite
116
Ponce
284-3431

Facsimil Paper Connection
La Cerámica Industrial Park
Carolina
257-0808

Toner Plus of PR
Calle 2 B-34 Santa Mónica
Bayamón
299-7171

Toner Solutions, Inc.
Urb. Country Club 886 Calle Galápagos
San Juan
782-9481 / 375-7300 / 381-8889

Equipos electrónicos (Computadoras, TVs, DVD, VHS, entre otros)

Nova Terra
(procesador)
Carretera Núm. 655 Km. 1.0 Bo. Islote
Arecibo
817-4327

Environics Recycling
Carretera Núm. 1 Km. 39
Urb. Villa Esperanza Calle Bonanza
Caguas
745-7891

GC Reciclaje, Inc. PT
Carretera Núm. 3 Km. 71.9 Punta Santiago
Humacao
852-9100

Corporación Comunitaria Reciclaje del Norte, PT
Carretera Núm. 2 Km. 88.1
Hatillo
262-0305

Corporación Comunitaria Reciclaje del Norte, PT
División Península de Cantera
Avenida Eduardo Conde Esq. Villa Palmeras
Santurce
726-0444

River City Communications
cswiderski@rccom.net
889-4295

Caribbean Hi-Tech Recyclers
(procesador)
Carretera Núm. 332 Lote # 7
Zona Industrial Ciénaga
Guánica
821-0342 / 447-9316

Ecologic PR, Inc
Carretera Núm. 2 Km. 97.9 Bo. Cocos
Quebradillas
895-3100 / 385-3296

E-cycling
Carretera Núm. 924 Km. 2.8
Humacao
635-1405

R-4 Enterprises
Garden Hill Plaza MSC 309
1353 Carretera Núm. 19
Guaynabo
675-9600

Safety Kleen Environmental System
Carretera Núm. 2 Km. 51
Manatí
854-1090

Escombros Hormigón y Asfalto

Controlled Demolitions & Recycling
(hormigón)
Carretera Núm. 2 Km. 24.3
Barrio Espinosa
Dorado
883-4580

Toledo Engineering Corp
(hormigón)
Monte Atenas Office Park Suite 206
San Juan
283-8787

Betterecycling Corp
(Asfalto)
Carretera Núm. 1 Km. 83.4
Salinas
764-1000

Betterecycling
(Asfalto)
F-3 PR-2 Km. 139.6
Aguada
764-1000

Sunset Contractors & Recycling
(hormigón)
Arroyo
613-5505

Reliable Recycling
(hormigón)
Carretera Núm. 865 Km. 0.6
Toa Baja
794-0927

Betterecycling Corp
(Asfalto)
F-2 PR 887 Km. 0.4 Urb. Industrial Julio N. Matos
Carolina
764-1000

Lámparas Fluorescentes (bombillas)

Onyx Environmental Services
Turabo
Industrial Park
Gurabo
744-0070

Safety Kleen Environmental Systems
Carretera Núm. 2 Km. 51
Manatí
854-1090

Environics Recycling
Carretera Núm. 1 Km. 39
Urb. Villa Esperanza Calle Bonanza
Caguas
745-7891

Lamp Recycling
Calle 16 SO Núm. 1432 Caparra Terrace
Guaynabo
758-1930

Mattress

Comfort Mattress
Carretera Núm. 423 Km. 0.0
San Sebastián
280-3200 / 517-0614

Metales Ferrosos (Enseres, autos, varillas, entre otros)

Schnitzer PR DBA Ponce Resources
Carretera Núm. 3 Km. 156.4
Barrio Aguirre
Salinas
824-6133

Schnitzer PR DBA Ponce Resources
Carretera Núm. Km. 7.7
Camino Principal
Sector Industrial Corujo Hato Tejas
Bayamón
649-9138

Schnitzer PR DBA Ponce Resources
Barrio Bairoa Carretera Núm. 1 Km. 30
Caguas
824-6133

Materials Management
Km. 26.6 Carretera Núm. 2 Bo. Espinosa
Dorado
627-8286 / 627-8296

Multi Recycling Systems
Vater Industrial Park
Sabana Abajo
Carolina
762-2740

Nova Terra
Carretera Núm. 655 Km. 1 Bo. Islote
Arecibo
817-4327

Puerto Metal Recycling
Carretera Núm. 2 Km. 25.1 Bo. Espinosa
Dorado
270-1233

Castillo Metals
Carretera Núm. 3 Km. 71.1 Punta Santiago
Humacao
903-2544 / 676-8034

Dalra
Carretera Núm. 967 Km. 0.3 Sector las 3T
Rio Grande
809-5201

Homeca Recycling
Carretera Núm. 309 Km. 1.4
Hormigueros
849-1488

Homeca Recycling
Carretera Núm. 1 Km. 121.6 Mercedita
Ponce
290-5791

Homeca Recycling
Calle Comercio Núm. 1 Playa Ponce
Ponce
841-2223

Homeca Recycling
Carretera Núm. 183 Km. 4.5
Bo. Tomas de Castro
Caguas
903-0450

R-4 Enterprises
Carretera Núm. 1 Km. 113.6 Bo. Pastilla
Juana Díaz
675-9600

GC Reciclaje, PT
Carretera Núm. 3 Km. 71.9
Sector Industrial Punta Santiago
Humacao
852-9100

Scrapyard Metal Recycling
Carretera Núm. 2 Km. 19.7 Bo. Candelaria
Toa Baja
780-4706

Procesadora de Metales
Carretera Núm. 2 Km. 26.8 Calle Hucár
Sector Guarisco Bo. Espinosa
Dorado
270-6800

Metales no Ferrosos (cobre, aluminio, bronce, entre otros)

Almacen Caraballo
Parcelas Rodríguez Olmos
Arecibo
878-2375

El Gran Tadeo Mill
Carretera Núm. 110 Km. 4
Moca
252-1816

GC Reciclaje, PT
Carretera Núm. 3 Km. 71.9
Sector Industrial Punta Santiago
Humacao
852-9100

Schnitzer PR DBA Ponce Resources
Barrio Bairoa Carretera Núm. 1 Km. 30
Caguas
824-6133

Schnitzer PR DBA Ponce Resources
Carretera Núm. Km. 7.7
Camino Principal
Sector Industrial Corujo Hato Tejas
Bayamón
649-9138

Schnitzer PR DBA Ponce Resources
Carretera Núm. 3 Km. 156.4
Barrio Aguirre
Salinas
824-6133

Corporación Comunitaria Reciclaje del Norte, PT
División Península de Cantera
Avenida Eduardo Conde Esq. Villa Palmeras
Santurce
726-0444

Corporación Comunitaria Reciclaje del Norte, PT
Carretera Núm. 2 Km. 88.1
Hatillo
262-0305

Guayama Metals
Carretera Núm. 3 Km. 149.0 Bo. Aguirre
Salinas
239-0950

Borinquen Metal Scrap
Carretera Núm. 1 Km. 39.8
Caguas
747-5850

Borinquen Metal Scrap
Carretera Núm. 187 Km. 9
Gurabo
737-4900

Homeca Recycling
Calle Comercio Núm. 1 Playa Ponce
Ponce
841-2223

Homeca Recycling
Carretera Núm. 183 Km. 4.5
Bo. Tomas de Castro
Caguas
903-0450

Homeca Recycling
Carretera Núm. 1 Km. 121.6 Mercedita
Ponce
290-5791

Homeca Recycling
Carretera Núm. 309 Km. 1.4
Hormigueros
849-1488

Pronatura
Parque Industrial Luchetti
Calle C Lote 30
Bayamón
622-4252

Harry's Metal Recycling
Avenida Juan Rosado 415
Arecibo
878-2835

Nova Terra
Carretera Núm. 655 Km. 1 Bo. Islote
Arecibo
817-4327

Isla Bonita metals
Calle Lester Lote 8
Carolina
750-4172

Moncho Metal
Calle Nueva Palma 1056
Santurce
722-7491

WR Recycling
Carretera 103 Km. 2.3 Bo. Bajura
Cabo Rojo
255-4772

Taller de Reciclaje de Metales
Carretera Núm. 2 Km. 688
Vega Baja
807-7063

IFCO Recycling
Carretera Núm. 1Km. 32.2 (int)
Barrio Bairoa
Caguas
653-4300

Industrial Fibers, Corp (IFCO)
Carretera 872 Km. 1.3
Rio Plantation
Bayamón
653-4300

Guaynabo Recycling
Barrio Mamey
273-7639

La Villa Metals
251 Calle Villa
Ponce
842-2379

Southwest Metal Recovery
Carretera Núm. 121 km. 1.6 Sector La Pica
Sabana Grande
873-2610

Los Muchachos Metals
Carretera Núm. 2 km. 19.1
Toa Baja
241-2728

Pagán & Pagán Recycling
Carretera Núm. 2 Km. 35 Bo. Pueblo Nuevo
Vega Baja
858-6268

Multi Recycling Systems
Váter Industrial Park Sabana Abajo
Carolina
762-2740

Vega Aluminum Recycling
Carretera Núm. 119 Km. 8.8 Bo. Ciénaga
Camuy
566-5942

Santurce Metal & Bag
Avenida Las palmas 1104
Santurce
724-7880

26 Metal Recycling
Calle Pedro de Castro 705
Santurce
727-2751

Castillo Metals
Carretera Núm. 3 Km. 71.1 Punta Santiago
Humacao
903-2544 / 676-8034

La Virgencita Recycling
Carretera Núm. 2 Km. 22.4
Toa Baja
(939) 645-2454

Neumáticos desechados Procesadores

Ambrosiani Hermanos
(recauchadores)
Carretera Núm. 188 Km. 0.8 San Isidro
Canóvanas
725-3540

Correa Tire Recycling
(recauchadores)
Carretera Núm. 2 Km. 26.7 Bo. Espinosa
626-1111 / 883-4105 / 795-1111

REMA
(procesador)
Carretera Núm. 1 Km. 28.8
Barrio Rio Caña Abajo
Caguas
703-6798 / 703-0585

Embos
(recauchadores)
Carretera Núm.29 Km. 2.3
Dorado
794-1211

Integrated Waste Management
(procesador)
Barrio Tallaboa
Peñuelas
783-8630

Neumáticos Desechados Transportistas y Exportadores

Chris & John Recycler
(Exportador)
Aguada
868-7621

Technique Recycling
(Exportador)
Dorado
368-9719

CN Recycling
Camuy
409-4121

R-4 Enterprises
Guaynabo
675-9600

JR Recycling
Carolina
750-4972

K & V Tire Collector
Rio Grande
887-8139

PR Safety Transport
Ponce
884-9018

Prospero Tire Recycling
(Exportador)
Carolina
750-4015 / 960-2445

Terralina Environmental Co.
(Exportador)
San Juan
781-5583

N & E Transport
Guayama
864-1997

RDB Recycle
Luquillo
889-3209

Transportadores de Neumáticos
Guaynabo
790-0190

WL Caribbean Works
Juana Díaz
(939) 645-7581

El Nuevo Ciclo
Comerio
875-3574

BJ Transport
Salinas
617-7651

HL Transport Recycling
Guayama
308-4072

Perdí
Caguas
747-1662

Ski Service
Cayey
547-1985

Paletas de Madera

Caribbean Composting**
(Instalación de reciclaje)
Carretera 681 Km. 3.4 Islote II
Arecibo
(787)879-3156

Caribe Recycling**
(Instalación de reciclaje)
Carretera Núm. 1 Km. 26
Parque Industrial Quebrada Arenas
Rio Piedras
789-0110 / 789/0885

Héctor Caro Wooden Pallets
(Instalación de reciclaje)
Carretera 412 Km. 3
Rincón
823-2901

Caribe Pallets & Packaging
876 Barrio Las Cuevas
Trujillo Alto
755-3622

J Torres Wooden Pallets**
(Instalación de reciclaje)
Carretera 693 Km. 13.4 Int.
Finca 14 Local # 3
Vega alta
883-1178

Demolition Pallets**
(Instalación de reciclaje)
Bo. Guavate Sector Los Nieves Carr. 184 763
Km. 8.1 Int.
Cayey
649-9727 / 258-1872

**Autoridad de Acueductos y
Alcantarillados Planta de Composta**
(Instalación de reciclaje)
Carretera 342 Km. 0.5 Bo. Sabanetas
Mayagüez
(787) 834-7540

GC Reciclaje, PT
Carretera Núm. 3 Km. 71.9
Sector Industrial Punta Santiago
Humacao
852-9100

Puerto Rico Pallet Recycling**
(Instalación de reciclaje)
Barrio Espinosa Sector Laguna II
Dorado
270-2198

CC Pallets
Carretera 735 Int. Carretera Núm. 1
Barrio Montellanos
Cayey
751-6164

Nephesh Wood Recycling
Carretera Núm. 1 Km. 37.9
Barrio Bairoa
Caguas
961-2700 /2701 / 594-0691

Soil & Mulch**
(Instalación de reciclaje)
Bo. Garrochales Carretera 682 Km. 4.1
Barceloneta
846-3398 / 346-3780

** Compañías que colorean viruta (mulch)

Papel

Guaynabo Recycling
Carretera Núm. 1 Km. 21.7
Barrio Mamey
273-7639

Corporación Comunitaria Reciclaje del
Norte, PT
Carretera Núm. 2 Km. 88.1
Hatillo
262-0305

Industrial Fibers, Corp (IFCO)
Carretera 872 Km. 1.3
Rio Plantation
Bayamón
653-4300

Corporación Comunitaria Reciclaje del
Norte, PT
División Península de Cantera
Calle Santa Elena 2425
Península de Cantera Bo. Obrero
San Juan
726-04446

IFCO Recycling
Carretera Núm. 1Km. 32.2 (int)
Barrio Bairoa
Caguas
653-4300

GC Reciclaje, PT
Carretera Núm. 3 Km. 71..9
Punta Santiago
Humacao
852-9100

Cartonera de PR
Carretera Núm. 167 Km. 24.3
Bayamón
787-0675

WR Recycling
Carretera 103 Km. 2.3 Barrio Bajura
Cabo Rojo
255-4772
538-1486

Smurfit Fibras Internacionales
Barrio Puerto Viejo
Playa de Ponce
Ponce
843-7145

Multi Recycling Systems
Vater Industrial Park
Carolina
762-2740

Pronatura
Parque Industrial Luchetti
Calle C Lote 30
Bayamón
622-4252

Shred it
Calle Progreso Núm. 852
Esq. Perdón
Santurce
430-2030 / 994-2040

Periódico

Guaynabo Recycling
Carretera Núm. 1 Km. 21.7
Barrio Mamey
273-7639

Corporación Comunitaria Reciclaje del Norte, PT
Carretera Núm. 2 Km. 88.1
Hatillo
262-0305

Industrial Fibers, Corp (IFCO)
Carretera 872 Km. 1.3
Rio Plantation
Bayamón
653-4300

Corporación Comunitaria Reciclaje del Norte, PT
División Península de Cantera
Calle Santa Elena 2425
Península de Cantera Bo. Obrero
San Juan
726-04446

IFCO Recycling
Carretera Núm. 1Km. 32.2 (int)
Barrio Bairoa
Caguas
653-4300

GC Reciclaje, PT
Carretera Núm. 3 Km. 71..9
Punta Santiago
Humacao
852-9100

Cartonera de PR
Carretera Núm. 167 Km. 24.3
Bayamón
787-0675

WR Recycling
Carretera 103 Km. 2.3 Barrio Bajura
Cabo Rojo
255-4772
538-1486

Smurfit Fibras Internacionales
Barrio Puerto Viejo
Playa de Ponce
Ponce
843-7145

Multi Recycling Systems
Vater Industrial Park
Carolina
762-2740

Pronatura
Parque Industrial Luchetti
Calle C Lote 30
Bayamón
622-4252

Plástico

Ameriplast, Corp
(Instalación de reciclaje)
Cabo Caribe Ind. Park
Carretera 686 Km. 17.5
Vega Baja
858-1500

Plastic Home Products
Carretera Núm. 3 Km. 105.3
Maunabo
861-2220 / 340-0526

Ameriplast, Corp
Carretera Núm. 2 Antigua Central
Cambalache
Arecibo
858-1500

Jael Plastics
(Instalación de reciclaje)
Barrio Cerro Gordo Km 4.4
San Lorenzo
736-3433

WR Recycling
Carretera 103 Km. 2.3 Barrio Bajura
Cabo Rojo
255-4772
538-1486

Corporación Comunitaria Reciclaje del Norte, PT
División Península de Cantera
Calle Santa Elena 2425
Península de Cantera Bo. Obrero
San Juan
726-0446

Pronatura
Parque Industrial Luchetti
Calle C Lote 30
Bayamón
622-4252

Multi Recycling Systems
Vater Industrial Park
Carolina
762-2740

Guaynabo Recycling
Carretera Núm. 1 Km. 21.7
Barrio Mamey
273-7639

Corporación Comunitaria Reciclaje del Norte, PT
Carretera Núm. 2 Km. 88.1
Hatillo
262-0305

Plastex Corp.
Carretera Núm. 112 Km. 2.3
Parque Industrial Mora Guerrero
Isabela
272-8050 / 720-6527

GC Reciclaje, PT
Carretera Núm. 3 Km. 71..9
Punta Santiago
Humacao
852-9100

US Recycling
Carretera Núm. 3 Parque Industrial Palmas
Arroyo
485-7878

Las Marías Recycling
Carretera Núm. 119 Km. 19.2
Las Marías
827-3591

Multiplast Corp
Carretera Núm. 701 Km. 4
Salinas
824-4500

International Plastics Process
Carretera 5538 Urb. Industrial Felicia Final
Santa Isabel
646-4793

IFCO Recycling
Carretera Núm. 1Km. 32.2 (int)
Barrio Bairoa
Caguas
653-4300

Industrial Fibers, Corp (IFCO)
Carretera 872 Km. 1.3
Rio Plantation
Bayamón
653-4300

Residuos de Alimento (no procesados)

Asociación de Porcinocultores
(Instalación de reuso)
Carretera Núm. 375
Sector Javilla Bo. Quebradas
Yauco
649-2510

Residuos de Jardinería

**Caribbean Composting
(Instalación de reciclaje)
Carretera 681 Km. 3.4 Islote II
Arecibo
(787)879-3156**

**Autoridad de Acueductos y
Alcantarillados Planta de Composta
(Instalación de reciclaje)
Carretera 342 Km. 0.5 Bo. Sabanetas
Mayagüez
(787) 834-7540**

Agro Ambiente
(Instalación de reciclaje)
Carretera Núm. 10 Sector Los Caños
Barrio Tanamá
Arecibo
923-7517

Héctor Caro Wooden Pallets
Carretera 412 Km. 3
Rincón
823-2901

Nephesh Wood Recycling
Carretera Núm. 1 Km. 37.9
Barrio Bairoa
Caguas
961-2700/2701 /594-0691

Demolition Pallets
(Instalación de reciclaje)
Bo. Guavate Sector Los Nieves Carr. 184
763 Km. 8.1 Int.
Cayey
649-9727 / 258-1872

Bioreciclaje
(Instalación de reciclaje)
Carretera Núm. 2 Marginal Bo. Sabanetas
Antigua Central Igualdad
Mayagüez
464-9909

Composta Angelorum
(Instalación de reciclaje)
Villalba
(787) 461-0341

Vivero Hábitat
(Instalación de reciclaje)
Carretera Núm. 510 Km. 1.0
Barrio Sabana Llana
Juana Díaz
390-1862

Soil & Mulch
(Instalación de reciclaje)
Bo. Garrochales Carretera 682 Km. 4.1
Barceloneta
846-3398 / 346-3780

Vidrio

Guaynabo Recycling
Carretera Núm. 1 Km. 21.7
Barrio Mamey
273-7639

Industrial Fibers, Corp (IFCO)
Carretera 872 Km. 1.3
Rio Plantation
Bayamón
653-4300

IFCO Recycling
Carretera Núm. 1Km. 32.2 (int)
Barrio Bairoa
Caguas
653-4300

Corporación Comunitaria Reciclaje del Norte,
PT
Carretera Núm. 2 Km. 88.1
Hatillo
262-0305

Corporación Comunitaria Reciclaje del Norte,
PT
División Península de Cantera
Calle Santa Elena 2425
Península de Cantera Bo. Obrero
San Juan
726-04446

Comercial la Pino
(Instalación de uso de final)
Carretera Núm. 111 Km. 25
Barrio Piedras Blancas
San Sebastián
896-2075

Multi Recycling Systems
Vater Industrial Park
Carolina
762-2740

WR Recycling
Carretera 103 Km. 2.3 Barrio Bajura
Cabo Rojo
255-4772
538-1486

GC Reciclaje, PT
Carretera Núm. 3 Km. 71..9
Punta Santiago
Humacao
852-9100



Oficina de Desarrollo de Mercados e Industrias
(787) 765-7575 extensión 4150
mercados@ads.gobierno.pr

• AUTORIDAD DE
DESPERDICIOS SÓLIDOS



• Estado Libre Asociado de Puerto Rico

PLAN DE REDUCCIÓN, REUTILIZACIÓN Y RECICLAJE
PARA PROYECTOS DE CONSTRUCCIÓN

1. Identificación del Plan

- ☐ Primer Plan
☐ Revisión

2. Identifique la manera en la que presentará el Plan

- ☐ Plan Individual
☐ Plan Grupal

3. Información General

Nombre de la compañía	
Dirección física	
Dirección postal	
Teléfono	
Facsímil	
Correo Electrónico (E-mail)	
Página Cibernética (Web Site)	
Persona de mayor jerarquía	
Puesto de la persona de mayor jerarquía	
Cantidad de empleados	Tiempo regular _____ Tiempo parcial _____ Por contrato _____ Otros _____
Horario operacional	
Persona contacto (Encargada del Plan)	
Puesto de la persona contacto	
Teléfono de la persona contacto	
Facsímil de la persona contacto	

4. Ubicación de los Proyectos (Si aplica)

Pueblo	Dirección Física	Número de Empleados

5. Objetivos

1.	
2.	
3.	
4.	
5.	

