

**PROJECT DESIGN/BUILD  
SPECIFICATIONS**

**FOR THE**

**MPA FLIGHT TRAINING SYSTEMS  
BUILDING**

**AT**

**US COAST GUARD AVIATION TRAINING  
CENTER (ATC)  
MOBILE, ALABAMA**

**PROJECT NO: 76-L03003**

JUNE 2008



**UNITED STATES COAST GUARD  
FACILITIES DESIGN & CONSTRUCTION CENTER ATLANTIC  
(FDCCLANT)**

5505 ROBIN HOOD ROAD  
SUITE K  
NORFOLK, VIRGINIA 23513-2413



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SECTION 01110

DESIGN-BUILD GENERAL PARAGRAPHS

PART 1 GENERAL

1.1 SCOPE OF WORK

Design-Build the MPA Flight Training Systems Building, all associated site work and utilities, roadways and parking areas at US Coast Guard Aviation Training Center (ATC), Mobile, Alabama in accordance with this RFP Specification, RFP Drawings (Project No.76-L03003) and RFP Individual Space Criteria Sheets (Project No.76-L03003).

1.2 CONTRACTING OFFICER'S REPRESENTATIVE

The term "COR" is an abbreviation for "Contracting Officer's Representative."

1.3 NEW UTILITY SERVICES

Make all arrangements with the local utility providers and pay all fees, charges, and costs of any nature associated with establishing and installing new temporary (during construction) and subsequent permanent utility services required to ensure permanent and uninterrupted utility service at project completion. The contract documents may provide a conceptual plan for utility layouts. These plans shall be confirmed by the contractor during the bidding stage with the local utility provider to determine the exact materials, equipment placement, and other features that may be required by the specific utility provider. The term utility service includes, but is not limited to meters, mains, service lines, high voltage feeders, transformers, force mains, lift stations, etc. The contractor is responsible for coordinating the work with the utility provider to insure the utility connection to the site is completed and that there is no delay in the prosecution of the work or completion of the project. Utility services include electricity, water, sanitary sewer, gas, telephone, and cable TV. The local utility providers are as follows:

| Utility Provider                           | POC          | Service     | Telephone Number    |
|--|--------------|-------------|---------------------|
| Alabama Power                              | Clark Womble | Electricity | (251) 694-2509/2500 |
| Mobile Gas                                 |              | Natural Gas | (251) 476-8052      |
| Mobile Area Water and Sewer System (MAWSS) |              | Water/Sewer | (251) 694-3100      |

1.4 PERMITS

Contractor's responsibility for permits is discussed in Section I contract clause 52.236-7 "Permits and Responsibilities." The Contractor shall comply with all terms and conditions of permits, whether the permit is obtained by the Contractor or the Government.

Contractor shall comply with permitting requirements as identified in Section 01158 of these specifications

1.5 WORK SEQUENCE

No special work sequence is required.

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### **1.6 RELOCATED EQUIPMENT AND ITEMS**

Disconnect, dismantle if necessary, remove, relocate, reinstall, connect, and test items shown on the drawings. Cap disconnected service lines. Provide mechanical and electrical service connections, fittings, fastenings, and other materials needed to assemble and install relocated equipment. Before disconnecting or relocating items, inspect the items in the presence of the COR to determine their existing condition. The contractor is responsible for damage sustained by the items after this inspection.

### **1.7 UTILITY OUTAGES**

Before interrupting or shutting down any utility, make a request for the interruption to the Contracting Officer at least 5 days before the anticipated interruption. Identify the utility, reason for interruption, proposed time of interruption, and duration of interruption. Do not interrupt utilities until authorized by the Contracting Officer.

### **1.8 GOVERNMENT FURNISHED EQUIPMENT**

The following is a partial list of existing and/or new equipment that the Government will furnish and the Contractor shall install in the facility. The Contractor shall coordinate the design and provide support, and utilities for the items listed below.

1) Uninterruptible Power Supply (UPS); (Liebert model 37SA100C0C6BA08 with model 37BP100XPX1BNL battery pack, model 37MB1000CC61N Bypass Cabinet and model 37DU1000C5C000 Distribution Cabinet).

### **1.9 UNDERGROUND UTILITIES**

The underground utility locations shown on the drawings are not exact. Notify the COR and the cognizant utility companies at least 48 hours before excavating. Mark the excavation route and intersecting utilities. The COR or the utility company representative will review the contractor's layout and notify the contractor if any known utilities have been left unmarked. When the excavation crosses an existing utility line, use hand tools to excavate for a distance of 5 feet on each side of the intersection location shown on the drawings. Once exposed, protect underground utilities from damage.

- a. Make utility cut-over and interruptions after the normal working hours or on Saturdays, Sundays, and Government holidays. Conform to procedures required in contract clause H.3 "Work Outside Regular Work Hours.
- b. Ensure that new utility lines are complete, except for the connection, before interrupting existing service.
- c. Interruption to water, sanitary sewer, storm sewer, telephone service, electric service, air conditioning, heating, and fire alarm shall be considered utility cut-overs. All outages shall be restored prior to the start of normal working hours on the next work day as defined in contract clause H.3 "Work Outside Regular Work Hours." This time limit includes time for deactivation and reactivation.
- d. Operation of Station Utilities: The Contractor shall not operate nor disturb the setting of control devices in the station utilities system, including water, sewer, electrical, and steam services. The Government will operate the control devices as required for the normal conduct of the

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work. The Contractor shall notify the Contracting Officer giving reasonable advance notice when such operation is required.

### **1.10 CONTRACTOR USE OF PREMISES**

The contractor will be working on an operational Coast Guard installation. Perform and conduct the work to minimize interference with Coast Guard operations. Become familiar with and obey station fire, traffic, and security regulation. Contractor personnel are not allowed in facilities not directly related to the work required under this contract.

### **1.11 WEATHER**

Delays caused by unusually severe weather (FAR Clause 52.249-10). Unusually severe weather will be considered unforeseeable and unusually severe if it is more severe than the statistical 3-year average for the appropriate weather parameters established by the National Weather Service. See Section 01320 "Anticipated Weather Delays" for additional requirements.

### **1.12 MANUFACTURER'S INSTRUCTIONS**

Particular items and products specified in the sections are to be provided and/or installed according to the manufacturer's printed instructions. For bidding and contract performance purposes, the contractor is deemed to be aware of the requirements of these instructions.

### **1.13 RECEIPT OF MATERIALS**

Shipments of equipment, materials, and supplies shall be addressed to the contractor - not the Government. The contractor must be on hand to accept shipments; the Government will not accept shipments.

### **1.14 DELIVERY, STORAGE, AND HANDLING OF MATERIALS**

Deliver, store, and handle products and materials according to the manufacturer's printed instructions and as follows:

- a. Deliver products and materials in manufacturer's original unopened packages or containers bearing manufacturer's labels.
- b. Store products subject to damage from the elements in weathertight enclosures; maintain temperature and humidity within the ranges stated in the manufacturer's printed instructions.
- c. Store fabricated products off the ground on platforms, blocking, or skids. Cover or protect products that may discolor or deteriorate due to exposure to the elements. Provide ventilation to avoid condensation.
- d. Store loose granulated material on solid surfaces such as paving, plywood, or sheet material to prevent mixing with foreign matter. Provide drainage to prevent sheet material to prevent mixing with foreign matter. Provide drainage to prevent flow or ponding of rainwater. Prevent mixing of materials.

### **1.15 MINOR DEMOLITION, CUTTING, AND PATCHING:**

- a. Provide Contracting Officer 24 hour notice before commencing demolition.

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- b. Cut surfaces such as masonry, plaster, tile, and metal in straight lines at natural points of division.
- c. Materials for patching, filling-in, repairing, and extending work shall be new, and shall be similar in appearance and equal in quality to the materials used in the adjoining construction or the removed materials when they were new.
- d. Protect existing construction, surfaces, and equipment from damage. Damaged existing construction, surfaces, or equipment shall be restored or replaced to match existing conditions or new adjoining work.
- e. Dust: Erect and maintain temporary dust tight partitions or barriers to prevent the spread of dust, fumes, and noise to other parts of the building. Seal off return air grilles in the areas enclosed by dust barriers. Vent areas enclosed by dust barriers to the outside and provide filters on these vents. Before removing the dust barrier, completely clean the area enclosed by the barrier and both sides of the barrier itself. Cover existing equipment to protect it from dust.
- f. Disassemble, disconnect, cut, remove, and alter existing construction and equipment without damaging other construction or equipment that is to remain or be reused. Cut and remove to the limits shown on the drawings, or, if not shown, to the minimum extent necessary for the proper installation of new work. Piping shall be removed and capped so as to be concealed in the finished work.
- g. Cut, move, and remove existing construction as necessary to do the work; replace and restore when work is completed.
- h. Completely remove applied finish flooring such as ceramic floor and base, and resilient tile flooring and base, including mastic, to structural floor.
- i. Patching: Patch to provide a neatly finished installation and to restore surfaces and items to the condition they were in before the work started. Where removals leave holes and damaged surfaces that will be exposed in the finished work, patch and repair these holes and damaged surfaces to match adjacent finished surfaces and to provide surfaces that are suitable for the provision of the new work. Install materials according to standard trade practice. Provide a smooth, even line of transition where patched work adjoins existing construction or new work. Patches or repairs shall match existing conditions or new adjoining work and shall provide a uniform finish and texture over the entire surface. When existing finish cannot be matched, refinish the entire surface to the nearest intersection.
- j. Transitions: Make smooth and even transitions where new work abuts or aligns with existing construction. Where finished surfaces are cut such that a smooth transition with new work is not possible, terminate the existing surface along a straight line at a natural point of division and submit written recommendations to the COR on how to proceed.
- K. Adjustments: Where removal of partitions results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, and bulkheads.

### **1.16 CONTRACTING OFFICER'S AUTHORITY**

In no event shall any understanding or agreement between the contractor and any Government employee other than the Contracting Officer on any contract, modification, change order, letter or verbal direction to the Contractor be effective or binding upon the Government. All such actions must be formalized by a proper contractual document executed by an appointed Contracting Officer. The contractor is hereby put on notice that in the event a Government employee, other than the Contracting

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Officer, directs a change in the work to be performed, or increases the scope of the work to be performed, it is the contractor's responsibility to make inquiry to the Contracting Officer before making the deviation. Payments will not be made without being authorized by an appointed Contracting Officer with the legal authority to bind the Government.

**PART 2 PRODUCTS**

Not used.

**PART 3 EXECUTION**

Not used.

End of Section

SECTION 01112

DRAWINGS AND SUPPLEMENTARY INFORMATION

1.1 SUMMARY

This section identifies the RFP drawings and supplementary information to be used by the contractor to develop the project design in accordance with Section 01158 "Design/Build Criteria."

1.2 RFP DRAWINGS

RFP drawings, Project Number 76-L03003; refer to Section 00158, "DESIGN/ BUILD CRITERIA" regarding application of these drawings. Drawings will be provided in electronic Adobe "PDF" format.

1.3 INDIVIDUAL SPACE CRITERIA SHEETS:

Individual Space Criteria Sheets, Project Number 76-L03003; refer to Section 00158, "DESIGN/ BUILD CRITERIA" regarding application of these sheets. Sheets will be provided in electronic Adobe "PDF" format.

1.4 SUPPLEMENTARY DRAWINGS

The following drawings will provided for information. Drawings are the property of the Government and shall not be used for any purpose other than that intended by the contract.

- a. Construct Consolidated Hangar, Project 76-L03001, drawings L122C100 through L122C112 and Drawing L122E100 (14 sheets).
- b. TARIV - Phase II Utility Inventory; Project 07-TF2132, 35 sheets and report (approximately 65% design progress submittal for the ongoing project) .
- c. Conversion of Overhead to Underground Electric, Project 2001184, 14 sheets.
- d. Site Utility Drawing ALLUTIL5, 1 sheet.

1.4.1 Government Facility Drawings

Additional drawings of ATC Mobile facilities are available at ATC Mobile Facilities Engineering Office for contractor review; coordinate reviews with the ATC Mobile Facility Engineer. The Government will furnish an electronic file copy of selected drawings, where an electronic file copy exists; contractor shall identify requested drawings by project number and drawing number. The Government does not guarantee that drawings accurately show existing conditions.

1.5 SUPPLEMENTARY INFORMATION

The following supplementary documents are included for information. Refer to Section 01158 "Design/Build Criteria" for additional direction regarding the use of these documents.

- a. Geotechnical Information including Geotechnical Investigation Report titled "MPA Hangar Complex & MPA Flight Simulator Facility" dated October 2003 prepared by URS Group, Inc.
- b. COMDTINST M5510.23 Classified Information Management Program
- c. UPS Manufacturer's literature

1.5 GOVERNMENT DOCUMENTS

The attached criteria are provided for compliance with Coast Guard drawing standards. Refer to RFP Specification Section 01160 "Design Documents" regarding application of the criteria.

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1.5.1 Appendix "L" Criteria for Computer Generated Drawings.

Refer to Section 01160 "Design Documents" for direction in applying these criteria. The Government will provide electronic format of standard drawing sheets with title block and drawing numbers.

End of Section

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### **SECTION 01158**

#### **DESIGN/BUILD CRITERIA**

##### **1.1 GENERAL PROJECT REQUIREMENTS AND DESCRIPTION**

###### **1.1.1 REFERENCES, CODES AND STANDARDS**

The codes, standards and publications are referenced in the text by the basic designation only. The latest editions, at the time of bid proposal, shall be used.

New construction and modification to existing construction shall comply with requirements of:

Alabama Department of Transportation – Standard Specifications for Highway Construction, 2002 Ed.

American Society of Civil Engineers- Minimum Design Loads for Buildings and Structures (ASCE-7)

American Concrete Institute:

Building Code Requirements for Structural Concrete (ACI 318)

Building Code Requirements for Masonry Structures ( ACI 530/530.1)

American Institute of Steel Construction:

Steel Construction Manual

Steel Joist Institute

Standard Specifications and Load Tables, Open Web Steel Joists

Steel Deck Institute

Applicable Design Manuals

American Society of Heating Refrigeration and Air Conditioning (ASHRAE)

Electronics Industries Association (TIA/EIA)-Commercial Building Standard for Telecommunications Pathways and Spaces (EIA/TIA-569)

International Building Code (IBC)

International Fire Code (IFC)

International Plumbing Code (IPC)

International Mechanical Code (IMC)

Occupational Safety and Health Association (OSHA)

Code of Federal Regulations (CFR)

Illumination Engineering Society of North America (IESNA) Lighting Handbook (LHBK)

Mobile Area Water and Sewer System - Standard Specifications for Water Mains, Sanitary Sewers and Sewage Pumping Stations –Latest Online Edition

National Fire Protection Association (NFPA)

National Life Safety Code (NFPA 101)

National Electrical Code (NEC, NFPA 70)

National Fire Alarm Code (NFPA 72)

National Electrical Safety Code (NESC, IEEE C2)

National Electrical Contractors Association (NECA) National Electrical Installation Standards (NEIS)

Telecommunications Industry Association (TIA/EIA -310D) Cabinets, Racks, Panels and Associated Equipment

Telecommunications Industry Association/Electronics Industries Association TIA/EIA-568-B.1 Commercial Building Telecommunications Cabling Standard Part 1: General Requirements (May 2001).

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Telecommunications Industry Association/Electronics Industries Association TIA/EIA-568-B.1-1 Commercial Building Telecommunications Cabling Standard Part 1: General Requirements Addendum 1 – Minimum 4-Pair UTP and 4-Pair ScTP Patch Cable Bend Radius (August 2001).