6. Residuos de Construcción

Material ¹	Cantidad	Compañía de Recogido	Frecuencia de Recogido	Disposición/Mercado
Ej. hormigón	5 tons	Co. contratada	2 días consecutivos	Sitio que recibe

7. Residuos Sólidos Generados

Material	Cantidad	Compañía de Recogido	Frecuencia de Recogido	Lugar de Disposición
Ej. domésticos	300 lbs	Co. contratada	2 días/semana	Ubicación del SRS

¹ Otros ejemplos: asfalto, acero (varilla), aluminio (ventanas, puertas, etc.), material vegetativo

8. Residuos Especiales y Universales (Si aplica)

Material ²	Cantidad	Compañía de Recogido	Frecuencia de Recogido	Disposición/Mercado
Ej. neumáticos	160 lbs	Co. contratada	mensual	Sitio que recibe

9. Materiales Reciclables Recuperados

Material	Cantidad	Compañía de Recogido	Frecuencia de Recogido	Mercado
Papel	200 lbs	Co. Contratada	2 veces en semana	Sitio que recibe

10. Certificación de la persona encargada de completar el documento

Nombre	
Firma	
Fecha	

² Otros ejemplos: lámparas fluorescentes, baterías, termómetros, computadoras, lodos, placas, aceite de cocinar, aceite usado, cartuchos de tinta, plaguicidas, solventes

11. Anejo-Carta de Compromiso

PARA USO DE ADS		
Técnico Evaluador		
Acción Recomendada	<input type="checkbox"/> Certificar	<input type="checkbox"/> No Certificar
Comentarios		
Firma		
Fecha		

INFORME TRIMESTRAL DE REDUCCIÓN, REUTILIZACIÓN Y RECICLAJE
PARA PROYECTOS DE CONSTRUCCIÓN

1. Año: _____

2. Trimestres

- ☐ enero-marzo
☐ abril-junio
☐ julio-septiembre
☐ octubre-diciembre

3. Información General

Nombre de la compañía	
Dirección física	
Dirección postal	
Teléfono	
Facsímil	
Correo Electrónico (E-mail)	
Página Cibernética (Web Site)	
Persona de mayor jerarquía	
Puesto de la persona de mayor jerarquía	
Cantidad de empleados	Tiempo regular _____ Tiempo parcial _____ Por contrato _____ Otros _____
Horario operacional	
Persona contacto (Encargada del Plan)	
Puesto de la persona contacto	
Teléfono de la persona contacto	
Facsímil de la persona contacto	

4. Residuos de Construcción

Material ¹	Cantidad	Compañía de Recogido	Frecuencia de Recogido	Disposición/Mercado
Ej. hormigón	5 tons	Co. contratada	2 días consecutivos	Sitio que recibe

5. Residuos Sólidos Generados

Material	Cantidad	Compañía de Recogido	Frecuencia de Recogido	Lugar de Disposición
Ej. domésticos	150 lbs	Co. contratada	2 día/semana	Ubicación del SRS

6. Residuos Especiales y Universales (Si aplica)

Material ²	Cantidad	Compañía de Recogido	Frecuencia de Recogido	Disposición/Mercado
Ej. neumáticos	80 lbs	Co. contratada	mensual	Sitio que recibe

7. Materiales Reciclables Recuperados

Material	Cantidad	Compañía de Recogido	Frecuencia de Recogido	Mercado
Papel				
Vidrio				
Plástico				
Residuo Orgánico				
Aluminio				
Otros				

¹ Otros ejemplos: asfalto, acero (varilla), aluminio (ventanas, puertas, etc.), material vegetativo

² Otros ejemplos: lámparas fluorescentes, baterías, computadoras, lodos, placas, termómetros, aceite de cocinar, aceite usado, cartuchos de tinta, plaguicidas, solventes

8. Total de Residuos Sólidos Generados en el Trimestre

Total ³	
--------------------	--

9. Certificación de la persona encargada de completar el documento⁴

Nombre	
Firma	
Fecha	

PARA USO DE ADS		
Técnico Evaluador		
Acción Recomendada	<input type="checkbox"/> Certificar	<input type="checkbox"/> No Certificar
Comentarios		
Firma		
Fecha		

³ Para completar este inciso sume las cantidades reportadas en los incisos 4, 5, 6 y 7.

⁴ Al firmar el Informe la persona encargada certifica bajo pena ley lo siguiente: "Este documento se preparó bajo mi dirección o supervisión a tenor con un sistema diseñado para garantizar que personal cualificado recopila y evalúa adecuadamente la información sometida. Según mis consultas con la persona o personas responsables de recopilar la información, ésta es, según mi mejor conocimiento y creencia verdadera, exacta y completa. Estoy consciente que personal de la Autoridad de Desperdicios Sólidos (ADS) podrá visitar las facilidades y solicitar las certificaciones de las compañías que se llevan los materiales reciclables y de que existen penalidades significativas por someter información falsa, incluyendo la posibilidad de multas por violaciones a sabiendas".

CARTA DE COMPROMISO

Yo, _____ (nombre), _____ (posición), a cargo del proyecto
_____ (nombre del proyecto), me comprometo a implantar las
estrategias de reducción de desperdicios sólidos no peligrosos, reuso de materiales y
recuperación de materiales reciclables el Plan de Reducción, Reutilización y Reciclaje para el
Proyecto de Construcción que acompaña esta carta de compromiso. El predio donde se
construirá el proyecto _____ (nombre del proyecto) está ubicado en
_____ (dirección), _____
(municipio).

Para que así conste, firmo este documento el ____ de _____ de ____.

Contratista del Proyecto

(787) ____-____



GOBIERNO DE PUERTO RICO
OFICINA DEL GOBERNADOR
JUNTA DE CALIDAD AMBIENTAL



Área de Calidad de Agua

Forma PGC-012

MANIFIESTO PARA UNA ACTIVIDAD GENERADORA

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1. Proyecto:	2. Localización Física:
3. Dueño, Representante Autorizado u Operador:	5. Dirección Postal:
4. Teléfono:	
6. Número de Permiso General:	8. Tipo de Desperdicios:
7. Fecha de Expiración:	9. Cantidad en yds ³ :
10. Transportador:	12. Fecha de Expiración:
11. Número de Permiso:	13. Número de Tablilla:

Certificación de Entrega: Declaro bajo pena de perjurio que la información suministrada ha sido examinada, y la misma, a mi mejor entendimiento, es verdadera, precisa y completa.

Firma Original
Dueño, Representante Autorizado u Operador

Fecha

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14. Instalación de Disposición Final:	15. Permiso JCA:
	16. Teléfono:
17. Localización Física:	18. Dirección Postal:
19. Recibido por:	20. Puesto que Ocupa:

Certificación de Recibo: Declaro bajo pena de perjurio que la información suministrada ha sido examinada, y la misma, a mi mejor entendimiento, es verdadera, precisa y completa.

Firma

Fecha

INSTRUCCIONES

Este documento debe acompañar cada cargamento de desperdicios producidos durante la actividad generadora hasta su disposición final, según lo dispone la Regla 644, Inciso D (7) del Reglamento para el Manejo de los Desperdicios Sólidos No Peligrosos de la JCA.

1. El **Generador** origina el manifiesto, completando **todos** los encasillados correspondientes, firmará certificando que la información es correcta y entregará el manifiesto con la carga al Transportador.
2. El **Transportador** llevará la carga hasta la instalación de disposición final, donde entregará el manifiesto y la carga.
3. El encargado de la **Instalación de Disposición Final** recibe la carga, completa los encasillados correspondientes, firmará certificando haber recibido el cargamento y devolverá el manifiesto al Transportador.
4. El **Transportador** devolverá al Generador el manifiesto firmado como evidencia de haber depositado la carga.
5. El **Generador** mantendrá en el proyecto un registro de **todos** los manifiestos generados durante el desarrollo de la obra. **Al culminar el proyecto se entregará el original de este registro a la JCA para cerrar el expediente del caso.**

Original--JCA
Copia--Generador

Para cualquier duda sobre este documento, puede comunicarse con cualesquiera de las oficinas de la JCA:

Humacao 285-2818	Ponce 840-4070	Arecibo 880-0013	Mayagüez 833-1188	Guayama 864-0103
Área Metro 767-8181				

SECTION 01 98 00
PERMITS, FEES, AND NOTICES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Occupancy Permit (OGPe) for Entire Project:

1. Architect-Engineer will prepare all documentation to secure the "Occupancy Permit".
2. Contractor shall secure all endorsements from OGPe prior to the Date of Substantial Completion.
3. Contractor shall provide all certificates required for Occupancy Permit prior to the Date of Substantial Completion:
 - a. Master Plumber Certificate: Certificate of Plumbing Work.
 - b. "Perito Electricista": Certificate of Electrical Installation – "Colegio de Peritos Electricistas de Puerto Rico" Form.
4. Architect-Engineer shall secure Occupancy Permit.

B. Consolidated General Permit (OGPe)

1. Architect-Engineer will prepare and file documentation to OGPe.
2. Contractor shall implement and maintain at all times control measures at the job site based upon OGPe approved Permit.
 - a. If construction work is stopped or paused, control measures shall be implemented.
3. Architect-Engineer will file monthly reports to OGPe.
4. Contractor shall comply with all Permit general or special conditions.
5. Contractor shall provide all that is required to meet the Permit general or special conditions including, but not limited to:
 - a. Installation of the construction sign at the Project entrance, as described in the Permit.
 - b. Maintain a copy of the Permit and CES plan available at the workplace.
 - c. Sediment Control measures shall be replaced when 50% capacity is reach.
 - d. All solid waste (non-hazardous or contaminated) generated shall be disposed on a Sanitary Landfill and shall be accompanied by a "Manifiesto". This form will be provided by the Agency.

- e. Duly completed "Manifiestos" shall be secured on site and shall be submitted to Environmental Quality Board as soon as the authorized activities are completed.
 - f. Dust control system shall be implemented.
 - g. Reforestation plan shall be implemented.
6. Contractor shall complete the following, prior to the Final Payment Application:
- a. Remove control measures and waste containers.
 - b. Remove project signs.
 - c. Provide evidence that "Manifiestos" (original document) were submitted to the Environmental Quality Board.
- C. All connections changes, assessments, or inspection fees as may be imposed by any municipal agency or utility company shall be included in the Contract Sum and shall be the Contractor's responsibility.
- D. All permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the work which are customarily secured after execution of the Contract and which are legally required at the time the bids are received.
- E. The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the work.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION

SECTION 02 41 13

SELECTIVE SITE DEMOLITION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Examination of areas where demolition work will occur.
- B. Preparation of demolition areas.
- C. General demolition requirements.
- D. Protection.
- E. Dust and debris control.
- F. Fire protection measures.
- G. General demolition requirements.
- H. Specific selective site demolition procedures.
- I. Patching.
- J. Disposition of demolished material.
- K. Clean up of areas.

1.2 RELATED SECTIONS

- A. Division 01 - General Requirements.

1.3 REFERENCES

- A. ANSI A10.6 - Safety Requirements for Demolition Operations.
- B. NFPA 241 – Safeguarding Construction Alteration, and Demolition Operations.
- C. NFPA 5000 – Building Construction and Safety Code.
- D. OSHA 29 CFR 1926 - Construction Industry Subpart T: Demolition.

1.4 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.5 QUALITY ASSURANCE

- A. Section 01 40 00 – Quality Requirements.

- B. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.

1.6 PREDEMOLITION CONFERENCE

- A. Section 01 31 00 – Project Management and Coordination.
- B. Conduct conference at Project site to comply with contractual requirements. Review methods and procedures related to demolition including, but not limited to, the following:
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review and finalize demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 3. Review areas where existing construction is to remain and requires protection.

1.7 REGULATORY REQUIREMENTS

- A. Conform to applicable codes (federal, state and local) for demolition of structures, safety of adjacent structures, dust control, runoff control and disposal.
- B. Obtain required permits from Authorities Having Jurisdiction (AHJ).
- C. Notify Owner's on Site Representative before starting work of this section.
- D. Do not close or obstruct roadways, sidewalks or hydrants without permits.
- E. Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.
- F. Comply with hauling and disposal regulations of Authorities Having Jurisdiction (AHJ).

1.8 JOB CONDITIONS

- A. Section 01 73 00 – Execution.
- B. Owner will occupy portions of building immediately adjacent to demolition areas. Conduct demolition so Owner's operations will not be disrupted.
- C. Inspect project work and check conditions under which work will be done.
- D. The Owner assumes no responsibility for actual conditions of the work to be demolished. Conditions at the time of inspection for bidding purposes will be maintained by the Owner insofar as practicable, however, variations may occur due to the Owner's removal and storage operations prior to the commencement of the demolition work.
- E. The Contractor shall ensure coordination of his work with the Owner and all concerned so that all entrances and exits to adjacent areas of building remain accessible at all times.
- F. Proceeding with the work shall be evidence of the acceptance by the Contractor of job conditions.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 31 00 – Project Management and Coordination.
- B. Verify that utilities have been disconnected and capped.
- C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- D. Inventory and record the conditions of items to be removed and reinstalled.
- E. When unanticipated mechanical, electrical or structural elements that conflict with intended function or design area encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect-Engineer.
- F. Survey of Existing Conditions: Record existing conditions by use of measured drawings, preconstruction photographs or videotapes.
- G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during demolition operations.
- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/ electrical systems serving areas to be demolished.
 - 1. Owner or its authorized representative will arrange to shut off indicated services/systems when requested by Contractor.
 - 2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with demolition provide temporary services/systems that bypass area of demolition and that maintains continuity of services/systems to other parts of building.

3.3 PREPARATION

- A. Provide, erect, and maintain temporary barriers and security devices.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition areas and to and from occupied portions of building.
- C. Protect existing landscaping materials, appurtenances and structures which are not to be demolished.
- D. Mark location of utilities.

3.4 PROTECTION

- A. Traffic Control Signs: Where pedestrian and driver safety is endangered in the area of removal work, use traffic barricades with flashing lights. Notify Owner's On Site Representative prior to beginning work.
- B. Existing Work: Protect existing work which is to remain in place, be reused, or remain the property of the Owner. Repair items which are to remain and which are damaged during performance of the work to their original condition, or replace with new. Do not overload structural elements. Provide new supports and reinforcement for existing construction weakened by demolition or removal work. Repairs, reinforcement or structural replacement shall have Owner's approval.
- C. Facilities: Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities.

3.5 DUST AND DEBRIS CONTROL

- A. Prevent the spread of dust and debris to surrounding areas and avoid the creation of a nuisance or hazard in the surrounding area.
- B. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, flooding or pollution.
- C. Clean the work area daily. The Owner reserves the right to cleanup any condition that in the Owner's On Site Representative's judgment is detrimental to the Owner and shall charge the cleanup expense to the amount due to the Contractor.

3.6 FIRE PROTECTION DURING DEMOLITION PHASE

- A. Wherever a cutting torch or other equipment that might cause a fire is used, provide and maintain fire extinguishers nearby ready for immediate use. All possible users shall be instructed in use of fire extinguishers.
- B. Hydrants shall be accessible at all times. No debris shall be permitted to accumulate within a radius of 20 feet of fire hydrants.
- C. An overall demolition fire safety program shall be developed by Contractor. Essential items to be included but not limited to:
 - 1. Good housekeeping.
 - 2. On-site security.
 - 3. Installation of fire protection systems.
 - 4. Preservation of existing systems during demolition.
 - 5. Organization and training of an on-site fire brigade.
 - 6. A pre-fire plan developed with the Owner.

7. Protection of existing structures and equipment from exposure to fire resulting from alternation and demolition operations.

3.7 DEMOLITION – GENERAL REQUIREMENTS

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 1. Proceed with selective demolition systematically, from higher to lower level.
 2. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
 3. Maintain adequate ventilation when using cutting torches.
 4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 5. Dispose of demolished items and materials promptly.
 6. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
 7. Disconnect and cap designated utilities within demolition areas.
 8. Backfill areas excavated open pits and holes caused as a result of demolition.
 9. Rough grade and compact areas affected by demolition to maintain site grades and contours.
 10. Do not burn or bury materials on site. Leave site in clean condition.
- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.8 SPECIFIC SITE DEMOLITION PROCEDURES

- A. Asphalt Paving: Remove ground, scarified, or sawcut asphalt paving (surface and base courses) including aggregate base course down to bare substrate. Provide neat sawcut at limits of asphalt paving removal as indicated.
- B. Portland Cement Concrete Paving: Remove ground, scarified, or sawcut Portland cement concrete paving including aggregate base course down to bare substrate. Provide neat sawcuts at limits of Portland cement concrete paving as indicated.
- C. Sidewalks: Remove ground, scarified, or sawcut concrete sidewalks including crushed stone base down to bare substrate. Provide neat sawcuts at limits of concrete sidewalks as indicated.

- D. Curb: Sawcut concrete at ends of demolition section and remove segment of curb down to bare substrate. Provide neat sawcuts at limits of curb removal as indicated.
- E. Curb and Gutters: Sawcut concrete at ends of demolition sections and remove segment of curb and gutter down to bare substrate. Provide neat sawcuts at limits of curb and gutter removal as indicated.
- F. Concrete: Sawcut concrete along straight lines to a depth of not less than 2 inches. Make each cut in walls perpendicular to the face and in alignment with the cut in the opposite face. Break the remaining concrete provided that the broken area is concealed in the finished work, and the remaining concrete is sound. At locations where the broken face cannot be concealed, grind smooth or saw cut entirely through the concrete.
- G. Utilities: Remove existing utilities as indicated and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Owner's On Site Representative. Remove related equipment and deliver to a location within site premises in accordance with the instructions of the Owner's On Site Representative. If utility lines are encountered that are not shown on drawings, contact the Owner's On Site Representative for further instructions.

3.9 PATCHING

- A. Where removals leave holes and damaged surfaces exposed in the finished work, patch and repair these holes and damaged surfaces to match adjacent finished surfaces.
- B. Where new work is to be applied to existing surfaces, perform removals and patching in a manner to produce surfaces suitable for receiving new work.
- C. Finished surfaces of patched area shall be flush with the adjacent existing surface and shall match the existing adjacent surface as closely as possible as to texture and finish.

3.10 DISPOSITION OF DEMOLISHED MATERIALS

- A. General: Except for items or materials to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EQB (Environmental Quality Board) approved landfill.
- B. Do not allow demolished materials to accumulate on-site.
- C. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- D. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- E. Burning: Do not burn demolished materials.
- F. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.11 CLEANUP

- A. Remove and transport debris and rubbish in a manner that will prevent spillage on pavements, streets or adjacent areas.
- B. Clean up spillage from pavements, streets and adjacent areas.

C. Return adjacent areas to condition existing before demolition operations began.

END OF SECTION

SECTION 02 41 19

SELECTIVE STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Examination of areas and substrates
- B. Utility services and mechanical/electrical system
- C. Preparation
- D. General procedures of selection demolition
- E. Selective demolition procedures for specific materials
- F. Disposal of demolished materials
- G. Cleaning
- H. Schedule of selective demolition

1.2 RELATED SECTIONS

- A. Division 01 Sections – General Requirements

1.3 REFERENCES

- A. ANSI/ASSE A10.6 – Safety Requirements for Demolition Operations
- B. 40 CFR 82 – Protection of Stratospheric Ozone
- C. NFPA 241 – Safeguarding Construction, Alteration, and Demolition Operations
- D. NFPA 5000 – Building Construction and Safety Code
- E. National Association of Demolition Contractors – Demolition Safety Manual
- F. OSHA 29 CFR 1926 – Construction Industry Subpart T: Demolition

1.4 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.5 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.6 PREINSTALLATION MEETINGS

- A. Section 01 31 00 – Project Management and Coordination
- B. Predemolition Conference: Conduct conference at Project site.
 - 1. Retain subparagraphs below if additional requirements are necessary; revise as required.
 - 2. Inspect and discuss condition of construction to be selectively demolished.
 - 3. Review structural load limitations of existing structure.
 - 4. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 5. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 - 6. Review areas where existing construction is to remain and requires protection.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA and/or EQB notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 31 00 – Project Management and Coordination
- B. Verify that utilities have been disconnected and capped before starting selective demolition operations.

- C. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.
- D. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- E. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect-Engineer.
- F. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
 - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
- G. Survey of Existing Conditions: Record existing conditions by use of measured drawings or preconstruction photographs or preconstruction videotapes and templates.
 - 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
 - 2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
 - 1. Comply with requirements for existing services/systems interruptions specified in Section 01 10 00 - Summary.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
 - 2. Arrange to shut off indicated utilities with utility companies.
 - 3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 - 4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.

- b. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - c. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - d. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
 - e. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
 - f. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
- C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of Authorities Having Jurisdiction (AHJ).

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- 1. Comply with requirements for access and protection specified in Section 01 50 00 - Temporary Facilities and Controls.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
 - 5. Comply with requirements for temporary enclosures, dust control, and cooling specified in Section 01 50 00 -Temporary Facilities and Controls.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
- 1. Strengthen or add new supports when required during progress of selective demolition.

3.4 PROTECTION

- A. Existing Facilities: Protect adjacent walkways, loading docks, building entries, and other building facilities during demolition operations. Maintain exits from existing buildings.
- B. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent unexpected movement or collapse of construction being demolished.
 - 1. Strengthen or add new supports when required during progress of demolition.
- C. Existing Utilities to Remain: Maintain utility services to remain and protect from damage during demolition operations.
 - 1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
 - 2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities having jurisdiction.
 - a. Provide at least 72 hours' notice to occupants of affected buildings if shutdown of service is required during changeover.
- D. Temporary Protection: Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction and as indicated. Comply with requirements in Section 01 50 00 - Temporary Facilities and Controls.
 - 1. Protect adjacent buildings and facilities from damage due to demolition activities.
 - 2. Protect existing site improvements, appurtenances, and landscaping to remain.
 - 3. Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of trees to remain.
 - 4. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 5. Provide protection to ensure safe passage of people around building demolition area and to and from occupied portions of adjacent buildings and structures.
 - 6. Protect walls, windows, roofs, and other adjacent exterior construction that are to remain and that are exposed to building demolition operations.
 - 7. Erect and maintain dustproof partitions and temporary enclosures to limit dust, noise, and dirt migration to occupied portions of adjacent buildings.
- E. Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.5 DEMOLITION, GENERAL

- A. General: Partially demolish indicated buildings and site improvements as indicated in demolition drawings. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
 - 2. Maintain fire watch during and for at least 2-hours after flame-cutting operations.
 - 3. Maintain adequate ventilation when using cutting torches.
 - 4. Locate building demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
- B. Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- C. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed trafficways if required by authorities having jurisdiction.
- D. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
- E. Explosives: Use of explosives is not permitted.

3.6 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.

5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area.
5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

- D. Existing Items to Remain:** Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect-Engineer, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.7 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Doors and Frames and Similar Items:** Remove as units, complete with trim and accessories.
- B. Gypsum Board Partitions and Furring:** Remove panels and framing system including anchorage. Floor and wall holes shall be solidly filled with non-shrink grout (flush with floor and wall surfaces).
- C. Utilities and Related Equipment:** Remove existing utilities as indicated and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Owner's On Site Representative. Remove meters and related equipment and deliver to a location within Plant Premises in accordance with the instructions of the Owner's On Site Representative. If utility lines are encountered that are not shown on drawings, contact the Owner's On Site Representative for further instructions.

3.8 REPAIRS

- A. Promptly repair damage to adjacent buildings caused by demolition operations.

3.9 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.10 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.
 - 1. Clean roadways of debris caused by debris transport.

END OF SECTION

SECTION 03 11 13

CAST IN PLACE CONCRETE FORMING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Verification of lines, levels and centers.
- B. Installation of formwork.
- C. Application of form release agent.
- D. Form cleaning.
- E. Erection formwork tolerances.
- F. Field quality control.
- G. Shores and supports.
- H. Removal of forms.
- I. Re-use of forms.

1.2 RELATED SECTIONS

- A. Section 03 21 00 – Reinforcing Steel.
- B. Section 03 30 00 - Cast-in-Place Concrete.

1.3 REFERENCES

- A. ACI 117 – Tolerances for Concrete Construction and Materials.
- B. ACI 301 - Specifications for Structural Concrete for Buildings.
- C. ACI 318 – Building Code Requirements for Structural Concrete.
- D. ACI 347 – Guide to Formwork for Concrete.
- E. AF & PA – National Design Specifications for Wood Construction.
- F. APA/EWA PS1 – Voluntary Product Standard for Construction and Industrial Plywood.
- G. ASTM D 471 - Test Method for Rubber Property - Effect of Liquids.

1.4 DESIGN REQUIREMENTS

- A. Design, engineer and construct formwork, falsework, shoring and bracing in accordance with ACI 318 and ACI 347 to conform to design and applicable code requirements to achieve; resultant concrete shape, line and dimension as indicated on Drawings.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 347.

- B. Examine the conditions under which concrete formwork is to be erected. Do not proceed with the work until unsatisfactory conditions have been corrected.
- C. For wood products furnished for work of this Section, comply with AF & PA.
- D. Design formwork under direct supervision of a Professional Engineer licensed in the Commonwealth of Puerto Rico and experienced in design of this Work.
- E. Allowable Tolerances: Construct formwork to provide completed cast-in-place concrete surfaces complying with the tolerances specified in ACI 347.
- F. Before concrete placement check the lines and levels of erected formwork. Make corrections and adjustments to ensure proper size and locations of concrete members and stability of forming systems.
- G. During concrete placement check formwork and related supports to ensure that forms are not displaced and that completed work will be within specified tolerances.