Telecommunications Industry Association/Electronics Industries Association TIA/EIA-568-B.2 Commercial Building Telecommunications Cabling Standard Part 2: Balanced Twisted-Pair Cabling Components (May 2001).

Telecommunications Industry Association/Electronics Industries Association TIA/EIA-568-B.3 Optical Cabling Components Standard (April 2000).

Telecommunications Industry Association/Electronics Industries Association (TIA/EIA-569-B)-Commercial Building Standard for Telecommunications Pathways and Spaces

Telecommunications Industry Association/Electronics Industries Association (TIA/EIA-606-A) Administration Standard for the Commercial Telecommunications Infrastructure

Telecommunications Industry Association/Electronics Industries Association (TIA/EIA-J-STD-607-A)

Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications

Telecommunications Industry Association/Electronics Industries Association (TIA/EIA-758-A) Customer-Owned Outside Plant Telecommunications Standard

Telecommunications Industry Association/Electronics Industries Association (TIA/EIA-526-7) Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant – OFSTP-7

Telecommunications Industry Association/Electronics Industries Association(TIA/EIA-526-14A) Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant – OFSTP-14

Telecommunications Industry Association/Electronics Industries Association (TIA/EIA-598-C) Optical Fiber Cable Color Coding

Uniform Federal Accessibility Standards (UFAS)

U.S. Coast Guard, Aviation Training Center Master Landscape Plan, April 1997

## **1.2 ROLE OF REQUEST FOR PROPOSAL (RFP) SPECIFICATIONS AND DRAWINGS**

### **1.2.1 General:**

Section 01158, "Design/Build Criteria," and Drawings contain abbreviated minimum facility requirements. The Contractor shall provide all necessary materials, equipment, labor and services required to provide a complete and useable facility for its intended purpose as a Flight Training Systems (FTS) facility to house the CN-235 Maritime Patrol Aircraft (MPA) flight simulator and associated training spaces. The building will include modern interactive training rooms, a conference room, offices, and the personnel support facilities required to support the pilot training requirements.

### **1.2.2 Contractor-produced Construction Design Documents**

The Contractor shall provide construction design documents in compliance with Section 01160 "Construction Design Documents".

### **1.2.3 RFP Drawings**

The design and design data indicated on the RFP drawings are the minimum requirements, i.e.; baseline drawing requirements, to be used by the Contractor to develop the project design. The Contractor shall add to, supplement, and complete these drawings to fully comply with the documentation requirements specified in Section 01160, "Construction Design Documents." The design and design data on the RFP drawings shall not be changed unless the requirements of paragraph "Deviations from Procurement Documents" of Section 01160, "Construction Design Documents" are met.

### **1.2.4 Precedence**

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In the event of conflict or inconsistency between provisions of the various portions of this contract (the reconciliation of which is not otherwise provided for herein), precedence shall be given in the following order. The provisions of a particular portion shall prevail over those of a subsequently listed portion.

- a. The provisions of the Requests For Proposal (RFP) issued in connection with this contract including all addenda, amendments, or other modifications issued there under.
- b. The Government reviewed Contractor-produced Design Drawings and Specifications, except to the extent that any deviation therein has been specifically approved in writing pursuant to the provisions of Section 01160, "Construction Design Documents."

### **1.3 DESIGN RELATED PERMITS & CERTIFICATIONS**

#### **1.3.1 PERMITS**

Timely acquisitions of all necessary design and construction related permits shall be the responsibility of the Contractor.

The contractor shall be responsible for identifying and obtaining all required permits, approvals, concurrences and certifications (hereafter called permits) from regulatory agencies. The Government will not delegate "Agent" authority to the contractor; the Coast Guard will sign all submissions to regulatory agencies. The Government will indemnify the contractor for all application fees on a cost basis.

As part of the first design submittal, provide a complete summary of all permits/approvals required for the project. As a minimum, the following information shall be provided for each required permit:

Name of Permit/Approval  
Regulatory Review Agency  
Regulatory Agency Address  
Regulatory Agency Point of Contact  
Regulatory Agency Phone Number  
Public Notice Required (Yes/No)  
Application Fee  
Approximate Review Period  
Public Meetings Required

The Contractor shall comment on any difficulties expected in obtaining approval for each permit/approval application.

Submit for the Government's review and approval the following:

- a. Complete application.
- b. Draft application cover letter.
- c. Draft public notice advertisement (if any)

Within 7 days of review by the Government, incorporate all Government comments and provide the following for signature and submission (by the Coast Guard) to regulatory agency(s):

- a. Completed application form(s)
- b. Public notice (if any)
- c. Application fees (certified check)
- d. Proper number of exhibits/attachments (as required by regulatory agency) to application

Generally, the following text will be used for each application:

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Applicant: United States of America in the Person of the  
U. S. Coast Guard, Facilities Design and  
Construction Center (Atlantic)

Signature: J. M. Heinz, P.E.  
Captain, U. S. Coast Guard  
Commanding Officer  
Facilities Design and Construction Center (Atlantic)

The following statement is included below the signature: "The above signed has the authority to represent the U. S. Coast Guard."

Place all public notice type newspaper advertisements required for each application. Government will indemnify the A/E for the newspaper's direct billing cost of these advertisements. Advertisements shall be placed so as to properly coincide with permit/approval submission.

### **1.3.2 LEED CERTIFICATION**

Leadership in Energy and Environmental Design (LEED) Green Building Rating System™

1.3.2.1 The U.S.C.G. endorses the principles of integrated sustainable design contained in the LEED rating system and will utilize this system as a means of measuring the degree of implementation being incorporated into the project. The contractor shall provide an analysis of the LEED criteria as it applies to the design of this project and include that analysis with each design submittal. When estimating energy savings, use ASHRAE 90.1 as the baseline. The analysis report shall include the following:

- a. An explanation of each LEED point obtained by the project
- b. Total LEED score for the project
- c. Version 2.2 of LEED shall be used for the analysis
- d. A statement signed by a registered professional engineer or an architect that in their opinion the LEED items listed in 1 and 2 above, will provide at least the minimum points required to meet the LEED classification of "Certified" (unless LEED is not applicable, or justifiable conditions exist that limit the pursuit and accomplishment of the Certified level).

Under an integrated design approach specific materials or systems within a facility may have higher first costs, but these are balanced by lower first costs for other components of the design. The goal is to design a facility for which overall quality is higher, life-cycle costs are lower, sustainability concepts and principles are incorporated to the greatest extent possible, and first costs are held to the original budget amounts.

1.3.2.2 Sustainable Design: Provide integrated sustainable design strategies and features to minimize the energy consumption of the facilities; and conserve resources; minimize adverse effects to the environment; and improve occupant productivity, health, and comfort. The facility and all site features shall be designed and constructed to meet a minimum of "Certified" in the US Green Building Council (USGBC) LEED program. The constructed facility shall be Self Certified by USCG FDDCCLANT as having met all prerequisites and at least 26 additional credits in the LEED\_NC (New Construction) rating system.

Contractor shall pre-register the building with the USGBC, develop the LEED Design strategy, compile all required documentation, and fill out USGBC forms. The package shall then be submitted to USCG FDDCCLANT for self certification. Submittal for Certification by USGBC and associated fees is not required.

The minimum sustainable design goal for the project is to meet LEED certified level (26 credits). The design effort shall seek out integrated design solutions that provide the best value for the facility, and do not increase the overall cost of the project beyond the available budget. Provide documentation as required and coordinate the sustainable features of the design to assure they are properly installed during construction.

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Information and resources on sustainable design principles and guidelines are explained in the “Whole Building Design Guide” that can be found at [www.wbdg.org](http://www.wbdg.org).

1.3.2.3 E-PACT 2005: The federal government is mandated to meet the energy requirements as set forth in E-PACT 2005. In that regard the facilities, unless noted otherwise in the RFP documents, must reflect a 30% energy reduction from the baseline set forth in ASHRAE 90.1-2004. USCG considers the E-Pact methodology equivalent to the LEED energy reduction calculation methodology.

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### **1.4 CIVIL AND SITEWORK DESIGN**

#### **1.4.1 Design Requirements Overview**

Design shall meet the 2000 International Building Code and the 2000 International Plumbing Code. The current State of Alabama Department of Transportation "Standard Specifications for Highway Construction" may be used for references.

Location of existing utilities indicated on the site survey and utility maps is approximate only. In addition, the Government has recently completed a base wide Utility Inventory for water, sanitary sewer, storm, electric, telecommunications, and natural gas lines. The report and supporting maps is available upon request. However, the Government does not guarantee the accuracy of the information and it will be the Contractor's responsibility to verify the accuracy of this information. In addition, the Contractor shall scan the construction site with electromagnetic or sonic equipment, and mark the surface of the ground where existing underground utilities are discovered. The Contractor shall contact commercial utility companies (i.e.; telephone, cable TV, gas, etc.) to obtain commercial utility information. The Contractor shall obtain approved station digging permits prior to excavating. Request for digging permits shall be in accordance with current USCG Facilities Engineer's Office policies. All design work shall be in accordance with applicable codes and standards. For general design requirements refer to Section 01160 Construction Design Documents.

##### **1.4.1.1 Site Planning**

Demolish, remove and dispose utilities, paving and vegetation located within the area of construction.

The location for the new FTS is the Fitness Center's existing parking lot. This site was formerly the location for the ATC's 150,000 gallon elevated storage tank and valve pit. The storage building (formerly Well Pump House) across Marlin Street has an abandoned 8" line that fed the elevated tank via the valve pit. Both the concrete valve pit and the tower's support foundations shall be removed in their entirety.

Reroute/ relocate existing underground water lines, underground electrical duct bank and cables and aboveground electrical equipment interfering with the new building construction and roadway extension. Demolish existing items as required after rerouting/relocation is completed. Demolish the concrete curbing and asphalt parking areas as required.

All new "consumable" type utility systems (i.e.; water, electricity, gas, etc.) shall be designed so a single meter monitors each utility (i.e.; one meter per utility). The location of each meter shall be easily accessible, but not obvious.

Roadway/Parking Lot – The intent for the FTS new parking is to provide a minimum of 32 additional parking spaces to the existing Hanger 2 parking lot and 4 handicap spaces on Marlin Street (Extension) alongside of the Fitness Center (Bldg 6). Provide curbing as required.

Concrete Walks – Concrete walks shall be provided between the building entrances, the parking area and the street. Steps are to be provided to compensate for the six-foot difference between the new parking lot and the higher ground level of the new building.

Landscaping – Minimum maintenance landscaping shall be established around the new building. The plantings shall be consistent with the local environment and that of nearby buildings. Every effort shall be made to save the existing line of trees along the southwest border of the building site. Reseed and sod the area of construction.

#### **1.4.2 Site Clearing, Earthwork, and Drainage**

The grade will have to be leveled in the area of the demolition and clearing and the entire site is to be prepared for the new construction.

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The Contractor shall clear and grub all trees and vegetation necessary for construction; but, shall also save as many trees as possible. All stumps within the limits of clearing shall be grubbed and hauled off-site by the Contractor. The Contractor is responsible for obtaining subsurface soil information for design purposes. General and select fill shall come from off-base sources, unless indicated otherwise.

Clearing/ BMP (Best Management Practices) – Debris and vegetation are to be removed after demolition. A silt fence is to be provided during construction.

### 1.4.3 Water System

The potable water on the USCG ATC Base is supplied by the Mobile Area Water and Sewer System (MAWSS). The new water system shall connect to the nearest existing water line. The new water system shall be designed to be monitored from one meter. The existing potable water system shall be evaluated to ensure adequate pressure and flow at the site.

Provide all materials, equipment, labor, testing, and miscellaneous related items to provide water distribution mains and service lines to the building. All materials, methods, installation, and testing of the water distribution system shall be in accordance with the “MAWSS standard Specifications for Water Mains, Sanitary Sewers and Sewage Pumping Stations” – latest online edition.

The 10” line from the valve pit to the Fitness Center is still active due to the fact that it services the Fitness Center via a 1.5” line. Contractor shall removed the 10” cast iron pipe from the valve pit to the 1.5” service line and reconnect the Fitness Center’s service to the new FTS water system.

Provide water distribution system materials, methods, and testing as specified.

#### 1.4.3.1 Water Distribution System

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The following materials used for the water distribution system are to terminate approximately 5 feet from the building:

a. Piping materials less than 4 inches:

- (1) Copper Piping, ASTM B 42. Fittings, brass or bronze, FS WW-P-460, 125 pound.
- (2) Copper Tubing, ASTM B 88, Type K. Solder-type joint ANSI-B-16.18 or ASME/ANSI-B-16.22, compression type joint ASME/ANSI-B-16.26.
- (3) PVC Plastic Piping, ASTM B 1785, minimum schedule 40, SDR to provide minimum 150 psi pressure rating. Fittings, ASTM D 2466.

b. Gate Valve smaller than 3 inches:

- (1) MSS-SP-80, Class 150, solid wedge, non-rising stem.

c. Piping materials sized 4 inch to 12 inch:

- (1) Ductile-Iron, AWWA C151 with cement-mortar lining.
- (2) Polyvinyl Chloride (PVC), AWWA C900 with cast iron pipe equivalent outside diameter.

Joints and Jointing materials shall be AWWA C111/A21.11 push-on or mechanical joints for Ductile-iron Pipe. Polyvinyl Chloride (PVC) pipe joint and jointing material shall be push-on ASTM D 3139. Compression-type joints/mechanical joints can be used as joints between pipe and metal fittings, valves, and other accessories. Gaskets shall be provided.

1.4.3.2 Water meter as approved by the FE.

1.4.3.3 Fire Hydrants shall be dry-barrel type, AWWA C502 or UL 246.

1.4.3.4 Disinfect new water piping and existing water piping affected by the Contractor's operations in accordance with AWWA C651.

1.4.3.5 Remove existing abandoned water lines as indicated.

### 1.4.4 Sanitary Sewer

The USCG owns and maintains the sanitary sewer system but Mobile Area Water and Sewer System provides service. The lines are gravity fed to a central lift station, and is pumped to the city system near Airport Blvd. The existing sanitary sewer lines shall be evaluated to determine their adequacy for collecting and dispersing the effluent at the site.

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If there is a regulatory permitted process-flow from equipment, discharge can be hard piped, with air gap, to the sanitary sewer. The new sanitary sewage collection system shall connect to the nearest existing sanitary manhole.

Provide all materials, equipment, labor, testing, and miscellaneous related items to provide sanitary sewage lines necessary for distribution and services to the building. The following materials are not allowed for sanitary sewer piping: clay pipe and fittings, concrete pipe and fittings, steel pipe, or asbestos-cement pipe. Ductile iron pipe shall conform to ASTM A746 with AWWA C110 or AWWA C153 fittings. PVC pipe shall conform to ASTM D3034 or F949 with pipe and fittings made from material that conforms to ASTM D1784.

All materials, methods, and installation of the sanitary sewer collection system shall be in accordance with the "MAWSS standard Specifications for Water Mains, Sanitary Sewers and Sewage Pumping Stations" – latest online edition.

### **1.4.5 Storm Drainage**

Existing topo and the existing storm drainage network are shown on the civil plans. The drainage network and detention system were designed for a 10-year storm event in Mobile, AL. The stormwater flows are to be determined to ensure drainage requirements are met at the site. Storm drainage shall be overland flow to an existing collection system. It shall be based on a 10-year storm and be in accordance with all federal, state, and local requirements. Design Build Contractor is responsibility to analyze the proposed system to ensure that flooding will not occur at or in any new or existing structures that may be affected by or related to the new construction.