1.6 SUBMITTALS

- A. Product Data: Provide data and installation instructions for proprietary materials including form coatings, ties and accessories.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Store forms off ground in ventilated and protected manner to prevent deterioration from moisture.

1.8 COORDINATION

- A. Coordinate this Section with other Sections of work which require attachment of components to formwork.
- B. If formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement, request instructions from Architect/Engineer before proceeding.

PART 2 - PRODUCTS

2.1 MATERIALS – WOOD FORMS

- A. Softwood Plywood: APA/EWA PS 1, C Grade, Group 2.
- B. Lumber Forms:
 - 1. Application: Use for edge forms and unexposed finish concrete.
 - 2. Boards: 6 inches or 8 inches in width, shiplapped or tongue and groove, "Standard" Grade Douglas Fir, conforming to WCLIB Standard Grading Rules for West Coast Lumber. Surface boards on four sides.
- C. Plywood Forms:
 - 1. Application: Use for exposed finish concrete.
 - 2. Forms: Conform to PS 1; full size 4 x 8 feet panels; each panel labeled with grade trademark of APA/EWA.

3. Plywood where "Smooth Finish" is required, as indicated on Drawings: APA/EWA "HD Overlay Plyform Structural I Exterior" grade, minimum of 3/4 inch thick.

2.2 MATERIALS - FORMWORK ACCESSORIES

- A. Form Ties: Factory fabricated removable or snap-off type, galvanized metal, adjustable length, cone type, with waterproofing washer, 1½-inch back break dimension, free of defects that could leave holes larger than one inch in concrete surface. Form ties fabricated on the project site and wire ties are not acceptable. Use stainless steel form ties for planned exposed tie hole locations, where shown on the drawings. When used, break-back point may be 1-inch from outer concrete surface.
- B. Spreaders: Standard, non-corrosive metal from clamp assembly, of type acting as spreaders and leaving no metal within 1 inch of concrete face. Wire ties, wood spreaders or through bolts are not permitted.
- C. Form Anchors and Hangers
 1. Do not use anchors and hangers exposed concrete leaving exposed metal at concrete surface.
 2. Symmetrically arrange hangers supporting forms from structural steel members to minimize twisting or rotation of members.
 3. Penetrations of structural steel members are not permitted.
- D. Form Release Agent: Commercially formulated form – release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatment of concrete surfaces. VOC Content: less than 300 g/L. Acceptable Manufacturers:
 1. Cresset Chemical Company; Product: Crete-Lense 20-VOC-Xtra Release Agent
 2. Nox-Crete Company; Product: Nox-Crete Form Coating.
- E. Corners: Chamfered, rigid plastic type; 3/4 inch by 45 degrees size; maximum possible lengths.
- F. Nails, Spikes, Lag Bolts, Through Bolts, and Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

2.3 MATERIALS - METAL INSERTS

- A. Use metal inserts for anchorage of materials or equipment to concrete construction as required for the work.
- B. Use adjustable wedge inserts of malleable cast iron, complete with bolts, nuts and washers; 3/4 inch diameter bolt size unless otherwise shown.
- C. Use threaded inserts of malleable cast iron, furnished complete with full-depth bolts; 3/4 inch diameter bolt size, unless otherwise shown.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify lines, levels and centers before proceeding with formwork. Verify dimensions agree with Drawings.
- B. When formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement before proceeding, request instructions from Architect-Engineer.

3.2 INSTALLATION – CONCRETE FORMS

- A. Earth Forms:
 - 1. Trench earth forms neatly, accurately, and at least 2 inches wider than footing widths indicated on Drawings.
 - 2. Trim sides and bottom of earth forms.
 - 3. Construct wood edge strips at top of each side of trench to secure reinforcing and prevent trench from sloughing.
 - 4. Form sides of footings where earth sloughs.
 - 5. Tamp earth forms firm and clean forms of debris and loose material before depositing concrete.
- B. Formwork - General:
 - 1. Provide top form for sloped surfaces steeper than 1.5 horizontal to 1 vertical to hold shape of concrete during placement, unless it can be demonstrated that top forms can be omitted.
 - 2. Construct forms to correct shape and dimensions, mortar-tight, braced, and of sufficient strength to maintain shape and position under imposed loads from construction operations.
 - 3. Camber forms where necessary to produce level finished soffits unless otherwise shown on Drawings.
 - 4. Carefully verify horizontal and vertical positions of forms. Correct misaligned or misplaced forms before placing concrete.
 - 5. Complete wedging and bracing before placing concrete.
- C. Forms for Smooth Finish Concrete:
 - 1. Use steel, plywood or lined board forms.
 - 2. Use clean and smooth plywood and form liners, uniform in size, and free from surface and edge damage capable of affecting resulting concrete finish.
 - 3. Install form lining with close-fitting square joints between separate sheets without springing into place.
 - 4. Use full size sheets of form lines and plywood wherever possible.

5. Tape joints to prevent protrusions in concrete.
 6. Use care in forming and stripping wood forms to protect corners and edges.
 7. Level and continue horizontal joints.
 8. Keep wood forms wet until stripped.
- D. Forms for Surfaces to Receive Membrane Waterproofing: Use plywood or steel forms. After erection of forms, tape form joints to prevent protrusions in concrete.
- E. Framing, Studding and Bracing:
1. Space studs at 16 inches on center maximum for boards and 12 inches on center maximum for plywood.
 2. Size framing, bracing, centering, and supporting members with sufficient strength to maintain shape and position under imposed loads from construction operations.
 3. Construct beam soffits of material minimum of 2 inches thick.
 4. Distribute bracing loads over base area on which bracing is erected.
 5. When placed on ground, protect against undermining, settlement or accidental impact.
- F. Erect formwork, shoring, and bracing to achieve design requirements, in accordance with requirements of ACI 301 and ACI 318.
- G. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
- H. Obtain Architect/Engineer's approval before framing openings in structural members not indicated on Drawings.
- I. Install chamfer strips on concrete exposed to view.
- J. Do not reuse wood formwork more than two (2) times for concrete surfaces to be exposed to view. Do not patch formwork.

3.3 APPLICATION - FORM RELEASE AGENT

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces are indicated to receive special finishes or applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.
- D. Reuse and Coating of Forms: Thoroughly clean forms and reapply form coating before each reuse. For exposed work, do not reuse forms with damaged faces or edges. Apply form coating to forms in accordance with manufacturer's specifications. Do not coat forms

for concrete indicated to receive “scored finish”. Apply form coatings before placing reinforcing steel.

3.4 INSTALLATION - INSERTS, EMBEDDED PARTS, AND OPENINGS

- A. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.
- B. Form Ties:
 - 1. Use sufficient strength and sufficient quantity to prevent spreading of forms.
 - 2. Place ties at least 1 inch away from finished surface of concrete.
 - 3. Leave inner rods in concrete when forms are stripped.
 - 4. Space form ties equidistant, symmetrical and aligned vertically and horizontally unless otherwise shown on Drawings.
- C. Arrangement: Arrange formwork to allow proper erection sequence and to permit form removal without damage to concrete.
- D. Construction Joints:
 - 1. Install surfaced pouring strip where construction joints intersect exposed surfaces to provide straight line at joints.
 - 2. Just prior to subsequent concrete placement, remove strip and tighten forms to conceal shrinkage.
 - 3. Show no overlapping of construction joints. Construct joints to present same appearance as butted plywood joints.
 - 4. Arrange joints in continuous line straight, true and sharp.
- E. Screeds:
 - 1. Set screeds and establish levels for tops of concrete slabs and levels for finish on slabs.
 - 2. Slope slabs to drain where required or as shown on Drawings.
 - 3. Before depositing concrete, remove debris from space to be occupied by concrete and thoroughly wet forms. Remove freestanding water.
- F. Scream Supports:
 - 1. For concrete over waterproof membranes and vapor barrier membranes, use cradle, pad or base type screed supports which will not puncture membrane.
 - 2. Staking through membrane is not being permitted.
- G. Cleanouts and Access Panels:
 - 1. Provide removable cleanout sections or access panels at bottoms of forms to permit inspection and effective cleaning of loose dirt, debris and waste material.

2. Clean forms and surfaces against which concrete is to be placed. Remove chips, saw dust and other debris. Thoroughly blow out forms with compressed air just before concrete is placed.

3.5 FORM CLEANING

- A. Clean and remove foreign matter within forms as erection proceeds.
- B. Clean formed cavities of debris prior to placing concrete.
- C. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

3.6 ERECTION FORMWORK TOLERANCES

- A. Construct formwork to maintain tolerances required by ACI 301.
- B. Tolerances: Construct formwork to produce completed concrete surfaces within construction tolerances specified in ACI 117.
- C. Camber slabs and beams 1/4 inch per 10 feet in accordance with ACI 301.

3.7 FIELD QUALITY CONTROL

- A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.
- B. Do not reuse wood formwork more than 2 times for concrete surfaces to be exposed to view. Do not patch formwork.
- C. Notify Architect-Engineer after placement of reinforcing steel in forms, but prior to placing concrete.
- D. Schedule concrete placement to permit formwork inspection before placing concrete.

3.8 SHORES AND SUPPORTS

- A. Comply with ACI 347 for shoring and reshoring and as herein specified.
- B. Shore floor directly under floor being placed, so that loads from construction above will transfer directly to these shores. Extend shores beyond minimums if required to ensure the proper distribution of loads throughout the structure.
- C. Remove and restore shores in a planned sequence to avoid damage to partially cured concrete. Locate and provide adequate reshoring to safely support the work without excessive stress or deflection. Keep restored shores in place a minimum of 15 days after placing upper tier, and longer if required, until the concrete has attained its required 28 day strength and heavy loads due to construction operations have been removed.

3.9 REMOVAL OF FORMS

- A. General: Formwork not supporting 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 degrees F for 24 hours after placing concrete, provided concrete is sufficiently hard to not

be damaged by form removal operation, and provided that curing and protection operations are maintained.

- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs and other structural elements may not be removed in less than 14 days, and not until concrete has attained design 28 day compressive strength.
 - 1. Determine potential compressive strength of in-place concrete by testing field-cured specimens, representative of the concrete location or members, as specified in 3E series Sections.
- C. Form facing material may be removed 4 days after placement, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

3.10 RE-USE OF FORMS

- A. Clean and repair surfaces of forms to be re-used in the work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable. Apply new form coating compound material to concrete contact surfaces as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close all joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces, except as acceptable to the Engineer.

END OF SECTION

SECTION 03 21 00
REINFORCING STEEL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Examination of substrates.
- B. Preparation of reinforcing steel.
- C. Placement of reinforcing steel bars including supports, ties, supports and accessories.
- D. Field quality control.

1.2 RELATED SECTIONS

- A. Section 03 30 00 - Cast-in-Place Concrete.

1.3 REFERENCES

- A. ACI 117 – Standard Tolerances for Concrete Construction and Materials.
- B. ACI 301 - Structural Concrete for Buildings.
- C. ACI 315 - Details and Detailing of Concrete Reinforcement.
- D. ACI 318 - Building Code Requirements For Reinforced Concrete.
- E. ACI SP-66 - American Concrete Institute - Detailing Manual.
- F. ASTM A82 - Cold Drawn Steel Wire for Concrete Reinforcement.
- G. ASTM A184 - Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
- H. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.
- I. ASTM A706 – Low Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
- J. ASTM E329 – Specifications for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction.
- K. CRSI (MSP-1) - Manual of Standard Practice.
- L. CRSI - Placing Reinforcing Bars.
- M. CRSI – Reinforcement: Anchorages, Lap Splices and Connections.
- N. CRSI 65 - Recommended Practice For Placing Bar Supports, Specifications and Nomenclature.

1.4 SUBMITTALS

- A. Mill Certificates (For Record Purposes Only): Manufacturer's records of chemical and physical properties of all heats of billet steel bars and as well, 5 copies of an affidavit for all material stating that the respective material furnished meets the requirements for the steel reinforcement specified.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with CRSI - Placing Reinforcing Bars, CRSI - Recommended Practice for Placing Bar Supports, and CRSI - Manual of Practice, ACI 301 and ACI SP-66. Maintain one copy of each document at the site.
- B. Provide Architect/Engineer with access to fabrication plant to facilitate inspection of reinforcement. Provide notification of commencement and duration of shop fabrication in sufficient time to allow inspection.
- C. Examine the substrate and the conditions under which concrete reinforcement is to be placed. Do not proceed with the work until unsatisfactory conditions have been corrected.
- D. Fabricating and Placing Tolerances: Reinforcing bars shall be fabricated in accordance with the standard fabricating tolerances in Figures 4 and 5 of ACI 315. Reinforcement shall be placed to the following tolerances:

	Tolerances, (inches)
Clear Distance	
To formed soffit	-1/4
To other formed surfaces	±1/4
Minimum Spacing Between Bars	-1/4
Clear Distance from Unformed Surface to Top Reinforcement	
Members 8 inches deep or less	±1/4
Members More than 8 inches deep but less than 24 inches deep	-1/4, +1/2
Members 24 inches deep or greater	-1/4, +1
Uniform Spacing of Bars, but the required number of bars shall not be reduced	±2
Uniform Spacing of stirrups and ties, but the required number of stirrups and ties shall not be reduced	±1
Longitudinal locations of bends and ends of reinforcement	
General	±2
Discontinuous ends of members	±1/2
Length of bar laps	±1 1/2
Embedded length	

Tolerances,
(inches)

For bar sizes No. 3 through 11

-1

1.6 DELIVERY, HANDLING AND STORAGE

- A. Deliver reinforcement to the project site bundled, tagged and marked. Use metal tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.
- B. Store concrete reinforcement materials at the site to prevent bending, coating with earth, oil or other material, or otherwise damaging the reinforcement.
- C. Rust, seams, surface irregularities, or mill scales shall not be cause for rejection, provided the weight, minimum dimensions, and height of deformation of a hand-wire-brushed test specimen are not less than the applicable ASTM specification requirements.

PART 2 - PRODUCTS

2.1 MATERIALS - REINFORCEMENT

- A. Reinforcing Steel: ASTM A615, 60 ksi yield grade; deformed billet steel bars, unfinished.

2.2 MATERIALS - SUPPORTS FOR REINFORCEMENT

- A. Tie Wire: Minimum 16 gage annealed type.
- B. Special Chairs, Bolsters, Bar Supports, Spacers Adjacent to Weather Exposed Concrete Surfaces: Plastic coated steel or Stainless steel type; size and shape as required. Comply with Class 1, maximum protection in CRSI Manual of Standard Practice.
- C. Do not use wood, brick, and any other unacceptable material.

2.3 FABRICATION

- A. Fabricate concrete reinforcing in accordance with CRSI Manual of Practice, ACI SP-66, ACI 318, and tolerances of ACI 117. In case of fabrication errors, do not rebend or straighten reinforcement in a manner that will injure or weaken the material.
- B. Form standard hooks for 180 degree bends, 90 degree bends, stirrup and tie hooks, and seismic hooks as indicated on Drawings and approved shop drawings.
- C. Form reinforcement bends with minimum diameters in accordance with ACI 318.
- D. Fabricate column reinforcement with offset bends at reinforcement splices.
- E. Form ties and stirrups from the following:
 - 1. For bars No. 10 and Smaller: No. 3 deformed bars.
 - 2. For bars No. 11 and Larger; No. 4 deformed bars.

- F. Welding of cross bars (tack welding) for assembly of reinforcement, supports, or embedded items is prohibited.
- G. All reinforcement shall be bent cold, and shall not be bent or straightened in a manner that will injure the material.
- H. Unacceptable Materials: Reinforcement with any of the following defects will not be permitted in the work:
 - 1. Bar lengths, depths and bends exceeding specified fabrication tolerances.
 - 2. Bend or kinks not indicated on drawings or approved shop drawings.
 - 3. Bars with reduced cross-section due to excessive rusting or other cause.
- I. Identification of Reinforcing Steel:
 - 1. Bundles of reinforcing bars shall be tagged showing quantity, grade, size, heat number and suitable identification to allow checking, sorting and placing.
- J. Locate reinforcement splices not indicated on Drawings, at point of minimum stress. Review location of splices with Architect-Engineer. Indicate these splices on shop drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify substrate is ready to receive reinforcing steel bars.
- B. Advise General Contractor of any deficiencies prior to beginning of installation of reinforcing steel bars.

3.2 PREPARATION – REINFORCING STEEL

- A. All reinforcement, at the time concrete is placed, shall be free of mud, oil, or other materials that may adversely affect or reduce the bond.
- B. Reinforcement with rust, mill scale, or a combination of both shall be considered satisfactory provided the minimum dimensions, weight, and height of deformations of a hand-wire brushed test specimen are not less than the applicable ASTM specification requirement.

3.3 PLACEMENT - REINFORCING STEEL

- A. General: Comply with the specified codes and standards, and Concrete Reinforcing Steel Institute (CRSI) recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement and supports, and as herein specified. Spacing of supports shall conform to ACI 315.
- B. Tolerances: Place, support, and fasten reinforcement as shown on the approved Shop Drawings. Do not exceed the placing tolerances specified in ACI 117 before concrete is placed. Placing tolerances shall not reduce cover requirements except as specified in ACI 117.

- C. Reinforcement Relocation: When necessary to move reinforcement beyond the specified placing tolerances to avoid interference with other reinforcement, conduits, or embedded items, submit the resulting arrangement of reinforcement for acceptance.
- D. Reinforcement Supports: Place reinforcement supported from the ground or mud mat on precast concrete reinforcement supports (4 inches square). Place non-coated reinforcement supported from formwork on reinforcement supports made of concrete, metal or plastic. Provide sufficient numbers of supports and of strength to carry reinforcement. Do not place reinforcement bars more than 2 inches beyond the last leg of any continuous bar support. Do not use supports for runways for concrete conveying equipment and similar construction loads.
- E. Splices: Make splices as indicated in the Project Drawings or as approved on the placing drawings. Provide standard reinforcement splices by lapping ends, placing bars in contact and tightly wire tying. Comply with requirements of ACI 318 for minimum lap of spliced bars.
- F. Concrete Cover:
 - 1. Place reinforcement to obtain the minimum coverages for concrete protection. Arrange, space, and securely tie bars and bar supports together with 16 gage wire to hold reinforcement accurately in position during concrete placement operations. Set wire ties so that twisted ends are directed away from exposed concrete surfaces. Minimum concrete cover for reinforcement, except for extremely corrosive atmosphere, other severe exposures, or fire protection, shall be as follows:

	<u>Minimum Cover</u> <u>(inches)</u>
Slab	
Top and bottom bars for dry conditions	
#11 bars and smaller	3/4
Formed concrete surfaces exposed to earth, water or weather, and over or in contact with sewage and for bottoms bearing on work mat, or slabs supporting earth cover	
#5 bars or smaller	1½
#6 through #18 bars	2
Beams and Columns, Formed	
For dry conditions	
Stirrups and ties	1½
Principal reinforcement	2
Exposed to earth, water, sewage, or weather	
Stirrups and ties	2
Principal reinforcement	2½

	<u>Minimum Cover</u> <u>(inches)</u>
Walls	
For dry conditions	
#11 bars and smaller	$\frac{3}{4}$
Formed concrete surfaces exposed to earth, water, sewage, weather, or in contact with ground	2
Footings and Base Slabs	
At formed surfaces and bottoms bearing on concrete work mat	2
At unformed surfaces and bottoms in contact with earth	3
Top of footings	
#5 bars and smaller	$1\frac{1}{2}$
#6 through #18 bars	2

2. For bundles of bars, minimum concrete cover shall be equal to the equivalent diameter of the bundle but need not be greater than 2 inches; except the minimum cover shall not be less than specified above. The equivalent diameter of the bundle shall be based on a single bar of a diameter derived from the equivalent total area.
 3. Tolerances on minimum cover shall meet the requirements of ACI 117.
- G. Field Cutting of Reinforcement: Reinforcement shall not be cut in the field except when specifically permitted in writing by the Architect-Engineer. Flame torch cutting of bars is strictly prohibited.
- H. Reinforcement through Expansion Joint: Do not continue reinforcement or other embedded metal items bonded to concrete through expansion joints. Dowels bonded on only one side of a joint and waterstop may extend through the joint.
- I. Bending or straightening of bars partially embedded in concrete is prohibited.

3.4 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed by the testing laboratory in accordance with ACI 318.
- B. Provide free access to Work and cooperate with appointed firms.
- C. Reinforcement Inspection:
1. Placement Acceptance: Specified and ACI 318 material requirements and specified placement tolerances.
 2. Periodic Placement Inspection: Inspect for correct materials, fabrication, sizes, locations, spacing, concrete cover and splicing.

END OF SECTION

SECTION 03 30 00
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Pre-placement inspection.
- B. Preparation of forms and previously placed concrete surfaces.
- C. Installation of joints.
- D. Placement of concrete.
- E. Finishing of formed surfaces.
- F. Miscellaneous concrete items.
- G. Curing and protection.
- H. Concrete surface repairs.
- I. Field quality control.
- J. Attachments.

1.2 RELATED SECTIONS

- A. Section 03 11 13 - Cast-in-Place Concrete Forming.
- B. Section 03 21 00 – Reinforcing Steel.

1.3 REFERENCES

- A. AASHTO M182 - Burlap Cloth Made from Jute or Kenaf.
- B. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials.
- C. ACI 211 - Recommended Practice for Selecting Proportions for Normal Weight Concrete.
- D. ACI 301 - Specifications for Structural Concrete.
- E. ACI 304 - Measuring, Mixing, Transporting and Placing Concrete.
- F. ACI 305 - Hot Weather Concreting.
- G. ACI 308.1 – Curing Concrete.
- H. ACI 309 - Guide for Consolidation of Concrete.
- I. ACI 318 - Building Code Requirements for Reinforced Concrete.

- J. ACI SP15 – Field Reference Manual.
- K. ASTM C31 – Standard Practice for Making and Curing Concrete Test Specimens in Field.
- L. ASTM C33 - Concrete Aggregates.
- M. ASTM C39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- N. ASTM C42 - Standard Test Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
- O. ASTM C94 - Ready-Mixed Concrete.
- P. ASTM C143 - Standard Test Method for Slump of Hydraulic Cement Concrete.
- Q. ASTM C150 - Portland Cement.
- R. ASTM C171 – Sheet Materials for Curing Concrete.
- S. ASTM C172 – Standard Practice for Sampling Freshly Mixed Concrete.
- T. ASTM C192 - Standard Practice for Method of Making and Curing Concrete Test Specimens in the Laboratory.
- U. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.
- V. ASTM C494 - Chemical Admixtures for Concrete.
- W. ASTM C881 - Epoxy-Resin-Base Bonding Systems for Concrete.
- X. ASTM C1059 - Latex Agents for Bonding Fresh to Hardened Concrete.
- Y. ASTM C1064 – Standard Test Methods for Temperature of Freshly Mixed Portland Cement Concrete.
- Z. ASTM C1077 - Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
- AA. ASTM C1315 – Liquid Membrane Forming compounds Having Special properties for curing and Sealing Concrete.
- BB. ASTM D994 – Preformed Expansion Joint Filler for Concrete (Bituminous).
- CC. ASTM D1752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- DD. ASTM E329 - Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

1.4 QUALITY ASSURANCE

- A. Field Reference Manual: Have available at the Contractor's project field office a copy of ACI SP-15 "Specifications for Structural Concrete for Buildings with Selected ACI and ASTM References".
- B. Conform to ACI 305 when concreting during hot weather.
- C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturing's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.
- D. Concrete Testing:
 - 1. Materials and installed work may require testing and retesting, as directed by the Architect-Engineer, at any time during the progress of the work. Allow free access to material stockpiles and facilities at all times. Tests, not specifically indicated to be done at the Owner's expense, including the retesting of rejected materials and installed work, shall be done at the Contractor's expense.
- E. Tests for Concrete Materials:
 - 1. For normal weight concrete, test aggregates by the methods of sampling and testing of ASTM C33.
 - 2. For portland cement, sample the cement and determine the properties by the methods of test of ASTM C150.
 - 3. Submit written reports to the Architect-Engineer, for each material sampled and tested, prior to the start of work. Provide the project identifications name and number, date of report, name of contractor, name of concrete testing service, source of concrete aggregates, material manufacturer and brand name for manufactured materials, values specified in the referenced specification for each material, and test results. Indicate whether or not material is acceptable for intended use.

1.5 SUBMITTALS

- A. Concrete Mix Design: Submit concrete mix design for each strength and type of concrete. Each mix design submittal shall include the following:
 - 1. Location of structure where concrete mix will be used, ie, foundations, walls, columns, beams, elevated slabs, stairs, etc.
 - 2. Dosage of each component (cement, fly ash, water, fine aggregate, coarse aggregate, admixtures) of the concrete mix design.
 - 3. Data on trial mixture and certified laboratory test results of trial mixture.
 - 4. Thirty (30) consecutive test results of the mix design used from a previous recorded project in accordance with ACI 301, Method 2.

5. Cement certification including type, class, producer's names and plant location. Cement will be accepted on the basis of a manufacturer's mill certificate that the cement furnished meets the physical and chemical characteristics of ASTM C150. The Architect-Engineer reserves the right, however, to sample and conduct such tests on cement as he deems necessary for compliance with the requirements of these specifications.
 6. Gradation analysis of coarse aggregate in accordance with ASTM C33 including pit or quarry locations, producer's name, gradations, specific gravities and weight retained per seive.
 7. Gradation analysis of fine aggregate in accordance with ASTM C33 including pit or quarry locations, producer's name, gradations, specific gravity and weight retained per sieve.
 8. Data on admixtures including ASTM C494 classification, brand, manufacturer. Admixtures shall be the product of one manufacturer.
 9. Indicate amounts of mixing water to be withheld for later addition at Project site.
 10. Fine aggregate content.
 11. Mortar fraction.
- B. Manufacturer's Data: Submit complete product data and installation instructions of concrete bonding agents, premolded joint filler, semirigid joint filler, curing materials and any other type of product indicated.
- C. Test and Inspection Reports: Testing agencies shall report results of concrete and concrete material tests and inspections performed during the course of the Work to the Owner, Architect-Engineer, Contractor, and the Concrete Supplier. Strength test reports shall include locations in the Work where the batch represented by the test was deposited and the batch ticket number. Reports of strength tests shall include detailed information of storage and curing of specimens prior to testing. Final reports shall be provided within seven (7) days of test completion.
- D. Delivery Tickets: The manufacturer of the concrete shall furnish to Contractor with each batch of concrete before unloading at the site, a delivery ticket on which is printed, stamped, or written, information concerning said concrete as follows:
1. Name of ready-mix company and batch plant, or batch plant number.
 2. Serial number of ticket.
 3. Date.
 4. Truck number.
 5. Name of purchaser.
 6. Specific designation of concrete in conformance with that employed in job specifications.

7. Amount of concrete in cubic yards.
 8. Time loaded or of first mixing of cement and aggregates.
 9. Water added by receiver of concrete and his initials.
- E. Batch Computer Printouts: The manufacturer of the concrete shall furnish to Contractor with each batch of concrete before unloading at the site, a batch printout with the following information:
1. Reading of revolution counter at the first addition of water.
 2. Type, brand, and amount of cement.
 3. Type, brand, and amount of admixtures.
 4. Source and amount of each metered or weighted water.
 5. Information necessary to calculate the total mixing of water. Total mixing water includes free water on aggregates, batch water (metered or weighted) including wash water retained in the mixing drum, and water added by the truck operator from the mixer tank.
 6. Maximum size of aggregate.
 7. Mass (amount) of fine and coarse aggregate.
 8. Ingredients certified as being previously approved.
 9. Signature or initials of producer's representative.
- F. Change of Materials: When brand, type, size, or source of cementitious materials, aggregates, water, or admixtures are proposed to be changed, new field data or data from new trial mixtures or evidence which indicates that the change will not adversely affect the relevant properties of the concrete shall be submitted for acceptance prior to use in concrete.

1.6 DELIVERY AND STORAGE

- A. Do not deliver concrete until forms, reinforcement, embedded items, sleeves, and chamfer strips are in place, ready for placement, and approved by the Owner's on Site Representative and/or Architect/Engineer.
- B. ACI 301 for job site storage of concrete aggregates.

PART 2 - PRODUCTS

2.1 MATERIALS - CONCRETE

- A. Portland Cement: ASTM C150, Type I, gray. It shall be of the same brand and type, and from the same plant of manufacture as the portland cement used in the concrete represented by the submitted field test data or used in the trial mixtures. Acceptable manufacturers:

1. Cemento San Juan – Italcementi Group.
2. Cemex.

2.2 MATERIAL – AGGREGATES

- A. Normal-Weight Aggregates: ASTM C33 unless otherwise specified. When a single size or a combination of two or more sizes of coarse aggregates are used, the final gradation shall conform to the grading requirements of ASTM C33 unless otherwise specified or permitted. Aggregates used in concrete shall be obtained from the same sources and have the same size ranges as the aggregates used in the concrete represented by submitted historical data, or used in trial mixtures.
1. Fine Aggregate: Clean, sharp, natural sand free from loam, clay, lumps or other deleterious substances. The use of manufactured sand is not permitted.

<u>Sieve Designation</u>	<u>Percent Passing</u>
3/8 inch	100
No. 4	95 to 100
No. 8	80 to 100
No. 16	50 to 85
No. 30	25 to 60
No. 50	5 to 30
No. 100	0 to 10

The fine aggregate shall have not more than 45 percent passing any sieve and retained on the next consecutive sieve of those shown above, and its fineness modulus shall be not less than 2.3 nor more than 3.1.

2. Coarse Aggregate: Size Number 5; clean, uncoated, processed aggregate containing no clay, mud, loam or foreign matter. Nominal maximum size of coarse aggregate shall not exceed three-fourths of the minimum clear spacing between reinforcing bars, one-fifth of the narrowest dimension between sides of forms, or one-third of the thickness of slabs or toppings.

<u>Sieve Designation</u>	<u>Percent Passing</u>
1½ inch	100
1 inch	90 to 100
¾ inch	20 to 55
½ inch	0 to 10
3/8 inch	0 to 5

2.3 MATERIAL – WATER

- A. Water: Clean, fresh, drinkable meeting the requirements of ASTM C94.

2.4 MATERIALS - ADMIXTURES

- A. Provide admixtures produced by established reputable manufacturers and use in compliance with the manufacturer's printed directions. Do not use admixtures which have not been incorporated and tested in the accepted mixes, unless otherwise authorized in writing by the Architect-Engineer.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C494, Type A.
 - 2. Retarding Admixture: ASTM C494, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C494, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C494, Type F.
 - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C494, Type G.
- C. Calcium Chloride: Use of calcium chloride in any form is strictly prohibited.

2.5 MATERIALS – SEMIRIGID JOINT FILLERS

- A. Semirigid Joint Filler (Exposed Slab on Grade): ASTM D2240; two-component, semi-rigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80.
 - 1. Metzger/McGuire Co.; Product: MM-80.

2.6 MATERIALS – JOINT FILLERS AND SEALANTS

- A. Premolded Joint Filler: ASTM D1752, Type I (sponge rubber). Products complying with these requirements are:
 - 1. Horn Darktone Sponge Rubber; A.C. Horn Co.
 - 2. Sponge Rubber Expansion Joint Filler; W.R. Meadows Co.
 - 3. Concrete Grey SBR Sponge; Williams Products Co.
- B. Joint Sealants: Refer to Section 07 92 00.

2.7 MATERIALS - BONDING AGENTS

- A. Chemical Bonding Agent: Film-forming, suitable for brush or spray application complying with MIL-B-19235. Products offered by manufacturers to comply with the requirements for latex type concrete bonding agents include the following:
 - 1. Polyweld; Chem-Master Corp.
 - 2. Daraweld-PBA; W.R. Grace

3. Weldcrete; Larsen Products Corp.
 4. Euroweld; Euclid Chemical
- B. Epoxy-Resin Bonding Agent: Two-component, mineral-filled, epoxy-polysulphide polymer complying with ASTM C881, Type I or Type II, Grade A. Products offered by manufacturers to comply with the requirements for epoxy-resin type grout include the following:
1. Colma Fix; Sika Chemical Corp.
 2. Epoxite; W.R. Grace.
 3. Euco Epoxy; Euclid Chemical Co.
 4. Polytops; Chem-Masters Corp.
 5. Sonobond; Sonneborn-Contech

2.8 MATERIALS - CURING

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete. Acceptable manufacturers and products are:
1. Burke by Edoco; BurkeFilm.
 2. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; Aquafilm.
 3. Euclid Chemical Company (The); Eucobar.
 4. L&M Construction Chemicals, Inc.; E-Con.
 5. Vexcon Chemicals, Inc.; Certi-Vex EnvioAssist.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating. Acceptable manufacturers and products are:
1. Burke by Edoco; Aqua Resin Cure.
 2. Conspec Marketing & Manufacturing Co., Inc., a Dayton Superior Company; W.B. Resin Cure.
 3. Euclid Chemical Company (The); Kurez DR VOX.
 4. L&M Construction Chemicals, Inc.; L&M Cure R.

5. Nox-Crete Products Group, Kinsman Corporation; Resin Cure E.
6. Vexcon Chemicals, Inc.; Certi-Vex Enviocure 100.

2.9 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Limit water-soluble, chloride-ion content in hardened concrete to the following:
 1. Reinforced Concrete Exposed to Chloride: 0.15 percent by weight of cement.
 2. Reinforced Concrete that will not be Dry or Protected from Moisture: 0.30 percent by weight of cement.
 3. Reinforced Concrete that will be Dry or Protected from Moisture: 1.00 percent by weight of cement.
- C. Admixtures: Use admixtures according to manufacturer's written instructions.
 1. Use water-reducing, high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 3. Use water-reducing admixture in pumped concrete, and concrete with a water-cementitious materials ratio below 0.50.
- D. Ready Mixed Concrete: Measure, batch mix and deliver concrete in conformance with ASTM C94, and furnish batch ticket information.
 1. When air temperature is between 85 and 90 degrees F, reduce mixing and delivery time from 1½ hours to 75 minutes.
 2. When air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes.
- E. Cement Material Content: Adequate for concrete to satisfy the specified requirements for strength, water-cement ratio and finishing ability.
 1. For concrete used in elevated floors, cement content shall not be less than indicated on Table 4.2.2.1 of ACI 301.

2.10 PROPORTIONING AND DESIGN OF MIXES

- A. Past Field Experience: Proportions of ingredients for each class of concrete shall be established on the actual field experience of the ready-mix producer with the materials proposed to be employed in the work. Standard deviations shall be determined by 30

consecutive tests (or two groups of tests totaling 30 or more). Average strength used for electing proportions shall exceed the specified strength by at least the requirements of ACI 301.

- B. Trial Mixes: When the ready-mix producer does not have a record of past performance, the combination of materials and the proportions selected shall be selected from trial mixes having proportions and consistencies suitable for the work based on ACI 211, using at least three different water-cement ratios which will produce a range of strengths encompassing those required. Average strength required shall be at least 1200 psi greater than the specified strength. For each water cement ratio at least 3 test cylinders shall be made and cured in accordance with ASTM C192. These cylinders shall be tested at 28 days in accordance with ASTM C39. From these results the proportions of the ingredients shall be selected. The trial mix proportions, testing, and final mix proportions shall be by an independent testing laboratory subject to the approval of the Architect-Engineer.
- C. Ready Mixed Concrete: Measure, batch mix and deliver concrete in conformance with ASTM C94, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 degrees F, reduce mixing and delivery time from 1½ hours to 75 minutes.
 - 2. When air temperature is above 90 degrees F, reduce mixing and delivery time to 60 minutes.
- D. Slumps: Unless otherwise specified or permitted, concrete shall have, at the point of delivery, a slump of 4 inches. Determine the slumps by ASTM C143. Slump tolerances shall meet the requirements of ACI 117. When use of a plasticizing admixture conforming to ASTM C1017 or when a Type F or G high range water reducing admixture conforming to ASTM C494 is permitted to increase the slump of concrete, concrete shall have a slump of 2 to 4 inches before the admixture is added and a maximum slump of 8 inches at the point of delivery after the admixture is added, unless otherwise specified.

2.11 CONCRETE MIXTURES

- A. Footings, Columns, Walls, Beams, Pads and Pedestals: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: 4000 psi at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.50 maximum.
 - 3. Slump Limit: 4 inches maximum or 8 inches maximum for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture.
- B. Slabs-on-Grade: Refer to Section 03 35 16.

PART 3 - EXECUTION

3.1 PRE-PLACEMENT INSPECTION

- A. Before placing concrete, inspect and complete the formwork installation, reinforcing steel, and securely install all required inserts, anchors sleeves, conduits and other items specified under other sections or as shown on the Contract Drawings to be embedded or cast-in.
- B. Where concrete is placed on the ground or sub-course, the foundation upon which concrete is placed shall be clean, damp, and free from standing or running water. Prior to placing concrete, the earth foundation shall have been satisfactorily compacted.
- C. Soil at bottom of foundation systems are subject to testing for soil bearing value by the testing laboratory, as directed by the Architect-Engineer. Place concrete immediately after approval of foundation excavations.

3.2 PREPARATION

- A. Thoroughly wet wood forms immediately before placing concrete, as required where form coatings are not used.
- B. Coordinate the installation of joint materials with placement of forms and reinforcing steel.
- C. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent.
- D. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

3.3 INSTALLATION – JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
 - 3. Locate joints for beams and slabs in the middle third of spans.
 - 4. Locate horizontal joints in walls and columns at underside of floors, slabs and beams and at the top of footings or floor slabs.
 - 5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
 - 6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

7. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

3.4 PLACEMENT - CONCRETE

A. General:

1. Place concrete in compliance with the practices and recommendations of ACI 304, and as herein specified.
2. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and jointing is complete and that required inspections have been performed.
3. Do not add water to concrete during delivery, at Project site, or during placement unless approved by the Architect-Engineer.

- B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within the section. If a section cannot be placed continuously, provide construction joints as indicated. Perform concrete placing at such a rate that concrete which is being integrated with fresh concrete is still plastic. Deposit concrete as nearly as practicable to its final location to avoid segregation due to rehandling or flowing. Do not subject concrete to any procedure which will cause segregation.

- C. Screed concrete which is to receive other construction to the proper level to avoid excessive skimming or grouting.

- D. Do not use concrete which becomes non-plastic and unworkable, or does not meet the required quality control limits, or which has been contaminated by foreign materials. Do not use retempered concrete. Remove rejected concrete from the project site and dispose of it in an acceptable location.

E. Concrete Conveying:

1. Handle concrete from the point of delivery and transfer to the concrete conveying equipment and to the locations of final deposit as rapidly as practicable by methods which will prevent segregation and loss of concrete mix materials.
2. Provide mechanical equipment for conveying concrete to ensure a continuous flow of concrete at the delivery end. Provide runways for wheeled concrete conveying equipment from the concrete delivery point to the locations of final deposit. Keep interior surfaces of conveying equipment, including chutes, free of hardened concrete, debris, water, and other deleterious materials.

F. Placing Concrete into Forms:

1. Deposit concrete in forms in horizontal layers not deeper than 12 inches unless additional thickness is permitted by the Architect-Engineer, and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

2. Remove temporary spreaders in forms when concrete placing has reached the elevation of such spreaders.
3. Consolidate concrete placed in forms by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with the recommended practices of ACI 309, to suit the type of concrete and project conditions. Vibration of forms and reinforcing will not be permitted, unless otherwise accepted by the Architect-Engineer.
4. Do not use vibrators to transport concrete inside of forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate the layer of concrete and at least 6 inches into the preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit the duration of vibration to the time necessary to consolidate the concrete and complete embedment of reinforcement and other embedded items without causing segregation of the mix.
5. No concrete shall be placed in the superstructure until the column forms have been stripped sufficiently to determine the character of the concrete in the columns, and the load of the superstructure shall not be allowed to come upon abutments, piers and column bents until they have been in place at least 7 days, unless otherwise permitted by the Architect-Engineer.

G. Bonding:

1. Roughen surfaces of set concrete at all joints, except where bonding is obtained by use of a concrete bonding agent, and clean surfaces of laitance, coatings, loose particles, and foreign matter. Roughen surfaces in a manner to expose bonded aggregate uniformly and to not leave laitance, loose particles of aggregate, or damaged concrete at the surface.
2. Prepare for bonding of fresh concrete to new concrete that has set but is not fully cured, as follows:
 - a. At joints between footings and walls or columns, and elsewhere unless otherwise specified herein, dampen, but do not saturate, the roughened and cleaned surface of set concrete immediately before placing fresh concrete.
 - b. At joints in exposed work: At vertical joints in walls; dampen, but do not saturate, the roughened and cleaned surface of set concrete and apply a liberal coating of neat cement grout.
 - c. Use neat cement grout consisting of equal parts portland cement and fine aggregate by weight and not more than 6 gal. of water per sack of cement. Apply with a stiff broom or brush to a minimum thickness of 1/16 inch. Deposit fresh concrete before cement grout has attained its initial set.
 - d. In lieu of neat cement grout, bonding grout may be a commercial bonding agent. Apply to cleaned concrete surfaces in accordance with the printed instruction of the bonding material manufacturer.

3. Prepare for bonding of fresh concrete to fully-cured hardened concrete or existing concrete by using an epoxy-resin bonding agent as follows:
 - a. Handle and store epoxy-resin adhesive binder in compliance with the manufacturer's printed instructions, including safety precautions.
 - b. Mix the epoxy-resin adhesive binder in the proportions recommended by the manufacturer, carefully following directions for safety of personnel.
 - c. Before depositing fresh concrete, thoroughly roughen and clean hardened concrete surfaces and thick. Place fresh concrete while the epoxy-resin material is still tacky, without removing the in-place grout coat, and as directed by the epoxy-resin manufacturer.

H. Hot Weather Placement:

1. When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.
2. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90 degrees F. Mixing water may be chilled, or chopped ice may be used to control the concrete temperature provided the water equivalent of the ice is calculated to the total amount of mixing water.
3. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that the steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
4. Wet forms thoroughly before placing concrete.
5. Use set-control admixtures when required and accepted in mix designs.

3.5 FINISHES - FORMED SURFACES

A. Rough-Formed Finish:

1. As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on form-surface irregularities.
 - a. Apply to concrete surfaces not exposed to public view.

B. Smooth-Formed Finish:

1. As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - a. Apply to concrete surfaces exposed to public view.

- b. To receive a rubbed finish, or
 - c. To be covered with a coating or covering material applied directly to concrete.
- C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
 - 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or other abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.

3.6 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive hot temperatures. Comply with ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder:
 - 1. Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations.
 - 2. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces:
 - 1. Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces.
 - 2. If forms remain during curing period, moist cure after loosening forms.
 - 3. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces:
 - 1. Begin curing immediately after finishing concrete.
 - 2. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven consecutive days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.

- c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches and sealed by waterproof tape or adhesive. Cure for not less than seven consecutive days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating sealer (parking ground slab, elevated slab and ramps).
 - c. Cure concrete surfaces to receive floor coverings with moisture-retaining cover only.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.

F. Temperature of Concrete During Curing:

1. When the atmospheric temperature is 80 degrees F, and above, or during other climatic conditions which will cause too rapid drying of the concrete, make arrangements before the start of concrete placing for the installation of wind breaks or shading, and for fog spraying, wet sprinkling, or moisture-retaining covering. Protect the concrete continuously for the concrete curing period. Provide hot weather protection complying with the requirements of ACI 305.
2. Maintain concrete temperature as uniformly as possible, and protect from rapid atmospheric temperature changes. Avoid temperature changes in concrete which exceed 5 degrees F in any one hour.

G. Protection from Mechanical Injury:

1. During the curing period, protect concrete from damaging mechanical disturbances including load stresses, heavy shock, excessive vibration, and from damage caused by rain or flowing water. Protect all finished concrete surfaces from damage by subsequent construction operations.

3.7 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect-Engineer. Remove and replace concrete that cannot be repaired and patched to Architect-Engineer's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Patching Defective Areas:
 - 1. Repair and patch defective areas with cement mortar immediately after removal of forms, but only when directed by the Architect-Engineer.
 - 2. Cut out honeycomb, rock pockets, voids over ½-inch diameter, and holes left by tie rods and bolts, down to solid concrete but, in no case, to a depth of less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Before placing the cement mortar, thoroughly clean, dampen with water, and brush-coat the area to be patched with neat cement grout. Proprietary patching compounds may be used when acceptable to the Architect-Engineer.
 - a. For exposed to public view surfaces, blend white portland cement and standard portland cement so that, when dry, the patching mortar will match the color of the surrounding concrete. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with the patching. Compact mortar in place and strike off slightly higher than the surrounding surface.
 - 3. Fill holes extending through concrete by means of a plunger-type gun or other suitable device from the least exposed face, using a flush stop held at the exposed face to ensure completely filling.
- D. Repair of Formed Surfaces:
 - 1. Repair exposed-to-view formed concrete surfaces, where possible, that contain defects which adversely affect the appearance of the finish. Remove and replace the concrete having defective surfaces if the defects cannot be repaired to the satisfaction of the Architect-Engineer. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, and holes left by the rods and bolts; fins and other projections on the surface; and stains and other discolorations that cannot be removed by cleaning.
 - 2. Repair concealed formed concrete surfaces, where possible, that contain defects that adversely affect the durability of the concrete. If defects cannot be repaired, remove and replace the concrete having defective surfaces. Surface defects, as such, include cracks in excess of 0.01 inch wide, cracks of any width and other surface deficiencies which penetrate to the reinforcement or completely through non-reinforced sections, honeycomb, rock pockets, holes left by tie rods and bolts, and spalls.

E. Repair of Unformed Surfaces:

1. Test unformed surfaces, such as monolithic slabs, for smoothness and to verify surface plane to the tolerances specified for each surface and finish. Correct low and high areas as herein specified.
2. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using a template having the required slope. Correct high and low areas as herein specified.
3. Repair finish unformed surfaces that contain defects which adversely affect the durability of the concrete. Surface defects, as such, include crazing, cracks in excess of 0.01 inch wide or which penetrate to the reinforcement or completely through non-reinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.
4. Correct high areas in unformed surfaces by grinding, after the concrete has cured sufficiently so that repairs can be made without damage to adjacent areas.
5. Correct low areas in unformed surfaces during, or immediately after completion of surface finishing operations by cutting out the low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to the Architect-Engineer.
6. Repair defective areas, except random cracks and single holes not exceeding 1-inch diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts, and expose reinforcing steel with at least 3/4-inch clearance all around. Dampen all concrete surfaces in contact with patching concrete and brush with a neat cement grout coating, or use concrete bonding agent. Place patching concrete before grout takes its initial set. Mix patching concrete of the same materials to provide concrete of the same type or class as the original adjacent concrete. Place, compact and finish as required to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.
7. Repair isolated random cracks and single holes not over 1-inch in diameter by the dry-pack method. Groove the top of cracks, and cut out holes to sound concrete and clean of dust, dirt and loose particles. Dampen all cleaned concrete surfaces and brush with a neat grout coating. Place dry-pack before the cement grout takes its initial set. Mix dry-pack, consisting of one part portland cement to 2½ parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched areas continuously moist for not less than 72 hours.
8. Repair methods not specified above may be used, subject to the acceptance of the Architect-Engineer.