Design final grades to drain away from building. Use sheet flow to divert runoff into existing storm water structures. The elimination of the existing swale between the new FTS parking lot and the existing Hanger 57 parking lot will require a conveyance system to relieve the stormwater blockage from the connection between the two parking areas. The design builder's recommended conveyance system shall be approved by the CO

### **1.4.6 Concrete Pavement and Sidewalks**

Materials and methods shall be in accordance with Alabama Department of Transportation – Standard Specifications for Highway Construction, 2002 Ed. and the Unified Facilities Guide Specifications (UFGS), Latest Ed.

Proposed areas to receive concrete or asphalt pavement as well as proposed locations for sidewalks are shown on the drawings. It shall be the responsibility of the Design/Build Contractor to analyze the locations and propose appropriate changes if necessary. Any changes to the proposed locations shall be approved by the contracting officer.

All pavement design shall follow applicable design standards and shall be designed according to the intended use, the anticipated loads, and a full sub-surface exploration to be conducted by the Design/Build Contractor.

1.4.7 Treat soil below the building, and to a point five feet beyond the exterior wall, for subterranean termites. Use products approved by EPA, and apply in accordance with manufacturer's recommendations.

### **1.4.8 Site Physical Security**

The Contractor shall provide site physical security.

### **1.4.9 Construction Laydown Areas**

Field office trailers, materials, and equipment may be stored on site at a place designated by the COR. Laydown areas shall be returned to their natural condition as directed by the Contracting Officer.

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### **1.5 GEOTECHNICAL DESIGN**

#### **1.5.1 Geotechnical Site Data**

The Government has conducted a subsurface investigation for this project. The Contractor shall retain the services of a geotechnical consultant registered as a Professional Engineer. The geotechnical consultant shall be experienced with soil conditions in the local region. The Contractor's geotechnical consultant shall review the site investigation, soil borings, and laboratory testing for completeness of the design. Any additional geotechnical investigation deemed necessary by the consultant shall be obtained by the consultant and paid for by the Contractor. Additional geotechnical investigations shall be coordinated with the Contracting Officer and shall not interfere with normal Coast Guard operations. The cost of additional required geotechnical work shall be included in the Contract Sum.

#### **1.5.2 Actual Foundation Type**

The actual foundation type, capacity, etc. will be determined after contract award by the Contractor's geotechnical consultant based on the actual loads and geotechnical data. The Contractor shall bear all costs of the actual foundation provided, except under circumstances where adjustments in contract award price may be made under the provisions of Contract Clause FAR 52.236-2, "Differing Site Conditions".

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### **1.6 LANDSCAPING DESIGN**

#### 1.6.1 Landscaping General Requirements

Grade the site to achieve an orderly transition from the point where personnel enter the site by automobile or on foot to the point where personnel are at the first floor elevation, and ensure proper surface drainage of storm water. Re-establish all lawn areas disturbed by construction activities.

Provide the sod lawn areas, planting beds and groundcover indicated on the RFP drawings.

Provide five new trees on the northwest side of the building. The trees shall be Southern Live Oaks (*Quercus virginiana*), 4" to 5" caliper and spaced approximately 40' on center. Note: This species is believed to match the existing trees that will need to be removed for construction and can change if site investigation shows the trees are another species.

### **1.7 ARCHITECTURAL DESIGN**

The new facility shall be designed and constructed in accordance with the RFP Drawings and Specifications

#### 1.7.2 Facilities Description and Design Intent

The new building will provide a training platform for the Coast Guard's HC-144A EADS Casa (CN-235) airframe (see [www.eadsnorthamerica.com](http://www.eadsnorthamerica.com)). The facility will house a full-motion flight simulator, control rooms, specialized training spaces including mock-ups and support equipment, special use rooms, classrooms, simulator maintenance areas, offices and typical support spaces such as toilets, storage and utilities. The 13,500 gross square foot facility has been planned as a single-story structure with about 2/3 of the area expected to be approximately 20' high total height and the remaining 1/3 area being devoted to a 4,000 net square high bay simulator chamber, possibly 56' high and an intermediate mezzanine area expected to be about 32' high. The construction site is a relatively flat site and is currently a packing lot.

An extensive planning and feedback effort has resulted in the RFP plan presented, in the requirements listed on the accompanying Space Criteria Analysis sheets for each individual space and in the specifications herein. The concept's space planning including adjacency, room size and even door and window location has been carefully determined and should not be significantly altered. Although seemingly detailed, the plan is a concept drawing and should not be construed to be either a prescriptive comprehensive code compliant design or a final structural solution. Structural elements have been gleaned from similar projects and may change with the actual design. The column spacing shown is subjective and is presented to show a logical solution but may vary with the actual design.

#### 1.7.3 Exterior Walls

The RFP drawings indicate masonry cavity walls, 1'-4" thick, consisting of inner wall of reinforced 8" concrete masonry units, rigid insulation, moisture barrier, air space and an outer finish of 4" face brick all around the lower portion of the proposed building. This plan assumes that the CMU wall would be load bearing. The entire inner perimeter of the CMU wall is additionally lined with an inner 3-5/8 wide stud wall to allow the installation of wiring, cabling and similar utilities. This construction feature is intended to negate the need to penetrate the exterior concrete envelop and to provide a cavity for enhanced building (batt) insulation. This depiction should not be construed to preclude the possibility of other structural design solutions such as an entirely steel framed structure with steel stud infill wall construction. The exterior finish must, however, be 4" brick veneer to match that used on the nearby, existing HH-60 Flight Simulator building.

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The RFP drawings indicate a structural steel framed northwest portion of the building including the high-bay Simulator Chamber and the adjacent intermediate-height area enclosing the Mezzanine and ground floor spaces below the mezzanine. This construction will be standard steel framing with horizontal girts supporting the insulated panel cladding of this enclosure. Exterior wall construction around the simulation chamber features a 10' high masonry cavity wall with the exterior face of the brick veneer aligned with the face of the horizontal steel girts. This wall is intended to act as a wainscot to provide a durable and protective finish for the lower portion of the structure. The exterior metal panel cladding can overlap the masonry wall. The exterior cavity wall surrounding spaces immediately adjacent to the simulation chamber and under the intermediate mezzanine level are anticipated to extend up to and support the mezzanine slab. These walls are expected to be approximately 12' high to allow sufficient room for utilities above the ceiling of the Mission Sensor Training Room. Other design solutions are encouraged for approval.

Exterior wall panel system at high bay simulation chamber and intermediate height mezzanine portion of the building: Provide a pre-insulated metal panel wall system with insulating foam core with flashing trim and other accessories as necessary to make the system complete. The pre-insulated metal wall panels shall have roll-formed exterior faces chemically bonded to a continuously formed-in-place polyurethane core. The side joints of the panel system shall offset double tongue and groove joinery with an extended metal shelf allowing fastener penetration of both metal faces with clips concealed within the side joint. The exterior faces should match those on the nearby MPA hangar which has the same type of system. Provide a minimum 2-1/2" thick panel with 26 gage exterior and interior panels and a tested R-value of 20. The panel system on the MPA Hangar is Butler Manufacturing's Thermal wall system.

The RFP floor plan and elevations have been detailed to match the existing nearby HH-60 Simulator building. This detailing includes brick soldier coursing at the top and bottom of the wall. A soldier course banding has been added just above the windows to break up the otherwise high expanse of running bond brick. Detailing also includes 4" brick projections or surrounds at the side of each window opening and at the two main entrances. The projected brick surrounds are corbelled back to the wall face at 1" increments just above the bottom soldier coursing and just below the top soldier coursing. Another detailing feature matching the HH-60 Simulator building is the sloped soldier coursing just below each window. This 16" high panel slopes from the wall face at the bottom inward to the face of the window at the top. Matching projected entries with their own roofs are not indicated on the RFP drawings but may be designed if the designer chooses to do so.

As mentioned, it is important to ATC Mobile that the exterior appearance including finishes, colors and exterior detailing of this simulator building be similar to the nearby HH-60 Flight Simulator Building. Copies of Half-size construction documents for that facility are available for reference.