3.8 FIELD QUALITY CONTROL

- A. The Contractor shall employ an approved separate testing laboratory to perform field quality control testing and to submit reports.

B. Quality Control Testing During Construction: Perform sampling and testing for field quality control during the placement of concrete, as follows:

1. Sampling Fresh Concrete: ASTM C172, except modified for slump to comply with ASTM C94.
2. Slump: ASTM C143; one test for each concrete load at point of discharge; and one for each set of compressive strength test specimens.
3. Compression Test Specimens: ASTM C31; one set of 6 standard cylinders for each compressive strength test, unless otherwise directed. Cast and store cylinders for laboratory cured test specimens and field-cured test specimens as specified in ASTM C31.
4. Concrete Temperature: ASTM C1064; Test daily when air temperature is 80 degrees F. and above; and each time a set of compression test specimens made.
5. Compressive Strength Tests: ASTM C39; one set for each 100 cu. yds. or fraction thereof, of each mix design placed in any one day or for each 5000 sq. ft. of surface area placed; 2 specimens tested at 7 days, 3 specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
 - a. When the frequency of testing will provide less than 5 strength tests for a given mix design, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.
 - b. When the strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

C. Additional Tests:

1. The testing service will make additional tests of in-place concrete when test results indicate the specified concrete strengths and other characteristics have not been attained in the structure, as directed by the Architect-Engineer. The testing service shall conduct tests to determine the strength and other characteristics of the in-place concrete by compression tests on cored cylinders complying with ASTM C42, or by load testing specified in ACI 318, or other acceptable non-destructive testing methods, as directed. The Contractor shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.

D. Evaluation of Quality Control Tests:

1. Do not use concrete delivered to the final point of placement which has slump outside the specified values.
2. Compressive strength tests for laboratory-cured cylinders will be considered satisfactory if the averages of all sets of three consecutive compressive strength tests results equal or exceed the 28 day design compressive strength of the type or class of concrete ; and, no individual strength test falls below the required compressive strength by more than 500 psi.

- a. Strength tests of specimens cured under field conditions may be required by the Architect-Engineer to check the adequacy of curing and protecting of the concrete placed. Specimens shall be molded by the field quality control laboratory at the same time and from the same samples as the laboratory cured specimens.
 - 1) Provide improved means and procedures for protecting concrete when the 28 day compressive strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders.
 - 2) When laboratory-cured cylinder strengths are appreciably higher than the minimum required compressive strength, field-cured cylinder strengths need not exceed the minimum required compressive strength by more than 500 psi even though the 85 percent criterion is not met.
 - 3) If individual tests of laboratory-cured specimens produce strengths more than 500 psi below the required minimum compressive strength, or if tests of field-cured cylinders indicate deficiencies in protection and curing, provide additional measures to assure that the load-bearing capacity of the structure is not jeopardized. If the likelihood of low-strength concrete is confirmed and computations indicate the load-bearing capacity may have been significantly reduced, tests of cores drilled from the area in question may be required.
- b. If the compressive strength tests fail to meet the minimum requirements specified, the concrete represented by such test will be considered deficient in strength and subject to additional testing at the Contractor's expense.

E. Formed Concrete Dimensional Tolerances:

1. Formed concrete having any dimension smaller or greater than required, and outside the specified tolerance limits, will be considered deficient in strength and subject to additional testing as herein specified.
2. Formed concrete having any dimension greater than required will be rejected if the appearance or function of the structure is adversely affected, or if the larger dimensions interfere with other construction. Repair, or remove and replace rejected concrete as required to meet the construction conditions. When permitted, accomplish maintain the strength of the Section without affecting function and appearance.

F. Strength of Concrete Structures:

1. The strength of the concrete structure in-place will be considered potentially deficient if it fails to comply with any of the requirements which control the strength of structure, including the following conditions.
 - a. Failure to meet compressive strength tests requirements.
 - b. Concrete which differs from the required dimensions or location in such a manner to reduce strength.

c. Concrete subjected to damaging mechanical disturbances; particularly load stresses, heavy shock, and excessive vibration.

d. Poor workmanship and quality control likely to result in deficient strength.

G. Defective Work:

1. Concrete work which does not conform to the specified requirements, including strength, tolerances, and finishes, shall be corrected at the Contractor's expense. The Contractor shall also be responsible for the cost of corrections to any work affected by or resulting from corrections to the concrete work.
2. In the event the additional testing becomes necessary, the Contractor shall cooperate with and provide assistance to the Engineer in proceeding with the test.
3. Reasonable compensation will be allowed for any additional work required which is not the result of unacceptable materials.

END OF SECTION

SECTION 07 26 16

UNDERSLAB WATERPROOFING MEMBRANE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Examination of subgrade.
- B. Surface preparation.
- C. Application of underslab waterproofing membrane directly under slab on grade (butt-joint method).
- D. Treatment of exposed edges and protrusions.
- E. Protection.

1.2 RELATED SECTIONS

- A. Division 01 Sections – General Requirements.
- B. Section 31 20 00 – Earth Moving

1.3 REFERENCES

- A. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- B. ASTM E154 - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs.
- C. ASTM E1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- D. ASTM E1993 - Bituminous Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.
- E. ASTM F1249 - Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit product data of underslab vaporproofing / waterproofing membrane and accessories.
- C. Installation Instructions: Submit installation instructions of underslab vaporproofing / waterproofing membrane.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

- B. Store materials in a clean dry area in accordance with manufacturer's instructions.
- C. Stack membrane on smooth ground or wood platform to eliminate warping.
- D. Protect materials during handling and application to prevent damage or contamination.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURER AND PRODUCT

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. W. R. Meadows, Inc., Product: Premoulded Membrane Vapor Seal with Plasmatic Core.

2.2 MATERIALS – UNDERSLAB WATERPROOFING MEMBRANE

- A. Bituminous Waterproofing Membrane: Vapor Barrier must be seven-ply, weather-coated, permanently bonded, semi-flexible bituminous core board composed of a 3-ply plasmatic matrix sealed between liners of asphalt-impregnated felt and a glass mat liner. Vapor Barrier shall consist of an asphalt weather coat and covered with a polyethylene anti-stick sheet.
- B. Vapor Barrier shall meet or exceed all requirements of ASTM E 1993 and shall have the following characteristics:
 - 1. Minimum Permeance ASTM F1249, calibrated to ASTM E96, Water Method: 0.0011 perms
 - 2. Tensile Strength ASTM E154, Section 9: 156 lbs. Force/Inch.
 - 3. Puncture Resistance ASTM E154: 149 lbs. Force

2.3 MATERIALS - ACCESSORIES

- A. Joint Tape: PMPC Tape (Detail Strip), 65 mils thick; as manufactured by W.R. Meadows, Inc.
- B. Pointing Mastic: Pointing Mastic as manufactured by W.R. Meadows, Inc.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 01 31 00 – Project Management and Coordination.
- B. Examine base course (fine grading) to receive membrane. Notify Contractor if surfaces are not acceptable.
- C. Do not begin surface preparation or application until unacceptable conditions have been corrected.

3.2 SURFACE PREPARATION

- A. Prepare surfaces in accordance with manufacturers printed instructions.

3.3 APPLICATION – VAPORPROOFING/WATERPROOFING MEMBRANE

- A. Apply membrane in accordance with manufacturer's printed instructions to provide a permanent, monolithic vapor seal without voids or open seams.
- B. Ensure accessory materials are compatible with membrane and approved by membrane manufacturer.
- C. Method of Installation
 - 1. "Butt-Joint" Method: Sheets are tightly butted together and "butt joints" are sealed with PMPC Tape (9 inches wide). Tape is centered on the joints of the feet side and rolled down with pressure for a positive seal.
 - 2. Use pointing mastic whenever an edge is exposed to prevent water from traveling under the sheet.
 - 3. Membrane can be cut using either a roofer's or linoleum knife using a straight edge.
- D. Sealing Top Edge Horizontal Terminations
 - 1. Change in Plane (Corners or Footings): Bend up full-slab thickness and seal to foundation wall, footing or pedestal with pointing mastic.
- E. Exposed Edges
 - 1. Use pointing mastic whenever an edge is exposed to prevent water from traveling under a sheet.
- F. Sealing Protrusions
 - 1. All protrusions through a concrete slab, ie. Sewer pipes, water pipes, fire protection pipes and utility inlets must have a positive seal between the protrusion and the membrane.
 - 2. Place a collar of vaporproof membrane at least 12 inches larger than the protrusion around the protrusion directly on grade.
 - 3. Seal with Detail Strip for PMPC Tape and point around the protrusion with Pointing Mastic.
 - 4. If a slip collar is not an option, half moon two pieces of PMPC Tape to fit around the protrusion overlap and seal the seams in the same manner as the full collar.
 - 5. After all PMPC tape has been installed inspect all protrusions and re-point where necessary before concrete placement.

3.4 PROTECTION

- A. Protect membrane from damage until placement of concrete.

END OF SECTION

SECTION 07 92 13

ELASTOMERIC JOINT SEALANTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Inspection of joint surfaces and dimensions.
- B. Preparation of joint surfaces.
- C. Installation of joint backing materials.
- D. Installation of joint sealants.
- E. Field quality control.
- F. Protection and cleaning.
- G. Schedule installation of joint sealants – exterior and interior.

1.2 RELATED SECTIONS

- A. Division 1 Sections - General Requirements.
- B. Section 05 50 00 – Metal Fabrications: Sealants used in conjunction with Metal Fabrications.
- C. Section 08 12 13 – Hollow Metal Frames: Sealants used in conjunction with Standard Hollow Metal Frames.
- D. Section 08 71 00 – Door Hardware: Sealants used in conjunction with Hardware.
- E. Section 09 24 23 – Portland Cement Plastering: Sealants used in conjunction with Portland Cement Plaster.

1.3 REFERENCES

- A. ASTM C510 - Test Method for Staining and Color Change of Single or Multicomponent Joint Sealants.
- B. ASTM C794 - Test Method for Adhesion in Peel of Elastomeric Joint Sealants.
- C. ASTM C920 - Elastomeric Joint Sealants.
- D. ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.
- E. ASTM D1565 - Flexible Cellular Materials - Vinyl Chloride Polymers and Copolymers (Open Cell Foam).
- F. ASTM D2203 - Test Method for Staining from Sealants.
- G. FS TT-S-227 - Sealing Compound, Rubber Base, Two Component.

- H. FS TT-S-230 - Sealing Compounds, Synthetic-Rubber Base, Single Component, Chemically Curing.
- I. FS TT-S-1543 - Sealing Compound, Silicone Rubber Base.

1.4 QUALITY ASSURANCE

- A. Section 01 40 00 – Quality Requirements.
- B. Single Source: Each joint sealant system material, or if not the products of a single manufacturer, all components of the system shall be approved by the manufacturer whose sealants is to be installed on the system.
- C. Accessory Materials: Associated accessory such as backer rods and/or compressible fillers shall be acceptable to the manufacturer of the sealant which would contact such accessory materials.
- D. Manufacturer's Representative: Do not use sealant produced by a manufacturers who will not agree to send a qualified technical representative to the project site, when required, for the purpose of rendering advice concerning the proper installation of materials. Begin the installation of each major type of sealant only in the presence of the manufacturer's technical representative.
- E. Staining Tests: Provide sealant systems which shall not cause staining of substrate surfaces. Manufacturer shall perform staining tests of sealant systems in accordance with ASTM C510 and ASTM D2203 for each substrate condition.
- F. Bond Test: Manufacturer shall test each sealant for bond with each joint substrate condition as per ASTM C794, minimum 15 lbs pull strength with no loss of adhesion.
- G. Sample Joint: Before sealant work is started, provide a sample of each type of finished joint where directed. Sample shall show the workmanship, bond, and color of sealant. The workmanship, bond, and color of sealant throughout the project shall match the approved sample joints.
- H. Installer Qualifications: Engage an experienced Installer to perform joint sealant work who has specialized in the installation of joint sealant systems similar to that required for this project and who is acceptable to by manufacturer of joint sealant materials.
- I. Installer Certification: Obtain written certification from manufacturer of joint sealant certifying that Installer is approved by manufacturer for installation of specified joint sealant. Provide copy of certification to Architect-Engineer prior to award of joint sealant work.
- J. Installer's Field Supervision: Require Installer to maintain a full-time supervisor/foreman who is on jobsite during times that joint sealant work is in progress and who is experienced in installation of joint and accessory materials sealant similar to type and scope required for this Project.
- K. Installer: Sealant installer shall have a minimum of five year documented experience.

1.5 SUBMITTALS

- A. Section 01 33 00 – Submittal Procedures.

- B. Product Data: For each joint sealant product indicated/specified.
- C. Certificates of Compliance: Submit five copies of certificates from the manufacturers attesting that materials meet the specified requirements.
- D. Manufacturer's Descriptive Data: Submit five copies of complete descriptive data for each type of material. Clearly mark data to indicate type of sealant the Contractor intends to provide. Data shall state conformance to specified requirements.
- E. Certification of Storage: Submit Contractor's certification that all materials were stored in accordance with the sealant manufacturer's written recommendations for the duration of the work.

1.6 GUARANTEE

- A. Section 01 73 00 – Execution and Closeout Requirements.
- B. Provide one year warranty in all sealant work.
- C. Warranty: Replace sealants which fail because of loss of cohesion or adhesion, or do not cure.
- D. In addition to the guarantee required in Section 01 73 00 for all work, furnish an additional guarantee for a period of five (5) years after the Date of Substantial Completion against leaks and defects which indicate imminent leaking such as bubbles, tears, or separation from sides of joints. Repair all such leaks and defects immediately upon notice from Owner.

1.7 JOB CONDITIONS

- A. Weather: Do not proceed with installation of sealants under adverse weather conditions. Proceed with the work only when forecasted weather conditions are favorable for proper cure and development of early bond strength.
- B. Protection: Protect building surfaces adjacent to joints to be sealed from coming in contact with materials of the sealant application.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the job site in unopened manufacturers' external shipping containers, with brand names, date of manufacture, color, and material designation clearly marked thereon.
- B. Containers of elastomeric sealant shall be labeled as to type, class, grade, and use.
- C. Carefully handle and store materials to prevent inclusion of foreign materials and under conditions recommended by the manufacturer.
- D. Do not accept or retain materials which have exceeded the shelf life recommended by the manufacturer.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
- B. S1 - One Component
 - 1. Only use one-component polysulfide where unpleasant curing odor, 14 to 60 day cure time, 1" maximum joint width, 25% to 50% joint movement and 10 to 20 year service life are acceptable.
 - 2. One-component polysulfide base sealant, gun grade, non-sagging shall conform to latest federal specification TT-S-00230C.
 - 3. Acceptable manufacturers:
 - a. Sonolastic 1-Part By Sonneborn - Contech
 - b. Synthacaulk GC-9 By Pecora
 - c. Thiotok Rm Sealant By Toch
 - d. Flexiseal 1-Part Polysulfide Sealant By Dap
- C. S2 - Polysulfide, Two-Component
 - 1. Use two-component polysulfide where unpleasant curing odor, 44 to 77 day cure time, 2" maximum joint width, 25% to 50% joint movement and 10 to 20 year service life are acceptable.
 - 2. Two-component polysulfide polymer base sealant, gun grade, - shall conform to latest federal specification TT-S-00227. Provide compound bearing the Thiokol Chemical Corporation seal of approval.
 - 3. Acceptable manufacturers: provide one of the following products:
 - a. Churchill 3C-50 And 3C-55 - Churchill Chemical Corp.
 - b. Flexiseal 700 Series - Dap, Inc.
 - c. Hornflex & Vertical - W.R. Grace & Co.
 - d. Novacalk 200 Series - Novagard Corp.
 - e. Parmastic - Parr, Inc.
 - f. Sythacaulk Gc-5 Series - Pecora Corp.
 - g. PRC Rubber Caulk 150 & 250 - Products Re. & Chem. Corp.
 - h. Pti-748 - Protective Treatments, Inc.
 - i. Sonolastic Two-Part - Sonneborn/Contech, Inc.

- j. Thiocaulk Arch. Grade - Steelcote Mft. Co.
 - k. Ultratite 101 - Teledyne Coast Pro-Seal
 - l. Lasto-Meric - Tremco Mfg. Co.
 - m. Chemcaulk 200 - Woodmont Products, Inc.
 - n. A-H Poly Sealant Bp - Anti-Hydro Wtp. Co.
 - o. Sealtight Cm-60 - W.R. Meadows, Inc.
 - p. Versalastic Gg-15 - Applied Poly. Of America, Inc.
 - q. Colma J.S. Ns - Sica Chemical Corp.
 - r. Thorspan (T\No-Part) - Standard Dry\Nall Products, Inc.
 - s. Thiotok Sealant - Toch Brothers, Inc.
4. Optional sealant - when approved, provide "dymeric" sealant by Tremco, in lieu of the specified above, provided manufacturer furnishes certification that sealant performance is equal to or better than the specified in every respect, and is recommended for the application shown.

D. S3 - Urethane, One-Component

- 1. Use one-component urethane where 1" maximum joint width, 14 to 30 day cure time, 25% to 40% joint movement, and 20 plus year service life are applicable. Urethane may be applied to bituminous or asphaltic compounds, but not on plastics. Urethane may stain adjacent surfaces.
- 2. One-component urethane sealant, gun grade shall conform to latest Federal; specification TT-00230, type ii, class a.
- 3. Acceptable manufacturers:
 - a. Sonolastic NPI by Sonneborn - Contech
 - b. Vulkem 116 by Mameco
 - c. Dynaseal W-100 by Williams Products, Inc.
 - d. Sikaflex 1A by Sika
 - e. Sikaflex 15Im by Sika

E. S4 – Urethane, Two-Component

- 1. Use two-component urethane where 12" maximum joint width, 3 to 6 day cure time, 25% to 40% movement, and 20 plus year service life are applicable. Note that 3-component available for joints up to 5" wide.
- 2. Two component urethane sealant, gun grade, conforming to latest federal specification tt-s-00227e. Type ii, class a.

3. Acceptable manufacturers:
 - a. Sonolastic NP II By Sonneborn
 - b. Synatrol II Dynamic Sealant By Pecora
 - c. Vulkem 227 By Mameco
 - d. Dualthane By W.R. Meadows
- F. S5 - Silicone, One-Component
 1. Use silicone where 11" maximum joint width, 22 to 55 day curing time, 12% to 50% maximum joint movement, and 20 plus year life are applicable. For wider joints, 2-part silicone available.
- G. S6 - Exterior Silicone
 1. Exterior silicone - acid-type, non-sag, elastomeric rubber-based sealant, gun grade shall conform to federal specification tt-s-001543, class a as recommended by manufacturer for non-porous exterior joint surfaces.
 2. Acceptable manufacturers (exterior silicone):
 - a. Rhodorsil sealant 3b by Rhodia, Inc.
 - b. Silicone sealant 1200 by general electric
 - c. Silicone Rubber Sealant by Dow Corning
- H. S7 - Exterior Silicone Nonacid
 1. Type, non sag, elastomeric rubber-based sealant, gun grade shall conform to federal specification tt-s-001543, class a; as recommended by manufacturer for porous exterior joint surfaces.
 2. Acceptable manufacturers (exterior silicone, non-acid type):
 - a. 790 Building Sealant - Dow Corning Corp.
 - b. Silicone Sealant 1300 - General Electric Co.
 - c. 862 Silicone Arch. Sealant - Pecora Corp.
 - d. Rhodorsil Sealant 4c - Rhodia, Inc.
 - e. Sealant Sws-940 - Stauffer-Wacker Silicone Corp.
- I. S8 - Interior Silicone Rubber Sealant
 1. Silicone rubber-based, one-part, non-safing, elastomeric sealant, as recommended by the U.S.D.A. For interior applications, including food preparation areas, pharmaceutical clean areas, and similar applications subjected to attack by mildew. Provide type recommended by manufacturer for the porosity of the joint surfaces (non-acid for porous surfaces, acid for non-porous). In clean room areas this sealant

must comply with ASTM C920, class 25, grade NS, one part FDA No. 21CFR 177-2600.

2. Acceptable manufacturers and products:

- a. Dow corning 999-A
- b. GE Construction 1200
- c. Pecora 863
- d. GE Construction SCS1000
- e. Dow Corning 732

J. S9 - Fire Barrier Sealant

- 1. Provide intumescent fire, smoke and water blocking strips, pipe wrap sheets, putty or caulking at all penetrations through fire walls or wherever else indicated on the drawings. Products to be used must be factory mutual approved. Acceptable products are those of the 3m brand fire barrier sealing systems, standard oil fire putty or engineer approved equals.

K. S10 - Acoustical Joint Sealants

- 1. Acoustical sealant: manufacturer's standard non-sag, paintable non-staining latex sealant complying with ASTM C-834 and the following requirements:
 - a. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTM E-90.
 - b. Has flame spread and smoke developed ratings of less than 25 per ASTM E-84.2. C.
 - c. Acoustical sealants for concealed joints: manufacturer's standard, nondrying, non-hardening, non-skinning, non-staining, gummable, synthetic rubber sealant recommended for sealing interior concealed joints to reduce transmission of air borne sound.
- 3. Product: subject to compliance with requirements, provide of the following:
 - a. Acoustical Sealant:
 - 1) "Sheetrock Acoustical Sealant," United States Gypsum Co.
 - 2) "AC-20 FRT Acoustical and Insulation Sealant," Pecora Corp.
 - 3) PI Acoustical Sealant; Chemrex, Inc.

2.2 CAULKING

A. C1 - Acrylic, One-Component

1. Use acrylic caulking where:" maximum joint width, 14 to 21 day cure time - 30f to 300f, 10% to 20% maximum joint movement and 20 plus year service life are applicable. Acrylics release offensive odor and should not be used in food storage or preparation areas. Acrylic will self-heal after cohesive failure. Self-bonds to metal, wood, masonry, plastic, glass.
2. One-component acrylic polymer sealant, gun grade, conforming to latest federal specification tt-s-00230, class b, type ii.
3. Acceptable manufacturers:
 - a. Mono By Tremco.
 - b. DAP 1-Part Acrylic Sealant By Dap.
 - c. 60 Unicrylic By Pecora.
 - d. Solaply By W.R. Meadows.

B. C2 - Butyl Sealant (Vulcanized)

1. Gun grade, butyl rubber base sealant, non-safing shall conform to federal specification tt-s-001657, type i.
2. Acceptable manufacturers:
 - a. BC-158 by Pecora.
 - b. Butyl-Flex By Dap.
 - c. Butakauk by Sonneborn.

2.3 PREFORMED SEALANT FOAMS, WRAPS AND TAPES

A. PF1 – Pre-compressed Foam Sealant

1. Where indicated on the drawings and especially in all pipe penetrations in production area walls and ceilings, provide a pre-compressed foam sealant wrap around penetrating pipes to seal the wall opening through which the pipes pass and to provide a firm, flexible back-up for other sealants applied from the room side to the resulting joint.
2. Pre-compressed foam. Sealant shall be will-seal 150g tape as manufactured by will-seal construction foams, 447 Elmwood, Troy, Michigan 48064, (313) 585-4363, or approved equivalent.

B. PF2 - Floor and Wall Pipe Penetration Seals

1. The pipe to wall penetration closures shall be "link-seal" as manufactured by Thunderline Corporation - Belleville, MI. 48111. Seals shall be modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the pipe and wall opening. Shall be loosely assembled with bolts to form a continuous rubber belt around the pipe with a pressure plate under each bolt head and nut. After the seal assembly is positioned in the sleeve, tightening

of the bolts shall cause the rubber sealing elements to expand and provide an absolutely watertight seal between the pipe and wall opening. The seal shall be constructed so as to provide electrical insulation between the pipe and wall, thus reducing changes of cathodic reaction between these two members.

C. PF3 - Butyl Rubber Sealant Tape

1. A partially-vulcanized, self-adhesive, non-staining, elastomeric butyl rubber tape, recommended by the manufacturer for waterproof construction when compressed 35% in dynamically moving joints; not less than 98% solids; no deterioration after 3,000- man hour test in atlas weather-meter.
2. Acceptable manufacturers: provide one of the following products:
 - a. Incolastic 7500 - Intercoastal corp.
 - b. PTI 606 - Protective Treatments, Inc.

2.4 JOINT BACKING

- A. Sealant Backer Rod - Compressible rod stock polyethylene foam, polyethylene jacketed polyurethane foam, butyl rubber foam, neoprene foam or joint primer/sealer - provide the type of joint cleaning compound recommended by the sealant manufacturer, for the joint surfaces to be primed or sealed. Use neoprene in varying width joints. Provide size and shape of rod which will control the joint depth for sealant placement, break bond of sealant at bottom of joint, for optimum shape of sealant bead on back side, and provide a highly compressible backer to minimize the possibility of sealant extrusion when joint is compressed. The use of any polystyrene foam shall not be permitted.
- B. Acceptable manufacturers:
 1. Ethafoam SB – Dow Chemical Company.
 2. Sonofoam Bacher Rod – Sonneborn Building Products.
 3. Expand-O-Foam – Williams Products, Inc.
 4. Denver Foam – Backer Rod Manufacturing, Inc.

2.5 MATERIALS - ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Filler: ASTM D1056; round, closed cell polyethylene foam rod; oversized 30 to 50 percent.
- D. Bond Breaker Type: Polyethylene or other material as manufactured or specified by the sealant manufacturer to prevent three sided adhesion in locations where backer-rod cannot be used.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Section 01 30 00 – Administrative Provisions.
- B. Verify joint dimensions, physical, and environmental conditions are acceptable to receive work of this Section.
- C. Beginning of installation means acceptance.

3.2 PREPARATION – JOINT SURFACES

- A. Clean, prepare, and size joints in accordance with manufacturer's instructions. Remove any loose materials and other foreign matter which might impair adhesion of sealant.
- B. Verify that joint shaping materials and release tapes are compatible with sealant.
- C. Examine joint dimensions and size materials to achieve required width/depth ratios.
- D. Use joint filler to achieve required joint depths, to allow sealants to perform properly.
- E. Use bond breaker where required.

3.3 INSTALLATION – JOINT SEALANT

- A. Install sealant in accordance with manufacturer's printed instructions.
- B. Apply sealant within recommended temperature ranges. Consult manufacturer when sealant cannot be applied within recommended temperature ranges.
- C. Tool joints as indicated.
- D. Joints: Free of air pockets, foreign embedded matter, ridges, and sags.

3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 – Quality Requirements.
- B. Manufacturer's Field Service: Provide for exterior sealant work. At the start of installation, periodically as the work progresses, and after completion, furnish the services of the sealant manufacturer's technical representative at the job site as necessary to advise on every phase of the work. As a minimum furnish full-time attendance during the first 2 work days, at least once every week thereafter, and furnish technical assistance to the installer as may be required.
- C. Water Hose Tests (AAMA 501.2)
 - 1. After installation and curing of sealants, check for water leaks by testing at least a total of 30 lineal feet of the exposed joint system where leakage could be observed. Conduct tests at locations as directed and in the presence of the Owner's On Site Representative.
 - 2. Use a 3/4" ID garden hose equipped with a control valve, pressure gage and 1/2" ID brass nozzle. Adjust the water flow to 30 psi at the nozzle inlet and spray the water

perpendicular to the joint at a distance 12" from the surface. Slowly move the nozzle back and forth for 5 minutes along a 5 foot segment of joint. Starting from the lowest point and working upward, repeat the process on successive segments until designated location has been tested. Repair leaks and retest as directed.

3. Schedule of Water Hose Tests

- a. All exterior windows.
- b. All exterior doors with weatherstripping in place.

3.5 PROTECTION AND CLEANING

- A. Protection: Protect areas adjacent to joints from sealant smears. Masking tape may be used for this purpose if removed 5 to 10 minutes after the joint is filled.
- B. Cleaning: Immediately scrape off fresh sealant that has been smeared on masonry and rub clean with a solvent as recommended by the sealant manufacturer. Upon completion of sealant application, remove remaining smears and stains and leave the work in a clean and neat condition.

3.6 SCHEDULE

- A. Joint Sealants as detailed on the Drawings or specified herein.

SEALANT SCHEDULE																
	SEALANT	1 COMP. POLYSULF.	2 COMP. POLYSULF.	1 COMP. POLYURETHANE (SIKAFLEX)	2 COMP. POLYURETHANE	SILICONE ONE COMPONENT	EXT. SILICONE SMOOTH JOINT	EXT. SILICONE POROUS JOINT	USDA GRADE SILICONE	FIRE BARRIER	ACOUSTICAL SEALANT	ACRYLIC	BUTYL RUBBER		PRECOMPRESSED FOAM SEALANT	FLOOR AND WALL PIPE PENETRATION SEALSS
	#	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	C1	C2		PF1	PF2
CONDITION																
NON-MANUFACTURING AREAS																
BRICK TO BRICK		X	X	X	X											
CMU to CMU		X	X	X	X											
CONCRETE TO CONCRETE		X	X	X	X											
CONCRETE PAVEMENT				X												
PRECAST TO PRECAST / TO CONCRETE				X												
ALUM TO ALUM				X									X			X
ALUM TO MASONRY				X									X			X

ALUM TO WOOD				X									X			X
GYP. BD TO GYP. BD												X				
STEEL TO MASONRY				X												
STEEL TO CONCRETE				X												
HOLLOW METAL TO CONC				X									X			
METAL OR WOOD TO GLASS							X	X								
HOLLOW METAL TO GYP BD				X								X				
COOLER AND FREEZER PNLS				X					X							
FIRE AND SMOKE STOPPING LOCATIONS										X						
CEILING TILES TO CEILING GRID									X							
PIPE PENETRATIONS - WALLS, FLOORS, FDNS															X	
ACOUSTICAL ASSEMBLIES											X					

<i>MANUFACTURING AREAS / CLEAN AREAS</i>																	
SS TO PLASTER - WET CLEAN ROOMS				X		X											
JOINTS IN EXPOSED CLEAN ROOM FINISHES									X								
CLEAN ROOM CEILING TILES TO CEILING GRID									X						X		
CONCEALED ACOUSTICAL ASSEMBLIES											X						

END OF SECTION

SECTION 09 24 23

PORTLAND CEMENT PLASTERING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Inspection of surfaces.
- B. Surface preparation.
- C. Installation of accessories.
- D. Application of Portland cement plaster system over monolithic concrete surfaces.
- E. Patching and pointing.
- F. Tolerances.
- G. Adjusting.
- H. Cleaning and protection.

1.2 RELATED SECTIONS

- A. Division 01 Sections - General Requirements.
- B. Section 03 30 00 – Cast In Place Concrete.
- C. Section 07 92 13 – Elastomeric Joint sealants.

1.3 REFERENCES

- A. ACI 524 – Guide to Portland Cement Plastering.
- B. ASTM C150 - Portland Cement.
- C. ASTM C206 - Finishing Hydrated Lime.
- D. ASTM C207 - Hydrated Lime for Masonry Purposes.
- E. ASTM C897 - Aggregate for Job-Mixed Portland Cement Based Plasters.
- F. ASTM C926 - Application of Portland Cement-Based Plaster.
- G. ASTM C932 – Surface Applied Bonding Agents for Exterior Plastering.
- H. ASTM C1063 – Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster.
- I. ASTM C1116 – Fiber Reinforced Concrete and Shotcrete.
- J. NCMA TEK 9-3A – Plaster and stucco for Concrete Masonry.
- K. PCA (Portland Cement Association) - Plaster (Stucco) Manual.

1.4 QUALITY ASSURANCE

- A. Section 01 40 00 – Quality Requirements.
- B. Applicator: Company or personnel specializing in performing work of this section with minimum five years documented experience.
- C. Perform Portland cement plaster work in accordance with ASTM C926.
- D. Mockups: Before plastering, install mockups of at least 100 square feet in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Install mockups for each type of finish indicated.
 - 2. For interior plasterwork, simulate finished lighting conditions for review of mockups.
 - 3. Approved mockups may become part of the completed work if undisturbed at time of Substantial Completion.

1.5 SUBMITTALS

- A. Section 01 33 00 – Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit data for each type of product indicated.
- C. Shop Drawings: Show locations and installation of control and expansion joints including plans, elevations, sections, details of components, and attachments to other work.
- D. Laboratory Test Reports: Submit gradation test reports of fine aggregate for base and finish coats.

1.6 PRE-INSTALLATION MEETINGS

- A. Section 01 31 00 – Project Management and Coordination.
- B. Convene minimum two weeks prior to commencing work of this section.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Comply with ASTM C926 requirements.
- B. Interior Plasterwork: Maintain room temperatures at greater than 70 degrees F for at least 48 hours before plaster application, and continuously during and after application.
 - 1. Avoid conditions that result in plaster drying out during curing period. Distribute heat evenly; prevent concentrated or uneven heat on plaster.
 - 2. Ventilate building spaces as required to remove water in excess of that required for hydrating plaster in a manner that prevents drafts of air from contacting surfaces during plaster application and until plaster is dry.
- C. Exterior Plastering
 - 1. Apply and cure plaster to prevent drying out during curing period. Use procedures required by climatic conditions, including moist curing, providing coverings, and providing barriers to deflect sunlight and wind.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store materials inside cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes.
- B. Store bulk materials in area of intended use and exercise caution to prevent subsequent contamination and segregation of bulk materials prior to use.

PART 2 - PRODUCTS

2.1 MATERIALS - PLASTER BASE COAT

- A. Cement: ASTM C150, Type I Portland cement, gray.
- B. Lime: ASTM C206, Type S.
- C. Aggregate: ASTM C897, Natural sand, within the following sieve sizes and percentage retained limits:

<u>Sieve Size</u>	<u>Percent Retained</u>
No. 4	0
No. 8	0 to 5
No. 16	5 to 30
No. 30	30 to 65
No. 50	65 to 95
No. 100	90 to 100

- 1. Not more than 50 percent shall be retained between any two consecutive sieves shown in the above table, not more than 25 percent between No. 50 and No. 100 sieves. The amount of material finer than a No. 200 sieve shall not exceed 3 percent.
- 2. Fineness modulus shall fall between 2.05 and 3.05.
- D. Water: Clean, fresh, potable and free of mineral or organic matter which can affect the set, the plaster, or any metal in the system.
- E. Bonding Agent: ASTM C932; type recommended for bonding plaster to concrete surfaces.
- F. Fibers (Exterior Applications): ½ inch nominal length glass fibers meeting requirements of ASTM C1116.

2.2 MATERIALS - PLASTER FINISH COAT

- A. Cement: As specified for plaster base coat, grey color.
- B. Lime: As specified for plaster base coat.
- C. Aggregate: ASTM C897; natural sand, natural color, and shall be graded within the limits shown above for base coats, except that all of the sand shall pass the No. 30 sieve.
- D. Water: Clean, fresh, potable and free of mineral or organic matter which can affect plaster.

2.3 MATERIALS – PLASTIC TRIMS

A. Acceptable Manufacturers:

1. Alabama Metal Industries Corporation (AMICO).
2. Plastic Components, Inc.
3. Vinyl Corporation.

B. Cornerbeads: High-impact PVC; with perforate flanges

1. Small nose cornerbead; use unless otherwise indicated.
2. Small nose cornerbead recommended by manufacturer for use where durable corner is required; use on columns.
3. Bull nose cornerbead, radius $\frac{3}{4}$ inch minimum; use at locations indicated on Drawings.

C. Casing Beads: High-impact PVC; with perforated flanges in depth required to suit plaster bases indicated and flange length required to suit applications indicated.

1. Square-edge style; use unless otherwise indicated.
2. Bull nose style, radius $\frac{3}{4}$ inch minimum; use at locations indicated on Drawings.

D. Control Joints: High-impact PVC; one-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joints.

E. Expansion Joints: High-impact PVC; two-piece type, formed to produce slip-joint and square-edged $\frac{1}{2}$ -inch wide reveal; with perforated concealed flanges.

2.4 PLASTER MIXES

A. General: comply with ASTM C926 for applications indicated.

1. Fiber Content: Add fiber to base-coat mixes after ingredients have mixed at least two minutes. Comply with fiber manufacturer's written instructions for fiber quantities in mixes, but do not exceed 1 lb of fiber/cu ft of cementitious materials. Reduce aggregate quantities accordingly to maintain workability.

B. Base-Coat Mixes for Use Over Monolithic Concrete: Single base coats for two-coat plasterwork as follows:

1. Portland Cement Mix: For cementitious materials, mix 1 part portland cement and 0 to $\frac{3}{4}$ part lime. Use $2\frac{1}{2}$ to 4 parts aggregate per part of cementitious materials (sum of separate volumes of each component materials).

C. Job-Mixed Finish-Coat Mixes:

1. Portland Cement Mix: For cementitious materials, mix 1 part portland cement and $\frac{3}{4}$ to $1\frac{1}{2}$ parts lime. Use $1\frac{1}{2}$ to 3 parts aggregate per part of cementitious materials (sum of separate volumes of each component materials).

- D. Mix only as much plaster as can be used prior to initial set.
- E. Mix materials dry, to uniform color and consistency, before adding water.
- F. Protect mixtures from contamination and excessive evaporation.
- G. Do not retemper mixes after initial set has occurred.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Section 01 31 00 – Project Management and Coordination: Coordination and project conditions.
- B. Clean surfaces to which plaster is to be applied of all projections, dust, loose particles, grease, bond breakers, and other foreign matter.
- C. Concrete: Verify surfaces are flat, honeycomb is filled flush, and surface is ready to receive work of this Section. Verify no bituminous, water repellent, or form release agents exist on concrete surface that are detrimental to plaster bond.
- D. Examine welded hollow metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance.
- E. Grounds and Blocking: Verify items within walls for other Sections of work have been installed. Check metal grounds, corner beads, screeds, and other accessories carefully for alignment before work is started.
- F. Mechanical and Electrical: Verify services within walls have been tested and approved.
- G. Beginning of installation means acceptance of existing conditions.

3.2 PREPARATION

- A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering. Install and maintain floor protective coverings at all times during the application of plaster.
- B. Clean concrete surfaces of foreign matter. Clean surfaces using acid solutions, solvents, or detergents. Wash surfaces with clean water.
- C. Roughen smooth concrete surfaces and apply bonding agent. Apply in accordance with manufacturer's instructions.

3.3 INSTALLATION - ACCESSORIES

- A. Install according to ASTM C 1063 and at locations indicated on Drawings.
- B. Reinforcement for External Corners:
 - 1. Install lath-type external-corner reinforcement at exterior locations.
 - 2. Install cornerbead at interior locations.

C. Control Joints: Install control joints at locations indicated on Drawings and in specific locations approved by Architect-Engineer for visual effect as follows:

1. As required to delineate plasterwork into areas (panels) of the following maximum sizes:
 - a. Vertical Surfaces: 144 sq. ft.
 - b. Horizontal and other Nonvertical Surfaces: 100 sq. ft.
2. At distances between control joints of not greater than 18 feet o.c.
3. As required to delineate plasterwork into areas (panels) with length-to-width ratios of not greater than 2-1/2:1.
4. Where control joints occur in surface of construction directly behind plaster.
5. Where plasterwork areas change dimensions, to delineate rectangular-shaped areas (panels) and to relieve the stress that occurs at the corner formed by the dimension change.

3.4 APPLICATION – PORTLAND CEMENT PLASTER

A. General: Apply plaster in accordance with ASTM C926.

1. Do not deviate more than plus or minus ¼ inch 10 feet from a true plane in finished plaster surfaces, as measured by a 10-foot straightedge placed on surface.
2. Grout hollow metal frames, bases, and similar work occurring in plastered areas, with base coat plaster material, before lathing where necessary.
3. Finish plaster flush with metal frames and other built-in metal times or accessories that act as a plaster ground, unless otherwise indicated. Where casing bead does not terminate plaster at metal frame, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.
4. Provide plaster surfaces that are ready to receive field-applied finishes indicated.

B. Bonding Compound: Apply on concrete plaster bases.

C. Base Coat: Apply to a nominal thickness of 3/8 inch over concrete surfaces.

D. Finish Coat: Apply to a nominal thickness of 1/8 inch over the base coat.

E. Moist cure base coat.

F. After curing, dampen base coat prior to applying finish coat.

G. Apply finish coat and wood float to a smooth and consistent finish.

H. Avoid excessive working of surface. Delay trowelling as long as possible to avoid drawing excess fines to surface.

I. Moist cure finish coat for minimum period of 48 hours.

J. Concealed Interior Plasterwork

1. Where plaster application will be concealed behind built-in cabinets, similar furnishings, and equipment, apply finish coat.
2. Where plaster application will be concealed above suspended ceilings and in similar locations, finish coat may be omitted.
3. Where plaster application will be used as a base for adhesive application of tile and similar finishes, finish coat may be omitted.

3.5 PATCHING AND POINTING

- A. Upon completion, cut out and patch loose, cracked, damaged, or defective plaster. Patching shall match existing work in texture, color, and shall be finished flush with plaster previously applied.
- B. Do all pointing and patching of plastered surfaces abutting or adjoining any other finish work in a neat and workmanlike manner.

3.6 TOLERANCES

- A. Section 01 40 00 – Quality Requirements: Tolerances.
- B. Maximum Variation from Flat Surface: 1/8 inch in 10 feet.

3.7 ADJUSTING

- A. Section 01 73 00 – Execution.
- B. Remove damaged or defective plaster with finish coat materials spray applied to entire finish coat surface.

3.8 CLEANING AND PROTECTION

- A. Remove temporary protection and enclosure of other work.
- B. Promptly remove plaster from door frames, windows, and other surfaces not indicated to be plastered.
- C. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.

END OF SECTION

SECTION 09 91 23

INTERIOR PAINTING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Inspection of surfaces.
- B. Protection of surface.
- C. Surface preparation.
- D. Existing Work
- E. Application of interior painting.
- F. Cleaning.
- G. Schedule of painting – interior

1.2 RELATED SECTIONS

- A. Division 01 Sections – General Requirements.
- B. Section 03 31 13 – Cast In Place Concrete.
- C. Section 05 50 00 – Metal Fabrications.
- D. Section 08 12 13 – Hollow Metal Frames.
- E. Section 08 13 13 – Hollow Metal Doors.
- F. Section 09 21 16 – Gypsum Board Assemblies.
- G. Section 09 24 00 – Portland Cement Plastering.
- H. Section 09 91 13 – Exterior Painting.

1.3 REFERENCES

- A. ASTM D16 - Definitions of Terms Relating to Paint, Varnish, Lacquer, and Related Products.
- B. ASTM D523 – Test Method for Specular Gloss
- C. ASTM D660 - Method of Evaluating Degree of Checking of Exterior Paints.
- D. ASTM D3276 - Recommended Guide for Paint Inspectors.
- E. 40 CFR 59, Subpart D – National Volatile Organic Compound Emission Standards for Architectural Coatings.

- F. Master Painters Institute (MPI) – MPI Approved Product List.
- G. Master Painters Institute (MPI) – MPI Architectural Painting Specifications Manual.
- H. Steel Structures Painting Council (SSPC) – Steel Structures Painting Manual.

1.4 QUALITY ASSURANCE

- A. Section 01 40 00 – Quality Requirements.
- B. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- C. Applicator Qualifications: Engage an experienced applicator to perform interior painting work who has specialized in the application of interior painting systems similar to that required for this project and who is acceptable to by manufacturer of specified paint.
- D. Applicator Certification: Obtain written certification from manufacturer of paints certifying that Applicator is approved by manufacturer for application of specified paint systems. Provide copy of certification to Architect-Engineer prior to award of paint work.
- E. Applicator's Field Supervision: Require Applicator to maintain a full-time supervisor/foreman who is on jobsite during times that paint work is in progress and who is experienced in application of paint systems similar to type and scope required for this Project.

1.5 SUBMITTALS

- A. Section 01 33 00 – Submittal Procedures.
- B. Product Data: Submit data on finishing products.
- C. Samples:
 - 1. Submit two paper chip samples, 2 x 2 inch in size illustrating range of colors and textures available for each surface finishing product scheduled.
 - 2. Submit two painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded. Submit on tempered hardboard 2 x 2 inch in size.
- D. Manufacturer's Installation Instructions: Submit special surface preparation procedures, substrate conditions requiring special attention, and any other specific requirements.

1.6 CLOSEOUT SUBMITTALS

- A. Section 01 77 00 – Closeout Requirements: Closeout procedures.
- B. Operation and Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.7 MOCKUP

- A. Section 01 40 00 - Quality Requirements: Mock-up requirements.

- B. Construct mockup panel, 5 feet long by 5 feet wide, illustrating coating color, texture, and finish.
- C. Locate where directed by Architect/Engineer.
- D. Incorporate accepted mockup as part of Work.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 – Product Requirements: Product storage and handling requirements.
- B. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- C. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- D. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's printed instructions.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 – Product Requirements.
- B. Do not apply materials when surface and ambient temperatures are outside temperature ranges required by paint product manufacturer.
- C. Do not apply interior coatings during rain when relative humidity is outside humidity ranges, or moisture content of surfaces exceed those required by paint product manufacturer.
- D. Provide lighting level of 80 ft candle measured mid-height at substrate surface.

1.10 WARRANTY

- A. Section 01 77 00 – Closeout Requirements: Product warranties and product bonds.
- B. Furnish one (1) year manufacturer warranty for paints and coatings from the Date of Substantial Completion.

1.11 EXTRA MATERIALS

- A. Section 01 77 00 – Closeout Requirements.
- B. Furnish extra materials, from the same product run, that match products installed and that are packaged with protection covering for storage and identified with labels describing contents.
 - 1. Paint: 5 percent, but not less than 2 gallons of each material and color applied.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Benjamin Moore.
- B. BLP Mobile Paints Manufacturing.
- C. Glidden Coatings.
- D. PPG Architectural Finishes.
- E. The Sherwin – Williams Company (Basis, Design).

2.2 MATERIALS - PAINTING

- A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its “MPI Approved Products List”.
- B. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturers, based on testing and field experience.
 - 2. For each coat in paint system, provide product recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- C. Colors: As selected by Architect-Engineer from manufacturer’s full range.

PART 3 - EXECUTION

3.1 INSPECTION OF SURFACES

- A. Section 01 31 00 – Project Management and Coordination.
- B. Thoroughly examine interior surfaces scheduled to be painted prior to commencement of work. Report in writing to Architect/Engineer, any condition that may potentially affect proper application. Do not commence until such defects have been corrected.
- C. Correct defects and deficiencies in surfaces which may adversely affect work of this Section.
- D. Test shop applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Plaster: 12 percent.
 - 2. Concrete: 12 percent.