### **1.7.4 Joint Sealants**

Provide appropriate joint sealants for each particular interior and exterior application. Color of sealant shall match color of adjacent surfaces. Provide bond breaker, backstops, and primers according to the recommendations of the sealant manufacturer.

### **1.7.6 Building Insulation**

Conventional Construction: Provide vertical and horizontal polystyrene insulation conforming to ASTM C578 or rigid polyisocyanurate board wall insulating products conforming to ASTM C59. Seal the joints in rigid insulation within cavity/veneer walls for additional moisture protection. Provide fiberglass blanket insulation meeting ASTM C665 with flame spread rating of 25 or less when tested according to ASTM E 84. Vapor retarder facing shall be foil face Type III, Class B, Category 1. R-values for building insulation shall be

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determined by the coordination of code requirements, building/base energy management plan, ASHRAE 90.1 and LEED/sustainable requirements. At a minimum provide: (unless required to be greater by the applicable codes listed above), including roof and wall insulation shall be:

Roof = R-30  
Walls = R-20

Other Walls: Provide minimum 3-1/2" fiberglass batt insulation or sound attenuation batt insulation in all interior walls as indicated. Insulation shall be light-density unfaced fiberglass batts, classified as non-combustible by the building code.

### 1.7.7 Accessibility

All spaces except, for the mezzanine, shall be accessible to the physically handicapped, in accordance with Uniform Federal Accessibility Standards (UFAS).

### 1.7.8 Interior Walls

The RFP drawings show interior CMU and metal stud wall construction. The perimeter CMU walls except the 6' high walls around the Simulation Chamber and the CMU walls beneath the mezzanine are anticipated to be load bearing. The metal stud partitions are anticipated to be non-load bearing. The structure of the lower portion of the building is anticipated to be tubular steel columns supporting steel columns and open-web steel joists, metal decking, insulation and a built-up roof.

Interior non-load bearing partitions shall be types indicated on the drawings consisting of metal studs, not less than 20 gauge. The standard or typical stud wall shall be 3-5/8-inches wide with field painted 5/8-inch thick gypsum wallboard, Type X on both faces, unless indicated otherwise (1-5/8", 2-1/2", 6" and cavity wall widths are also shown). Provide materials and assemblies as required to provide fire ratings required by codes or identified on the drawings. Provide water-resistant, silicone-treated core board in toilet rooms and other spaces subject to moisture.

### 1.7.9 Interior Ceilings

All suspended acoustic tile ceilings (SATC) shall be non-directional fissured, sag-resistant, square edge or regular edge, 24" x 24". Suspension system shall be exposed grid, intermediate duty, of aluminum or commercial quality galvanized steel with baked white polyester finish.

All gypsum board ceilings shall be either suspended or direct applied, and shall consist of 5/8" thick field painted gypsum board. Provide fire resistant board where required by code. Provide water resistant board in toilet, shower, locker and other spaces subject to moisture.

### 1.7.10 Interior Design

Note: See Item 6 –“Finishes” on each individual Space Criteria Analysis sheet for additional information and application.

#### 1.7.10.1 Wall Finishes:

Paint – All exposed interior surfaces, including structure and utilities such as piping, conduit and ductwork except factory pre-finished materials, shall be painted a minimum of one prime coat and two finish coats of

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latex semi-gloss enamel with a standard semi-gloss or satin/eggshell finish sheen. Colors selections have not indicated and should be selected from the manufacturer's standard color selections. While typical selections should be made from neutral colors for more permanent surfaces (i.e.; ceramic tiles, laminates, etc.) to facilitate future finish material changes, the use of richer colors in the Break Room, Flight Planning room and Waiting areas is desired and encouraged.

Tile – Ceramic wall tile may be glazed or porcelain ceramic to complement the selected floor tile treatment – see "Hard Surface Floor Finishes" below.

1.7.10.2 Hard Surface Floor Finishes (including vinyl and ceramic tile, fluid-applied flooring and concrete treatment :

- a. Provide 1/8" vinyl composition tile (VCT) in spaces indicated.
- b. Provide 1/8" static dissipative tile (SDT) in spaces indicated.
- c. Provide porcelain ceramic tile flooring and base treatment where indicated. Use 6" x 6" or 8" x 8" tiles in spaces such as Flight Planning and the Break Room and 12" by 12" tiles in the vestibules. Tile in the toilet rooms may be the smaller of the porcelain ceramic tile or slip-resistant 2" x 2" ceramic mosaic floor tiles. Specify a mottled or shaded tile to hide discoloration from detergents, etc. Do not select a light colored floor grout as it has proven to be difficult to hide discoloration from detergents, etc.
- d. Provide sealed concrete floors in spaces indicated.
- e. Fluid – Applied Flooring: Provide a decorative epoxy terrazzo floor finish with integral formed covered base in spaces indicated (Note: this is the predominantly specified floor finish). The pigmented, 100% solids, two-component poured-in-place epoxy resin system mixed with decorative marble chips and/or glass aggregate shall be trowel finished to a minimum 3/8" thickness. Install the product over the manufacturer's recommended primer and vapor barrier and in strict accordance with the manufacturer's printed installation instructions including preparation of the concrete substrate. Provide all accessories necessary for a complete installation. Color and aggregate blend should be selected from the manufacturer's standard selections. Acceptable products include Key Resin Company's Key Epoxy Terrazzo #108, Dex-O-Tex Cheminert Terrazzo and General Polymer's Thin-Set Epoxy Terrazzo #1100.

1.7.10.3 Carpeting:

- a. Carpet Tile: Provide 26 ounce per square yard, loop pile, Type 6, 6 Nylon face fiber, solution dyed/yarn dyed method, 1/10 gauge, minimum 12 stitches per inch, 24" by 24" modular floor tile in a all spaces to be carpeted except on the raised stepped platform in the classroom auditorium. Select a multi-blend color series such as Mannington Commercial's Carthage 4 series.
- b. Broadloom Carpet: Provide the carpet tile manufacturer's matching broadloom carpet on the raised, stepped platform in the Classroom Auditorium Room 115.

1.7.11 Interior Specialties – See also the individual Space Criteria Analysis sheets for each room space.

1.7.11.1 Toilet Accessories:

- a. Toilet accessories shall be constructed of stainless steel. See the Space Criteria Analysis sheets for The Men's Toilet Room 110 and Women's Toilet Room 112 for requirements.

1.7.11.2 Signage:

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Provide a modular exterior and interior signage system equivalent to Unicor's System 2/90. The system should be composed of three primary elements: a structural rail. Removable copy inserts and interlocking end caps and frames.

Provide an exterior building identification sign at each entrance.

Provide interior signage consisting department directional signs at each lobby and individual people or space signage at each space. The people or space signs, each approximately 4" by 10" should list the room number, space name and have a space for the occupant's name or title. The building user shall provide sign text and verify desired room numbering.

### 1.7.11.3 Window Treatment:

a. Mini Blinds: Provide interior mount, 1" horizontal, and aluminum slat mini blinds at all windows with exception of toilet rooms. Each blind, including hardware, accessory items, mounting brackets and fastenings shall be provided as a complete unit produced by one manufacturer. Any steel features shall be treated for corrosion resistance. All blinds shall be capable of nominally 180 degree partial tilting operation and full-height raising. Controls: The slats shall be tilted by a transparent tilting wand, hung vertically by its own weight. The tilter control shall be fully enclosed and shall tilt the slats to any desired angle and be designed to prevent over tightening. Finish: The blind manufacturer's aluminum or brushed aluminum metallic finish.