3.2 PROTECTION OF SURFACES

- A. Adequately protect other surfaces from paint and damage. Repair damage as a result of inadequate or unsuitable protection.
- B. Furnish sufficient drop cloths, shields, and protective equipment to prevent spray or droppings from fouling surfaces not being painted and in particular, surfaces within storage and preparation area.
- C. Place cotton waste, cloths, and material which may constitute a fire hazard in closed metal containers and remove daily from site.
- D. Remove electrical plates, surface hardware, fittings and fastenings, prior to painting operations. These items are to be carefully stored, cleaned, and replaced on completion of work in each area. Do not use solvent to clean hardware that may remove permanent lacquer finish.

3.3 SURFACE PREPARATION

- A. Surfaces: Correct defects and clean surfaces capable of affecting work of this section. Remove or repair existing coatings exhibiting surface defects.
- B. Marks: Seal with shellac those which may bleed through surface finishes.
- C. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- D. Concrete Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- E. Plaster Surfaces: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.
- F. Uncoated Steel and Iron Surfaces: Remove grease, mill scale, weld splatter, dirt, and rust. Where heavy coatings of scale are evident, remove by hand power tool wire brushing or sandblasting; clean by washing with solvent. Apply treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
- G. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.
- H. Metal Doors Scheduled for Painting: Prime metal door top and bottom edge surfaces.

3.4 EXISTING WORK

- A. Extend existing paint and coatings installations using materials and methods compatible with existing installations and as specified.

3.5 APPLICATIONS

- A. Apply each coat at proper consistency.
- B. Each coat of paint is to be slightly darker than preceding coat unless otherwise approved by Architect/Engineer.
- C. Sand lightly between coats to achieve required finish.
- D. Do not apply finishes on surfaces that are not sufficiently dry.
- E. Allow each coat of finish to dry before following coat is applied, unless directed otherwise by manufacturer.
- F. Prime top and bottom edges of metal doors with enamel undercoat when they are to be painted.

3.6 INTERIOR PAINTING

- A. The work includes surface preparation, painting and finishing of interior exposed items and surfaces throughout the project, except as otherwise indicated. Surface preparation, priming, and coats of paint specified are in addition to shop priming and surface treatment specified under other sections of the work.
- B. Paint all exposed surfaces whether or not colors are designed in schedules, except where the natural finish of the material is specifically noted as a surface not to be painted. Where items or surfaces are not specifically mentioned, paint these the same as adjacent similar materials or areas. If color of finish is not designated, the Architect/Engineer will select these from standard colors available for the material systems specified.

3.7 MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Refer to mechanical and electrical Sections with respect to identification banding of equipment, ducting, piping and conduit.
- B. Remove grilles, covers, and access panels for mechanical and electrical systems from location and paint separately.
- C. Finish paint primed equipment to color selected.
- D. Prime and paint insulated and bare pipes, conduits, boxes, insulated and bare ducts, hangers, brackets, collars and supports, except where items are plated or covered with a pre-finished coating.
- E. Replace identification markings on mechanical or electrical equipment when painted over or spattered.
- F. Paint exposed conduit and electrical equipment occurring in exterior areas. Color and texture to match adjacent surfaces.
- G. Color code equipment, piping, conduit and exposed ductwork in accordance with requirements indicated. Color banding and identification (flow arrows, naming, numbering, etc.)

3.8 PAINTING NOT INCLUDED

- A. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under the various sections for structural steel, miscellaneous metals, hollow metal work, and fabricated components. Touch-up of damaged primed surfaces is included in the painting work.
- B. Prefinished Items: Do not include painting when factory-finishing is specified, except all roof mounted prefinished mechanical equipment is to be field-painted.
- C. Finish Metal Surfaces: Architectural metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze, and similar finished materials will not require finish painting.
- D. Operating Parts and Labels: Moving parts of operating units, mechanical and electrical parts, such as valve and damper operations, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting, unless otherwise indicated. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plates.

3.9 CLEANING

- A. As work proceeds and upon completion, promptly remove paint where spilled, splashed, or spattered.
- B. During progress of work keep premises free from any unnecessary accumulation of tools, equipment, surplus materials, and debris.
- C. Upon completion of work leave premises neat and clean, to the satisfaction of Architect/Engineer.

3.10 PAINTING SCHEDULE(INTERIOR SURFACES)- SHERWIN WILLIAMS

<u>Substrate</u>	<u>Paint System</u>	<u>Coverage</u> (Mils DFT)
A. Plaster		
Primer:	Premium Wall and Wood Primer	1.7
1st Coat:	ProGreen 200 Low VOC Interior Latex Eg-Shel	1.7
2nd Coat:	ProGreen 200 Low VOC Interior Latex EG-Shel	1.7
B. Gypsum Board		
Primer:	ProGreen 200 Low VOC Interior Latex Primer	1.7
1st Coat:	ProGreen 200 Low VOC Interior Latex EG-Shel	1.7

<u>Substrate</u>	<u>Paint System</u>	<u>Coverage</u> <u>(Mils DFT)</u>
2nd Coat:	ProGreen 200 Low VOC Interior Latex EG-Shel	1.7
C. Ferrous Metals		
Shop Primer:	Pro Industrial Pro-Cryl Universal Primer	1.0
Field Touch Up:	Pro Industrial Pro-Cryl Universal Primer	1.0
1st Coat:	Pro Industrial 0 VOC Acrylic	3.0
2nd Coat:	Pro Industrial 0 VOC Acrylic	3.0
D. Galvanized Metals		
1st Coat:	Pro Industrial 0 VOC Acrylic	3.0
2nd Coat:	Pro Industrial 0 VOC Acrylic	3.0

END OF SECTION

2.2

CONDITIONS

2.2 CONDITIONS

2.2.1 Uniform General Conditions for Public Works Contract in Puerto Rico

The Uniform General Conditions for Public Works Contract in Puerto Rico will be part of this bids process and contract. All costs associated and related with the Uniform General Conditions for Public Works Contract in Puerto Rico will be part of the offer. *See Attachment 1*

2.2.2 Additional Provisions

The Additional Provisions will be part of this bids process and contract. All costs associated and related with the Additional Provisions will be part of the offer. *See Attachment 2*

2.2.3 Contract Federal Clauses

The Contract Federal Clauses will be part of this bids process and contract. All costs associated and related with the Contract Federal Clauses will be part of the offer. *See Attachment 3*

2.2.4 Imperative Inclusion Clauses

The Imperative Inclusion Clauses Clause will be part of this bids process and contract. All costs associated and related with the Contract Federal Clauses will be part of the offer. *See Attachment 4*

2.2.5 Security and Protection Requirements

The Bidder, Team and all associated Subcontractor personnel must provide all information required for background checks to comply with the requirements for access to the facilities to be performed by the Provost Marshal Office, Director of Emergency Services or the Office of Security. The Proposing workforce must comply with all personal identity verification requirements (clause FAR 52.204- 9, Verification of personal identification of Contractor personnel) as directed by the Department of Defense, HQDA and / or local policy. In addition to the changes authorized by the change clauses of this Purchase Order, if the Force Protection Condition (FPCON) in any individual installation or insulation change, the Government may require changes in the Contractor's security issues or processes.

The photographs will be limited to the authorized work area with the prior approval of the PRARNG and only for information purposes for the development of the services described in this document. The Contractor must request permission from the PRARNG before taking the photographs and will be governed by the instructions offered for taking them. The use of drone to take is prohibited.

2.2.5.1 Anti-Terrorism/Force Protection

AT Level I training, all awarded Contractor's personnel, to include subcontractor personnel, requiring access PRARNG installations, facilities and controlled access areas shall complete AT Level I awareness training within fourteen (14) calendar days after Purchase Order start date or effective date of incorporation of this requirements into the Purchase Order, whichever is applicable. The awarded Bidder shall submit certificates of completion for each affected Contractor's personnel and subcontractor's personnel to the Contracting Officer Representative (COR) within seven (7) calendar days after completion of training by all personnel. AT Level I awareness training is available at the following website: <http://jko.jten.mil> The PRARNG can provide the instructions (2 hours) with previous coordination.

- Access and general protection/security policy and procedures. Awarded Bidder and all associated subcontractor's personnel shall provide all information required for background checks to meet installation access requirements to be accomplished by installation Provost Marshal Office, Director of Emergency Services or Security Office. Awarded Bidder workforce must comply with all personal identity verification requirements (FAR clause 52.204-9, Personal Identify Verification of Contractor Personnel) as directed by DoD, HQDA and/or local policy. In addition to the changes otherwise authorized by the changes clause of this Purchase Order, should the Force Protection Condition (FPCON) at any individual facilities or installation change, the Government may require changes in contractor security matters or processes.
- Awarded Bidder and all associated sub-contractor's personnel shall comply with all standards and policies for all PRARNG installations and facilities to include access and local security policies and procedures (provided by government representative). This applies for contractors that do not require CAC but require access to a DoD facilities or installations.

2.2.5.2 iWATCH

iWATCH training, Contractor's personnel, to include subcontractor personnel, requiring access PRARNG installations, facilities and controlled access areas shall complete iWATCH awareness training within fourteen (14) calendar days after Purchase Order start date or effective date of incorporation of these requirements into the Purchase Order, whichever is applicable. The Contractor shall submit certificates of completion for each affected Contractor's personnel and subcontractor's personnel to the Contracting Officer Representative (COR) within ten (10) calendar days after completion of training by all personnel. The PRARNG can provide training in face-to-face to personnel of Contractor and Subcontractor (1 hour) with previous coordination.

2.2.5.3 TARP

Threat Awareness and Reporting Program (TARP) training, Contractor's personnel, to include subcontractor personnel, requiring access PRARNG installations, facilities and controlled access areas shall complete TARP awareness training within fourteen (14) calendar days after Purchase Order start date or effective date of incorporation of these requirements into the Purchase Order, whichever is applicable. The Contractor shall submit certificates of completion for each affected Contractor's personnel and subcontractor's personnel to the Contracting Officer Representative (COR) within ten (10) calendar days after completion of training by all personnel. The PRARNG can provide training in face-to-face to personnel of Contractor and Subcontractor (2 hours) with previous coordination.

Attachment 1

**UNIFORM GENERAL
CONDITIONS FOR PUBLIC
WORKS CONTRACTS IN PUERTO
RICO**



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: **Eduardo Arosemena Muñoz**
Secretario Auxiliar de Servicios

UNIFORM GENERAL CONDITIONS

for

Public Works Contracts in Puerto Rico

UNIFORM GENERAL CONDITIONS

PUERTO RICO
VERDE



Public Works Contracts in Puerto Rico

UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACTS

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CERTIFICATION

GOVERNMENT OF PUERTO RICO
DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

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.

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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.

UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACTS

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.

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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.

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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 1 st 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

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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.

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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 of the Project.

UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACTS

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.

UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACTS

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.

UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACTS

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.

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23 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).

24 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.

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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

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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

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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)

4 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

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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

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(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:

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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 of 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

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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.

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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 advise 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.

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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

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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

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 advise Owner in writing of Architect/Engineer's and/or Owner's Representative findings and conclusions.

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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

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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.

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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;

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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 constitute 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.

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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.

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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.

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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

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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.

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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.

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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:

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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

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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.

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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

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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

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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.

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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

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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

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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

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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 of 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

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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 Contractor 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

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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.

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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 of 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.

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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

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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.

6.16.2.2. 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,

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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.

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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

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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.

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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.

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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.

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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.

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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

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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

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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.

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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

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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

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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 as 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

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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 contractors 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,

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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

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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.

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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.

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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.

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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

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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.

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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:

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SCHEDULE OF LIQUIDATED DAMAGES		
Original Contract Price		
From More Than	To and Including	Daily Charge
\$ 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.

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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

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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, expeditors, 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

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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.

7 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.

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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:

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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.

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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.

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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

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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

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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,

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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.

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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

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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.

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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.

4 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.

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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.

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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.

4 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

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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.

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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.

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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.

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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.

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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.

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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

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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 mean that the Contractor repeatedly 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.

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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.

A 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

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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

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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

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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 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. 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.

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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.

4 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.

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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.

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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.

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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.

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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.

9 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.

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.

UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACTS

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

UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACTS

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

UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACTS

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,

UNIFORM GENERAL CONDITIONS FOR PUBLIC WORKS CONTRACTS

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

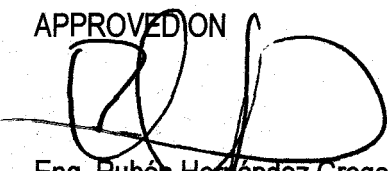
ARTICLE 1: SEPARABILITY CLAUSE; EFFECTIVENESS

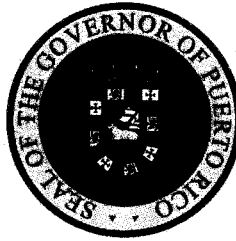
1.1 Separability Clause. If any provision authorized in these regulations is declared unconstitutional or void by a Court of Competent jurisdiction, the remaining provisions of this Uniform General Conditions shall continue in effect.

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.

A handwritten signature in black ink, appearing to read "Luis G. Fortuño".

Luis G. Fortuño
Governor



OMBUDSMAN

1977

Gobierno de Puerto Rico

OFICINA DEL PROCURADOR DEL CIUDADANO

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 agencias 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,


Leda Edison Negrón Ocasio
Procurador de Pequeños Negocios

Minillas Station PO Box 41088 San Juan, Puerto Rico 00940-1088

Tel. (787) 724-7373 • Fax (787) 724-7386

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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 de 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 empecé 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 subcontratistas 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 las 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 el 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 las 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. Otros requisitos para cumplimiento

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 sería 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 Artículo 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", límite por ocurrencia de \$5,000,000.00 límite 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 empee 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.

Attachment 2

ADDITIONAL PROVISIONS

ADDITIONAL PROVISIONS

1. The proposal must include the payment of all applicable state and municipal taxes and patents as require by Law. The Contractor shall be paid taxes prior to start the works and will be required to present evidence of these payments.
2. Along the duration of contract, Contractor must comply with Federal Non-Discrimination policy and Drug-Free Workplace Policy.
3. Any waste generated as part of the contract must be disposed outside of PRNG facilities and in accordance with applicable laws and regulations.
4. The Contractor is responsible for provide to PRNG copy permits hauling vehicle that transport material generated as part of the proposed activities.
5. If applicable the Fuel Oil and Gas (F.O.G.) shall be no more than 25% of the equipment charges.
6. If applicable the Fringe Benefits shall be no more than 30% of the payroll.
7. Working hours at the facility are Monday to Friday from 7:30a.m. to 4:00p.m. Any activities to be developed off working hours must be coordinated with PRNG and the execution will be pending approval from PRNG and without additional charges.
8. All the provide information as part of this acquisition process, including but not limited to: drawings, technical specifications, plans, reports, and photography, is for the exclusive use of this acquisition process. Any reproduction and distribution of the material for other use is prohibit.
9. FAR 52.219-14 Limitations on Subcontracting only apply for contracts performed by Small Business Administration or 8(a) Bidders.
10. Portable Toilet Facilities: Contractor shall be responsible for providing sanitary services for its employees throughout the duration of the activities of the contract. Toilets shall be regularly cleaned and emptied as required by Health regulations.
11. Any person who as part of the activities of the contract, will access the facilities on behalf of the Contractor should be have at all times a photo ID. Accepted identifications are: passport, driver's license, or ID card issued by the Department of Transportation and Public Works (DTOP).
12. As part of the evaluation process of bid proposals personnel of ASG or PRNG verify the amount of the Bid Bond with Surety Company.
13. As-built plans shall be required for the final closeout documents.
14. Article 9.1.4 of Uniform General Conditions for Public Works Contract does not apply.
15. Article 9.6 of Uniform General Conditions for Public Works Contract does not apply.
16. The amount retainage with respect of each progress payment is ten percent (10%).
17. Article 13.2.2.1.1.1 of Uniform General Conditions for Public Works Contract does not apply.
18. Article 13.2.2.1.2 of Uniform General Conditions for Public Works Contract does not apply.
19. During construction works the Contractor cannot close the main street and personnel or vehicle transit cannot be interrupt at any time during the development of the works.
20. PRNG's representative and inspection's representative should have access to the job site at all times.
21. The Contractor is responsible of the project Quality Control. The Quality Control Manager is required by the PRNG. The Quality Control Manager and their personnel will not have an other function and roles in the project.
22. The Project Schedule shall be updated monthly and submitted.

23. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility and utilities services in site.
24. The Contractor is responsible to obtain all permits and certifications of approval required in connection with this statement of works, and requires to develop the activities of the SOW.
25. The Contractor is responsible to keep clean the site works at all times and the removal of debris during performance of the Work.
26. The Contractor shall keep the grass in the project site.
27. If the Contractor fails to clean up and keep the grass, as indicated above, the Owner may do so and the cost thereof shall be charged to the Contractor.
28. All materials and equipment acquired by the Contractor as part of the contract must meet with the Build American Buy American (BABA).
29. The Contractor is responsible for the collection and disposal of all waste generated as part of the activities under contract.
30. Bidders are responsible of notifying to ASG and PRNG any discrepancy that exists in the plans, specifications, and bidding documents during the bidding process.
31. The Contractor is responsible of the quality of all materials and workmanship furnished in the construction of the project and is included in the bid price and no additional payment will be made by PRNG.
32. The Contractor will be allowed to store materials and equipment used in the project within the facility. It is the Contractor's responsibility to provide the storage, security materials, and equipment.
33. The Contractor shall include in their proposal the costs for the tests, analysis, exploration, reports, and results need to perform the SOW and be indicated in the plans, drawings, and specifications.
34. All cost in connection with the preparation and maintenance of schedules, work plans, submittals, request for information, and other work and task have to be included and be part of the project's general administrative expenses.
35. The Contractor is responsible for preparation and implementation of a recycling plan in accordance with Act. No. 70 of September 18, 1992 (Law to reduce and recycle solid waste, as amended) and the Regulations for the reduction, reuse, and recycling of solid waste (Regulation No. 6825, as amended), and lie in the Solid Waste Authority (ADS) Recycling Plan and monthly reports.
36. The Contractor shall submit two (2) sample of each item, when applied.
37. The Contractor will be responsible for submitting a "Site Safety & Health Plan" for approval by the staff of the PRNG, according to the date scheduled. Mobilization to the site cannot be made until the plan is approved.
38. It is the responsibility of the Contractor to assign a "Safety Manager" must have credentials issued by OSHA to perform the Safety Manager roles and responsibility. The Safety Manager will not have an other function and roles in the project.
39. It is up to PRNG's discretion to approved and recognize payment shall be made to the Contractor for material and equipment on site.
40. Perimeter fence details shall comply with approved Plan CES specifications. Project limit fence shall be 4' silt fence and 3.5' HDPE Orange plastic mesh safety fence barrier, reinforced with 2 "x 4" wood stakes.
41. PRNG requires the Contractor to use a software or platform for Construction and Project Management.
42. PRNG requires the Contractor provides a Project Manager at all times in the site project.

43. The Contactor shall be responsible for providing hand wash station for its employees throughout the duration of the activities of the contract.
44. During demolition, construction, and development of the works the daily operation performed in the PRNG's facilities cannot be interrupted at any time during the development of the work.
45. Installation Floater Policy apply for this project.
46. Terrorism Coverage and Terrorism Risk is required.
47. The Contractor is responsible to provide monthly report about the amount and types of debris generated as part of the development of works and activities.
48. The Contractor must report to the PRDNER the corresponding waste generated by the activities of earthwork, demolition activities, and construction activities. Copy of "manifestos" thereof must be delivered to the CFMO.
49. The Contractor must within five (5) calendar days from signed of the contract to provide to PRNG the insurances, policies, and coverage required.
50. The Contractor is responsible for the preparation and establishment of the "Permiso Unico Incidenta" (PUI); including the preparation of the documents required by the OGPe for filling of permits.
51. Construction Permit and Demolition Permit doesn't apply for this project.
52. The Contractor shall submit one (1) original and two (2) hard copies of the submittal. All submittals shall be identified.
53. The Contractor shall prepare and submit all schedules and schedules analysis reports in digital form as well as hard copies.
54. Davis Bacon Act apply for this project.

Attachment 3

CONTRACT FEDERAL CLAUSES



Contract Clauses Required in Purchases and Contracts with Federal Funds

“Cláusulas Contractuales Requeridas en Compras y Contratos con Fondos Federales”

(2 C.F.R. PART 200, Appendix II)

Any acquisition to be paid with partial or completely federal funds, must comply with all the terms and conditions included as part of this quote request. Any supplier interested in participating in this process, agrees to comply with each of the terms and conditions set forth herein. The Contractor certifies that is in compliance with the requirements established by state laws and regulations and federal regulations established in 2 CFR §200.

“Cualquier adquisición a ser pagada con fondos parciales o completamente federales, debe cumplir con todos los términos y condiciones incluidos como parte de esta solicitud de cotización. Cualquier proveedor interesado en participar en este proceso, se compromete a cumplir con cada uno de los términos y condiciones aquí establecidos. El Contratista certifica que cumplirá con los requisitos establecidos por las leyes y reglamentos estatales y los reglamentos federales establecidos en 2 CFR §200.”

1. **Record retention and access to records** The Contractor and the Agency shall afford any authorized representative of NGB, DoD or the Comptroller General of the United States access to and the right to examine all records, books, papers and documents that are parts of this contract. The Agency and the contractor agree to comply with the record retention and provide, as is required, all intact record for at least ten (10) years following closeout of the award.

“El Contratista y la Agencia otorgarán a cualquier representante autorizado de NGB, DoD o el Contralor General de los Estados Unidos acceso y el derecho de examinar todos los registros, libros y documentos que forman parte de este contrato. La Agencia y el contratista acuerdan cumplir con la retención de registros y proporcionar, si es necesario, todos los registros intactos durante al menos diez (10) años después del cierre de la adjudicación.”

2. **Clean Air Act. Water Pollution Control Act (APLICA A CONSTRUCCION DE \$150,000 O MÁS)** The Contractor and the Agency agrees to comply with all applicable standards, order or regulations issued pursuant to the Clean Air Act and the Federal Water Pollution Control Act (42 U.S.C., Section 7401 t 7671 and 33 U.S.C. Section 1318) violations should be reported to NGB and Environmental Protection Agency (EPA).

“El Contratista y la Agencia acuerdan cumplir con todas las normas, órdenes o regulaciones aplicables emitidas de conformidad con la Ley de Aire Limpio y la Ley Federal de Control de la Contaminación del Agua (42 USC, Sección 7401 t 7671 y 33 USC Sección 1318), las violaciones deben informarse a NGB y Agencia de Protección Ambiental (EPA).”

3. **Use of US Flags Carriers** The Contractor agrees to use US Flag Air Carriers for international air transportation of people and property to the extent that such service is available, in accordance with the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. 40118), and their intraoperative guideline by the Comptroller General of the United States.

“El Contratista acuerda utilizar US Flag Air Carriers para el transporte aéreo internacional de personas y propiedades en la medida en que dicho servicio esté disponible, de conformidad con la Ley de Prácticas Competitivas de la FERIA Internacional de Transporte Aéreo de 1974 (49 USC 40118), y su directriz intraoperatoria por El Contralor.”

4. **Debarment and Suspension: EXECUTIVE ORDERS 12549 and 12689 (APLICA A CONSTRUCCION DE \$100,000 o más)** The Contractor agrees to comply with 2CFR Part 180 by certifying that neither it, subcontractor nor its principals or its affiliates are excluded or disqualified from the Excluded Parties List System (EPLS) or the System for Awards Management (SAM), at the current OMB website. This certification is a material representation of fact upon which the agency relies in entering this contract. The Contractor will include a provision requiring such compliance in its lower tier transactions. This verification shall be documented on the Contract File and shall be subject to audit (31 U.S.C. 1352). The Contractor and or bidder will provide the required certification as part of the bid and the contract.

“El Contratista acuerda cumplir con 2CFR Parte 180 al certificar que ni él, el subcontratista ni sus directores o sus afiliados están excluidos o descalificados en el Sistema de Lista de Partes (EPLS) excluidas o el Sistema de Gestión de Premios (SAM), en el sitio web actual de OMB. Esta certificación es una representación material de hecho en la cual la agencia se basa para firmar este contrato. El contratista incluirá una disposición que requiera dicho cumplimiento en sus transacciones de nivel inferior. Esta verificación se documentará en el archivo del contrato y estará sujeta a auditoría (31 U.S.C.1352). El Contratista y/o el oferente proporcionarán la certificación requerida como parte de la oferta y el contrato.”

5. **Byrd Anti-lobbying amendment (APLICA A CONSTRUCCION- DESDE EL BID, REQUIERE CERTIFICACION; APLICA \$100,000 o más)**. The Contractor certifies that each tier to the tier above will not and has not used Federal appropriated funds to pay any organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, or an officer of Congress, or an employee of a member of Congress in connection with obtaining any federal contract, grant, or any other awards covered by federal actions.

“El Contratista certifica que cada nivel del nivel anterior no utilizará ni ha utilizado los fondos federales apropiados para pagar a ninguna organización por influir o intentar influir un funcionario o empleado de cualquier agencia, un miembro del Congreso o un funcionario del Congreso, o un empleado de un miembro del Congreso en relación con la obtención de cualquier contrato federal, subvención o cualquier otro premio cubierto por acciones federales.”

6. **Buy American Act** The Contractor agrees to comply with the Buy American Act (41 U.S.C. 10a et seq.) giving preference to domestic end products and domestic construction material.

“El Contratista acepta cumplir con la Ley de Compras de Estados Unidos (41 U.S.C. 10a et seq.) Dando preferencia a los productos finales nacionales y al material de construcción nacional.”

7. **Central Contractor Registration** The parties agree to comply with the System for Award Management (SAM) and Data Universal Numbering System (DUNS) Requirements.

“Las partes acuerdan cumplir con el System for Award Management (SAM) y Data Universal Numbering Requirements (DUNS).”

8. **False or Fraudulent Statement of Claims** The Contractor acknowledges that 31 U.S.C. Chapter 38, applies to its actions pertaining to this contract. The Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to this contract. The Contractor agrees to include the above language in each subcontract under this contract, modified only to identify the subcontractor that will be subject to these provisions.

“El Contratista reconoce que 31 U.S.C., Capítulo 38 se aplica a sus acciones relacionadas con este contrato. El Contratista certifica o afirma la veracidad y exactitud de cualquier declaración que haya

hecho, haga, pueda hacer o haga que se haga en relación con este contrato. El Contratista acuerda incluir el lenguaje anterior en cada subcontrato bajo este contrato, modificado solo para identificar al subcontratista que estará sujeto a estas disposiciones.”

9. **Contract Work Hours and Safety Standards Act (APLICA A CONSTRUCCION DE \$100,000 o más)** The Contractor will comply with the contracts work hours and Safety Standard Act (40 USC Sections 3701-3708) as supplemented by the Department of Labor Regulations (29 CFR Part 5).

“El Contratista cumplirá con los contratos de horas de trabajo y la Ley de Normas de Seguridad (40 U.S.C. Secciones 3701-3708) según lo complementado por el Departamento de Regulaciones Laborales (29 CFR “Parte 5”).

10. **Davis-Bacon Act (APLICA A CONSTRUCCION DE \$2,000 o más)** The Contractor agrees to comply with the Davis-Bacon Act (40 U.S.C. & 3141-3148). That establishes the requirement for paying the local prevailing wages on public works projects for laborers and mechanics.

“El Contratista acepta cumplir con la Ley Davis-Bacon (40 U.S.C. y 3141-3148). Eso establece el requisito de pagar los salarios locales vigentes en proyectos de obras públicas para trabajadores y mecánicos.”

11. **Copeland Anti-kickback act 40 U.S.C. 3145. (APLICA A CONSTRUCCION DE \$2,000 o más y debe ir acompañada de la cláusula DAVIS BACON ACT)**. The Contractor or Sub-recipient will comply with the Copeland Anti-kickback Act (40 U.S.C. 3145). By this means the Contractor acknowledges and certify that will not induce any person employed in the construction, completion, or repair of any public work, to give up any part of the compensation to which he or she is otherwise entitled.

“El Contratista o el Sub-receptor cumplirán con la Ley contra el Soborno Copeland (40 U.S.C.3145). Por este medio, el Contratista reconoce y certifica que no inducirá a ninguna persona empleada en la construcción, finalización o reparación de ninguna obra pública a renunciar a ninguna parte de la compensación a la que tiene derecho de otra manera.”

12. **Energy Policy and Conservation Act** The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the State Energy Conservation Plan issued in compliance with the Federal Energy Policy and Conservation Act.

“El Contratista acepta cumplir con las normas y políticas obligatorias relacionadas con la eficiencia energética que figuran en el Plan Estatal de Conservación de Energía emitido de conformidad con la Ley Federal de Política y Conservación de Energía.”

13. **Seat Belt Use. Executive Order 13043.** In Accordance with the Executive Order No. 13043 the Contractor will enforce Seat Belt use policies and programs for its employees when operating agency cars, rented or personally owned vehicles.

“De acuerdo con la Orden Ejecutiva No. 13043, el Contratista hará cumplir el uso del cinturón de seguridad de las políticas y programas para sus empleados cuando operen automóviles de agencias, vehículos alquilados o de propiedad personal.”

14. **Compliance with Federal Law, Regulations and Executive Orders.** The Contractor will comply with all applicable federal laws, regulations and executive orders and National Guard policies, procedures and directives.

“El Contratista cumplirá con todas las leyes, regulaciones y órdenes ejecutivas federales aplicables y las políticas, procedimientos y directivas de la Guardia Nacional.”

15. **No Obligation by Federal Government:** The federal government is not a party to this contract and is not subject to any obligations or liabilities to the Agency, contractor, or any other party pertaining to any matter resulting from this contract.

“El gobierno federal no es parte de este contrato y no está sujeto a ninguna obligación o responsabilidades con la Agencia, el contratista o cualquier otra parte relacionada con cualquier asunto resultante de este contrato.”

16. Privacy Act

The Contractor agrees to:

- (1) Comply with the Privacy Act of 1974 (the Act) and the agency rules and regulations issued under the Act in the design, development, or operation of any system of records on individuals to accomplish an agency function when the contract specifically identifies-
 - a. The systems of records; and
 - b. The design, development, or operation work that the contractor is to perform.
 - c. Include the Privacy Act notification contained in this contract in every solicitation and resulting subcontract and in every subcontract awarded without a solicitation, when the work statement in the proposed subcontract requires the redesign, development, or operation of a system of records on individuals that is subject to the Act; and
- (2) Include this clause, including this paragraph,
- (3) in all subcontracts awarded under this contract which requires the design, development, or operation of such a system of records.

In the event of violations of the Act, a civil action may be brought against the agency involved when the violation concerns the design, development, or operation of a system of records on individuals to accomplish an agency function, and criminal penalties may be imposed upon the officers or employees of the agency when the violation concerns the operation of a system of records on individuals to accomplish an agency function. For purposes of the Act, when the contract is for the operation of a system of records on individuals to accomplish an agency function, the Contractor is an employee of the agency.

"Operation of a system of records," as used in this clause, means performance of any of the activities associated with maintaining the system of records, including the collection, use, and dissemination of records. "Record," as used in this clause, means any item, collection, or grouping of information about an individual that is maintained by an agency, including, but not limited to, education, financial transactions, medical history, and criminal or employment history and that contains the person's name, or the identifying number, symbol, or other identifying particular assigned to the individual, such as a fingerprint or voiceprint or a photograph.

"System of records on individuals," as used in this clause, means a group of any records under the control of any agency from which information is retrieved by the name of the individual or by some identifying number, symbol, or other identifying particular assigned to the individual.

“El Contratista acepta:

- (1) *Cumplir con la Ley de Privacidad de 1974 (la Ley) y las reglas y regulaciones de la agencia emitidas bajo la Ley en el diseño, desarrollo u operación de cualquier sistema de registros de individuos para cumplir una función de la agencia cuando el contrato identifica específicamente:*
 - a. *Los sistemas de registros; y*
 - b. *El trabajo de diseño, desarrollo u operación que el contratista debe realizar;*
 - c. *Incluir la notificación de la Ley de Privacidad contenida en este contrato en cada solicitud y subcontracto resultante y en cada subcontracto otorgado sin una solicitud, cuando la declaración de trabajo en el subcontracto propuesto requiera el rediseño, desarrollo u operación de un sistema de registros de individuos que está sujeto a la Ley; e*
- (2) *Incluir esta cláusula, incluido este párrafo,*
- (3) *en todos los subcontratos adjudicados en virtud de este contrato que requiera el diseño, desarrollo u operación de dicho sistema de registros.*

“En caso de violaciones de la Ley, se puede entablar una acción civil contra la agencia involucrada cuando la violación se refiere al diseño, desarrollo u operación de un sistema de registros de individuos para cumplir una función de la agencia, y se pueden imponer sanciones penales a los oficiales o empleados de la agencia cuando la violación se refiere a la operación de un sistema de registros de individuos para cumplir una función de la agencia. Para propósitos de la Ley, cuando el contrato es

para la operación de un sistema de registros de individuos para cumplir una función de agencia, el Contratista se considera un empleado de la agencia."

"Operación de un sistema de registros", como se usa en esta cláusula, significa el desempeño de cualquiera de las actividades asociadas con el mantenimiento del sistema de registros, incluida la recopilación, uso y difusión de registros.

"Registro", como se usa en esta cláusula, significa cualquier elemento, recopilación o agrupación de información sobre un individuo que es mantenida por una agencia, que incluye, entre otros, educación, transacciones financieras, historial médico e historial criminal o laboral y que contiene el nombre de la persona, o el número de identificación, símbolo u otra identificación particular asignada a la persona, como una huella digital o una huella de voz o una fotografía.

"Sistema de registros de individuos", como se usa en esta cláusula, significa un grupo de registros bajo el control de cualquier agencia de la cual se recupera información por el nombre del individuo o por algún número de identificación, símbolo u otro identificador particular asignado al individuo."

- 17. Procurement of Recovered Materials: (APLICA A CONTRATOS DE \$10,000 o más)** The Contractor agrees to provide a preference for products and services that conserve natural resources that protect the environment and maximizes energy establishing an affirmative program for procurement of recovered materials identified as EPA guidelines.

"El Contratista acuerda proporcionar una preferencia por los productos y servicios que conservan los recursos naturales que protegen el medio ambiente y maximiza la energía estableciendo un programa afirmativo para la adquisición de materiales recuperados identificados como pautas de la EPA."

- 18. Equal Employment Opportunity (EEO)** The Contractor agrees to obey all laws and regulations regarding discrimination for reasons of race, color, gender, natural origin or social condition, sexual orientation, age, political or religious belief or any other discriminatory cause in the provision of services contained in this contract. It will also have the responsibility to avoid creating a hostile environment, free of all types of harassment, to include sexual harassment; having the responsibility of notifying the Executive Officer for State Affairs or the person designated by PRNG immediately of any situation that arises to this effect. Failure to comply in this regard will cause the contract to be terminated without further notice. According to Executive Order No. 11246, Amendment No. 11375, 41 CFR Part 60, Americans with Disabilities Act of 1990 (ADA) and 2 CFR Part 200.

"El Contratista acuerda obedecer todas las leyes y regulaciones con respecto a la discriminación por motivos de raza, color, género, origen natural o condición social, orientación sexual, edad, creencias políticas o religiosas o cualquier otra causa discriminatoria en la provisión de servicios contenidos en este contrato. También tendrá la responsabilidad de evitar crear un ambiente hostil, libre de todo tipo de acoso, para incluir el acoso sexual; tener la responsabilidad de notificar al Oficial Ejecutivo de Asuntos del Estado o la persona designada por PRNG de inmediato de cualquier situación que surja a este efecto. El incumplimiento a este respecto hará que el contrato se rescinda sin previo aviso. De acuerdo con la Orden Ejecutiva No. 11246, Enmienda No. 11375, 41 CFR Parte 60, estadounidenses con la Ley Americana de Discapacidades de 1990 (ADA) y 2 CFR Parte 200."

- 19. Termination for Cause and Convenience** Any of the parties may rescind the contract at any moment, through written notification to the other party, with fifteen (15) days in advance to the date in which the contractual resolution shall be effective. However, the requirement of prior notification will not apply when probable cause for arrest is determined against the Contractor, for any State or Federal crime, and for any of the grounds established in the contract. PRNG will be able to immediately terminate the contract in the event of negligence, abandonment of duties or non- fulfillment of any of the contractual obligations. Non-fulfillment, among other things, will include the Contractor not providing services required by PRNG after having requested them in writing or by any other approved means of communications.

NO services are to be paid for that are in violation to this clause, since it is understood that any official that request and/or accepts services from another part that is in violation to this disposition, is doing so

without any appropriate legal authority.

“Cualquiera de las partes puede rescindir el contrato en cualquier momento, mediante notificación escrita a la otra parte, con quince (15) días de anticipación a la fecha en que la resolución contractual será efectiva. Sin embargo, el requisito de notificación previa no se aplicará cuando se determine la causa probable del arresto contra el Contratista, por cualquier delito del Estado o Federal y por cualquiera de los motivos establecidos en el contrato. PRNG podrá rescindir inmediatamente el contrato en caso de negligencia, causa probable de arresto contra el Contratista, por cualquier delito del Estado Federal y por cualquiera de los abandonos de funciones o incumplimiento de cualquiera de las obligaciones contractuales. El incumplimiento, entre otras cosas, incluirá que el Contratista no brinde los servicios requeridos por PRNG después de haberlos solicitado por escrito o por cualquier otro medio de comunicación aprobado.

NO se pagarán servicios que infrinjan esta cláusula, ya que se entiende que cualquier funcionario que solicite y/ o acepte servicios de otra parte que infrinja esta disposición, lo hará sin ninguna autoridad legal adecuada.”

- 20. Contractual Legal Remedies Controversies and Pertinent Laws** This contract will be governed by the laws of the Government of Puerto Rico and the United States of America. Should any disposition, cause or part of this contract be contested for any reason before a Court of Law and declared unconstitutional or null, such determination will not affect, undermine or invalidate the remaining dispositions or clauses of this contract, rather, in its effect will limit only to the disposition declared unconstitutional or null. Both parties accept that the San Juan Superior Court (First Instance) will be the court with pertinent jurisdiction to elucidate any judicial action originating from this contract.

“Este contrato se registrará por las leyes del Gobierno de Puerto Rico y los Estados Unidos de América. Si alguna disposición, causa o parte de este contrato se impugna por algún motivo ante un Tribunal de Justicia y se declara inconstitucional o nula, dicha determinación no afectará, socavará ni invalidará las disposiciones o cláusulas restantes de este contrato, sino que, en su efecto, limitará solo a la disposición declarada inconstitucional o nula. Ambas partes aceptan que el Tribunal Superior de San Juan (Primera Instancia) será el tribunal con jurisdicción pertinente para dilucidar cualquier acción judicial que se origine en este contrato.”

- 21. Drug Free Work Place** The Contractor certifies that it will maintain a drug free working environment. It also certifies the publication and distribution of material related to the prohibition of controlled substances and the penalties that these are subject to and that prevention and detection of drug programs have been established. The Contractor will inform PRNG in case of a conviction for drugs in the workplace area and the disciplinary actions that will be taken against any employee convicted for criminal offenses related to the use and abuse of controlled substances according to the “Drug Free Workplace Act”.

“El Contratista certifica que mantendrá un ambiente de trabajo libre de drogas. También certifica la publicación y distribución de material relacionado con la prohibición de sustancias controladas y las sanciones a las que están sujetas y que se han establecido programas de prevención y detección de drogas. El Contratista informará a PRNG en caso de una condena por drogas en el área de trabajo y las medidas disciplinarias que se tomarán contra cualquier empleado condenado por delitos relacionados con el uso y abuso de sustancias controladas de acuerdo con la “Ley de Lugar de Trabajo Libre de Drogas”.

- 22. Prohibition on Contracting for Covered Telecommunications Equipment and Services** Section 889(b)(1) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019 (FY2019 NDAA) and 2 C.F.R. § 200.216, as implemented by FEMA Policy 405-143-1, Prohibitions on Expending FEMA Award Funds for Covered Telecommunications Equipment or Services (Interim), prohibit the obligation or expending of federal award funds on certain telecommunication products or from certain entities for national security reasons. Effective August 13, 2020, FEMA recipients and subrecipients, as well as their contractors and subcontractors, may not obligate or expend any FEMA award funds to:

- (1) Procure or obtain any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology of any system;
- (2) Enter into, extend, or renew a contract to procure or obtain any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology of any system; or
- (3) Enter into, extend, or renew contracts with entities 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.

“La Sección 889(b)(1) de la Ley de Autorización de Defensa Nacional John S. McCain para el año fiscal 2019 (FY2019 NDAA) y 2 C.F.R. § 200.216, según lo implementado por la Política 405-143-1 de FEMA, Prohibición de la utilización de fondos adjudicados por FEMA para la compra equipos o servicios de telecomunicaciones cubiertos, prohíbe la inversión o el gasto de fondos de adjudicación federal en ciertos productos de telecomunicaciones o de ciertas entidades por razones de seguridad nacional. A partir del 13 de agosto de 2020, los recipientes y Subrecipientes de FEMA, así como sus contratistas y subcontratistas, no pueden invertir ni gastar fondos de adjudicación de FEMA para:

- (1) Adquirir u obtener cualquier equipo, sistema o servicio que utilice equipos o servicios de telecomunicaciones cubiertos como componente sustancial o esencial de cualquier sistema, o como tecnología crítica de cualquier sistema;*
- (2) Celebrar, extender o renovar un contrato para adquirir u obtener cualquier equipo, sistema o servicio que use equipos o servicios de telecomunicaciones cubiertos como un componente sustancial o esencial de cualquier sistema, o como tecnología crítica de cualquier sistema; o*
- (3) Celebrar, extender o renovar contratos con entidades que utilicen equipos o servicios de telecomunicaciones cubiertos como un componente sustancial o esencial de cualquier sistema, o como tecnología crítica como parte de cualquier sistema.”*

23. Domestic Preferences for Procurement As appropriate, and to the extent consistent with law, the contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States. This includes, but is not limited to iron, aluminum, steel, cement, and other manufactured products.

For purposes of this clause:

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, occurred in the United States.

Manufactured products mean items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.”

“Según aplique, y en la medida en que lo permita la ley, el contratista debe, en la mayor medida posible, dar preferencia a la compra, adquisición o uso de bienes, productos o materiales producidos en los Estados Unidos. Esto incluye, entre otros, hierro, aluminio, acero, cemento y otros productos manufacturados.

Para efectos de esta cláusula:

Producido en los Estados Unidos significa, para los productos de hierro y acero, que todos los procesos de fabricación, desde la etapa inicial de fusión hasta la aplicación de recubrimientos, ocurrieron en los Estados Unidos.

Los productos manufacturados significan artículos y materiales de construcción compuestos total o parcialmente de metales no ferrosos como el aluminio; plásticos y productos a base de polímeros como tubería de cloruro de polivinilo; agregados tales como concreto; vidrio, incluida la fibra óptica; y madera.”

Included by Legal Office Judge Advocate (JAG)

24. Police Record Check The Contractor agrees to submit to a background check prior to providing services to PRNG. The background check will be completed by PRNG and includes a criminal record check, verification against the national sex offenders register and any other verification that deem necessary in relationship with the services to be provided by the Contractor. The background checks must show no

convictions or pending criminal charges that would render the Contractor to provide the services requested in the contract.

"El Contratista se compromete a someterse a una verificación de antecedentes antes de prestar servicios a PRNG. La verificación de antecedentes será realizada por la PRNG e incluye una verificación de antecedentes penales, verificación contra el registro nacional de ofensores sexuales y cualquier otra verificación que se considere necesaria con relación a los servicios que brindará el Contratista. Las verificaciones de antecedentes deben mostrar no condenas o cargos penales pendientes que harían que el Contratista no pueda brindar los servicios solicitados en el Contrato".

25. Annual Threat Awareness and Reporting Program (TARP) Training All Contractor's Employee will complete an annual Threat Awareness and Reporting Program (TARP) training provided by a Counterintelligence Agent, IAW (DoDD 5240.06 Counterintelligence Awareness and Reporting). The Contractor shall submit the certificates of completion of the training for each employee or a memorandum for record to the COR or Contracting Officer (if a COR is not assigned), within five (5) calendar days after completion of the training.

"Todos los Empleados del Contratista completaran una capacitación anual del Programa de Informes y Concientización sobre Amenazas (TARP) brindada por un Agente de Contraineligencia, IAW "(DoDD 5240.06 Counterintelligence Awareness and Reporting). El Contratista deberá presentar los certificados de finalización de la capacitación para cada empleado o un memorando para su registro al COR o al Oficial de Contrataciones (si no se asigna un COR), dentro de los cinco (5) días calendario posteriores a la finalización de la capacitación.

We certify that we will comply with the clauses and conditions established by the aforementioned laws and regulations.

Certificamos que cumpliremos con las cláusulas y condiciones establecidas por las leyes y reglamentos antes mencionados.

Company/Compañía

Name/Nombre

Signature/Firma

Corporate Seal/Sello Corporativo

Position/Puesto que Ocupa

Date/Fecha

Attachment 4

IMPERATIVE INCLUSION CLAUSES

**CLÁUSULAS DE INCLUSIÓN IMPERATIVA EN TODO CONTRATO DE
SERVICIOS PROFESIONALES O COMPRADOS (Carta Circular 001-2021)**

Todos los contratos de servicios profesionales o comprados cuya cuantía exceda diez mil dólares (\$10,000) deberán contener textualmente las siguientes cláusulas:

- a. Cláusula de servicios interagenciales: Ambas partes contratantes reconocen y acceden a que los servicios contratados podrán ser brindados a cualquier entidad de la Rama Ejecutiva con la cual la entidad contratante realice el acuerdo interagencial o por disposición directa de la Secretaría de la Gobernación. Estos servicios se realizarán bajo los mismos términos y condiciones en cuanto a horas de trabajo y compensación consignados en este contrato. Para efectos de esta cláusula, el término entidad de la Rama Ejecutiva incluye a todas las agencias del Gobierno de Puerto Rico, así como a las instrumentalidades y corporaciones públicas y a la Oficina del Gobernador.
- b. Cláusula de terminación: La Secretaría de la Gobernación tendrá la facultad para dar por terminado el presente contrato en cualquier momento.
- c. Política de Revisión de Contratos de la Junta de Supervisión y Administración Financiera para Puerto Rico: Las Partes reconocen que el CONTRATISTA ha presentado la certificación titulada "Requisito de Certificación del Contratista, requerida de conformidad con la Política de Revisión de Contratos de la Junta de Supervisión y Administración Financiera para Puerto Rico, vigente a partir del 6 de noviembre de 2017 y según enmendada el 30 de octubre de 2020, firmada por el Director Ejecutivo del Contratista (u otro funcionario con una posición o autoridad equivalente para emitir tales certificaciones). Se incluye como anejo a este Contrato, copia firmada del "Requisito de Certificación del Contratista".