### 1.7.11.4 Cabinets and Casework:

a. Kitchenette Cabinetry: Cabinets shall be wood, factory-fabricated and finished in the manufacturer's standard sizes and multilayered finishes of the type, design, and in the configuration indicated. Cabinets shall be constructed as specified and shall meet the requirements of the Kitchen Cabinet Manufacturers Association (KCMA) A161.1. Wall and base cabinet assemblies shall consist of individual units joined into continuous sections. End panels shall be minimum ½" plywood. Face frames shall be ¾" hardwood such as oak, maple, cherry, hickory or birch. Cabinet doors and drawer fronts shall be made of hardwood. Drawer boxes shall be made of ¾" hardwood with dovetail construction, be removable, be equipped with position stops to avoid accidental complete withdrawals, and feature full-extension hardware. Shelved shall be full-depth and be adjustable as indicated.

### 1.7.11.5 White Boards and Letter Boards:

a. White Boards – White Boards (a.k.a. Dry Erase Board or Marker Board) shall be composed of porcelain enamel fused to nominal 28 gauge (0.0149 inches) thick steel, laminated to a minimum ¼" thick core material with a steel, foil or polyester vapor barrier backing sheet and have a continuous extruded aluminum frame. Writing surface shall be white and capable of supporting paper by means of a magnet. The marker boards shall be a factory assembled unit complete in one piece without joints whenever possible. When marker board dimensions require delivery in separate sections, components shall be prefit at the factory, disassembled for delivery and jointed at the site. Chalk tray or accessory tray shall be aluminum and extend the full length of the marker board. Dry erase markings shall be removable with a felt eraser or dry cloth without ghosting. Each unit shall come complete with an eraser and four different color compatible dry erase markers. Required locations are shown on the RFP drawings and sizes are shown on the individual Space Criteria Analysis sheets.

b. Letter Boards – Provide double-door aluminum enclosed letter directory boards with name header. Directory board units shall be composed of heavy-duty anodized aluminum frame and felt lettering surface. Provide continuous piano hinged doors with tempered safety glass and tumbler lock. The ribbed felt lettering surface color shall be blue. Each unit shall come complete with minimum 300 piece set of white ¾" high

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Helvetica changeable letters. Required locations are shown on the RFP drawings and sizes are shown on the individual Space Criteria Analysis sheets.

### **1.7.11.6 Audio Visual and Display Specialties:**

ATC Mobile requires an audio visual system that provides complete, intuitive control of the whole presentation environment including projection screen operation, video projector operation, sound system control and room lighting control. An interactive pen display panel located on a podium, connected to a computer and a projector, shall serve both as a monitor and an input device that recognizes both pen and touch and control all peripheral devices including sound and lighting. This type of system is required in the Conference/Classroom Room 104 and in the Training Classroom Auditorium Room 115. The contractor shall consult and coordinate a system equipment provider to design, furnish and install such a system that will provide the following functions: Such system hardware is offered by manufacturers such as SMART Technologies Inc., Crestron Electronics, Inc., and AMX.

1. Provide an interactive pen display/touch panel controller in each room.
2. Provide a podium for the display, a CPU and any other system equipment in each room. (The CPU will be provided by the Coast Guard).
3. Provide a sound system specifically designed for each room.
4. Provide lighting that can be controlled from the interactive pen/touch display panel in each room.
- 5 Provide an overhead projector and mount in each room.
6. Provide an interactive white board in the Conference/Classroom Room 104 and a ceiling recessed projection screen in Training Classroom Auditorium Room 115.

Specific component requirements follow:

a. Projection Screen - electrically operated, ceiling recessed: Provide one screen in the Classroom Auditorium Room 115. Screen size: minimum viewing area of 87" high by 116" wide with a nominal diagonal of 150". The screen shall have two motors, one to control the recessed case door and one to control the screen. The screen shall be housed within an extruded aluminum case with white powder-coated finish featuring an aluminum door which opens and closes automatically with screen operation and a self-trimming built-in flange around case bottom. The screen shall be have a tab guide cable system on each side and a weighted bottom bar to maintain even lateral tension and hold the surface flat. The screen shall have a video format (NTSC 4:3). The screen surface shall be a smooth surfaced vinyl fabric with a white finish for precise image reproduction offering a viewing angle of 60 degrees and a gain of 1.0. Provide controls compatible with the display/touch panel controller described above. Screen shall be equivalent to the automatic electric projection screen model Tensioned Advantage Deluxe Electrol with Da-Mat screen surface manufactured by Da-Lite Screen Company, Inc.

b. Interactive White Board – Provide an interactive white board with software for and powered by a computer located in the podium. The touch resolution shall be 4000 x 4000 with a hard-coated polyester surface optimized for projection, compatible with dry erase markers and easily cleaned with whiteboard cleaner. Furnish with black, blue, red and green tray pens and a rectangular eraser. Size approximately 65" by 50" high by 5" deep with active screen area 62" by 46" with a 77" diagonal with features equivalent to SMART Technologies Model 680. Provide wall mount with board.

c. Interactive Pen/Touch Pad Display Controller – Provide an interactive pen display allowing the presenter to have complete, intuitive control over the whole presentation environment including room lighting control and sound control. The interactive pen display will be connected to a computer (furnished by the Coast Guard) and the projector. The screen on the controller shall act as a monitor and input device that

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recognizes both pen and touch. Provide device with features equivalent to SMART Technologies Symposium Model DT770.

d. Podium – Provide a multimedia AV Podium or Lectern, with a work surface approximately 30" wide by 29" deep capable of accommodating the Interactive Pen/Touch Pad display panel. Unit should be made with furniture grade laminates and feature a slide-out keyboard shelf and full-size document camera drawer that slides out from the side. The cabinet compartment below the sliding drawer should have a divided interior configured with EIA compliant 10RU rack rails on the right side and a tower PC/ storage space on the left side. Audience side doors and interior cable pass through's should allow access to the rear of the PC and rack mounted equipment. Podium shall feature lockable casters and have door locks on all compartment doors. Provide a multi-outlet power strip with an approximately 10" power cord. Such podiums are available from a number of manufacturer's and vendors including Video Furniture International ([www.video-furn.com](http://www.video-furn.com)) form which these salient features were referenced.

e. Projectors:

1) For Room 104 – Provide a DLP projector of approximately 3000 ANSI lumens output with XGA native resolution, contrast ratio of approximately 1,400:1, aspect ratio of 4:3 and capable of being remotely controlled and be integrated as a component of the audio visual display system requirements outlined above. The projector shall be able to project on the Interactive White Board and provide optimal viewing for the seating configuration shown on the RFP plans. There are numerous manufacturers of suitable projectors including the ASK Proxima Model 315 as an example. Provide a universal type ceiling mount for the projector that will accommodate most projector models from different manufacturers.

2) For Room 115 - Provide a projector of approximately 4500 ANSI lumens output with XGA native resolution, contrast ratio of approximately 750:1, aspect ratio of 4:3 and capable of being remotely controlled and be integrated as a component of the audio visual display system requirements outlined above. The projector shall be able to project on the 150" diagonal projection screen and provide optimal viewing for the seating configuration shown on the RFP plans. There are numerous manufacturers of suitable projectors including the ASK Proxima Model 450 as an example. Provide a universal type ceiling mount for the projector that will accommodate most projector modes from different manufacturers.

### 1.7.11.7 Access Flooring

Provide an access floor system, where indicated on the RFP drawings and individual Space Analysis Criteria sheets, consisting of modular and removable welded steel panels supported on all four edges by structural steel members which are designed to bolt onto adjustable height pedestal assemblies forming a modular grid. Height of flooring shall be as listed on individual Space Criteria Analysis sheets.

Panels shall be easily removed by one person with a suction cup lifting device and shall be interchangeable except where cut for special conditions. Provide two lifting devices.

Design load: The system shall be capable of supporting a safe working load or design load of 1,250 lbs.

Floor panels shall consist of a top steel sheet welded to a formed bottom pan filled with a highly controlled mixture of lightweight concrete and the manufacturer's perforated panel for air flow compatible with the concrete core panel. Panel finish shall be an anti-static high pressure laminate in a white or light gray color range.

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Stringers shall support each edge of panel and have a conductive galvanized coating. Zinc electroplating shall be prohibited on stringers and stringer fasteners. Stringers shall be individually and rigidly fastened to pedestals with one machine screw for each foot of stringer. Bolts shall provide positive electrical contact between the stringers and the pedestals.

Pedestal assemblies shall be corrosive resistant, all welded construction, and shall provide an adjustment of +/- 1 inch. Zinc electroplating shall be prohibited on all pedestal components, including head plate, threaded rod, adjustment nut, pedestal tube, base plate and fasteners. Pedestal assemblies shall provide a means of leveling and locking the assembly at a selected height, which requires deliberate action to change height setting and prevents assembly from inadvertently losing its leveling adjustment when panels are removed from the installation during use.

1.7.11.8 Seating, Lecture – Provide a beam mounted, folding tablet arm chair system permanently attached to the floor and shall move automatically to a three-quarter safety fold position with manual override to vertical or “passing fold”. Overall front-to-back dimension of the unoccupied chair shall be approximately 13 inches. Chair width shall be the manufacturer’s model or series with 24” center- of-arm to center- of-arm spacing. The chair assembly shall consist of all plastic double-walled seats and backs mounted on steel hinge arms, providing noiseless, self-rising action and with provision for securely mounting to the tubular beam sized to support the chairs and arms at appropriate intervals. The seats and backs may be fully upholstered or exposed plastic shells with foam-padded upholstered seat cushions and back cushion inserts. Arms supports shall be of steel bars spaced and secured along the support beam between seat backs and at the tow ends. Provide wood arm rests, approximately 2” wide by 11-1/2” long supported by the steel arms. Chair beams shall be attached to the floor by appropriate cast iron pedestals at intervals recommended by the manufacturer and with fasteners as recommended by the seating manufacturer. Iron parts shall be finished with electrostatic thermosetting epoxy powder.

12.11.8.1 Tablet Arms – Provide each seat with a writing surface and a unique folding action which permits the tablet arm to fold between the occupants of two seats (or to the side of the end row seat), completely out of the way and easily accessible when needed. The tablet arm should provide a writing surface of approximately 12-1/2” by 14 “and the arm assembly shall be capable of supporting a critical load of 200 lbs. on a point directly in front of the seat occupant.

12.11.8.2 Power and Communications Raceway – Provide the seating manufacturer’s optional power and communications accessory for each seat. The raceway shall be UL listed and provide one 15 amp UL listed simplex receptacle and one category 5e data jack per seat. The PVC raceway, shall be approximately 2” wide by 3” high and be divided into two equal raceway channels for wiring and cabling. The raceway is intended to be fastened to predrilled holes on the face of the cast iron beam and seat support pedestals. Provide connection boxes and any other accessory required to power the seating and to connect the communications cabling.

Various seating manufacturers offer fixed beam supported seating for lecture hall or auditorium seating applications. The RFP drawings show American Seating’s ([www.americanseating.com](http://www.americanseating.com)) Dimension Series 22” Model 675-2 seat at 24” on center.

### 1.7.12 Doors and Hardware:

Doors, frames, and hardware shall meet sound separation, fire separation, and security requirements unique to this type of facility. Exterior doors shall be fully weather stripped and include a heavy-duty metal threshold that prevents drafts, dirt, water, and insect entry.

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1.7.12.1 Hollow metal exterior doors shall be insulated galvanized hollow metal doors phosphatized, primed, and field finished.

1.7.12.2 All exterior doors and frames with exception of the aluminum doors at the two vestibule entries and the overhead coiling door shall be composite corrosion-resistant fiberglass doors consisting of integrally colored gelcoat door faces made of fiberglass-reinforced polymer plates permanently bonded to a one-piece stile and rail system and filled with polyurethane foam insulation filler. Door frames shall be the door manufacturer's standard reinforced composition door frame of similar construction. Provide the manufacturer's storm door meeting ASTM-E1886/1996 missile level D. Provide the door manufacturer's recommended door hardware, molded fiberglass thresholds, astragals on double doors, sweeps, and weatherstripping.

1.7.12.3 Aluminum Entrance Doors - aluminum doors shall be a two piece frame construction with wide stiles and incorporating an extruded PVC thermal break. Doors shall be fully weather stripped including neoprene bulb weather stripping in door frames, flexible blade gasket at door bottom to meet and contact threshold, and an adjustable astragal utilizing pile weathering with polymeric fin at meeting stiles.

1.7.12.4 All interior doors shall be 1-3/4 " thick solid staved wood core doors with rotary cut birch veneer faces with stained finish or protected natural finish . Provide minimum 3" wide by 30" narrow door lights where listed on the individual Space Criteria Analysis sheets.

1.7.12.5 The doors to the Mission Sensor Training room shall be an acoustic door and frame assembly with an STC rating of 45 and including all seals and sweeps.

1.7.12.6 Provide all necessary hardware in compliance with the Builders Hardware Manufacturers Association (BHMA), and shall include but not limited to the following:

- a. Cylinders (removable cores) and Keying: "[manufacturer's name]" to match existing (grand master keying system).
- b. Hinges: Stainless Steel (630) for exterior doors, and dull chrome (626) for interior doors.
- c. Lock/Latch Sets: Series 4000 Grade 1, with lever handles, 626 finish. Provide locksets with functions tentatively listed on the individual Space Criteria Analysis sheets unless otherwise selected as a proposed alternative.
- d. Closers: Grade 1, modern covers.
- e. Exit Devices (if required): Touch bar type, Grade 1.
- f. Padlocks: Provide master keyed padlocks for each overhead door.

Provide all necessary hardware for a complete installation, including, but not limited to the items listed above, and lock trim, overhead holders, stops, pulls, pushes, door protection kick plates, thresholds, and weatherstripping. Entrances, storage rooms, and utility rooms shall have locking hardware. All exterior doors and fire rated doors shall have closers.

1.7.13 Insulated Rolling Service Door.

Provide a 16' wide by 24' high, electrically operated, insulated slat rolling door opening to the exterior of the Simulator Chamber where shown. The door shall be designed in conjunction with the door manufacturer to meet the wind and impact resistance requirements of Mobile's hurricane-prone region.

The door shall be the manufacturer's standard lifecycle design and have a minimum 20/24 gauge, galvanized steel/galvanized steel, outside/inside thickness with foamed-in-place closed-cell urethane insulated core. The slat assembly shall have a minimum R-value of 8 and an STC rating of 26. The interlocking sections shall

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have high strength endlocks on alternating slats. Provide windlocks as necessary to meet specified wind loading. The door curtain exterior slat finish shall be the manufacturer's coating system to include a galvanized base coat prepared for chemical bonding to light gray baked-on polyester finish coat. The door shall be painted a dark brown or bronze color to match the surrounding metal siding finish color.

Furnish the door with structural steel guides and windlock bars (if required), a bottom bar with an exterior finish to match the slats, electric operator capable of driving the door at 8 or 9 inches per second and with an emergency manual chain hoist assembly that safely cuts operator power when engaged. Controls: Surface mounted "Open/Stop/Close".

Weather/Sensing Edge: Provide automatic reversing control by an automatic sensing switch within neoprene or rubber astragal extending full width of door bottom bar.

1. Provide an electric sensing edge device. Contact before door closes to immediately stop downward travel and reverse direction to the fully opened position. Provide a self-monitoring wireless sensing edge connection to motor operator eliminating the need for a traveling electric cord connection. The supervised system alters normal door operation preventing damage, injury or death due to an inoperable sensing edge system.

### 1.7.14 Windows

Provide heavy commercial grade operable [sliding, single-hung, double-hung, casement, awning] windows. Provide windows with 1 inch thick insulated, low "E" glass and thermal break frames. Windows shall meet the requirements of the High Velocity Hurricane Zone section of Florida Building Code, for hurricane and impact resistance (i.e. the Miami-Dade County Notice of Acceptance (NOA)).

### 1.7.15 Roofing

Roofing system shall be designed to withstand a design wind loading per ASCE 702. Provide a three-ply modified bitumen membrane roof system, hot-mopped or torch applied, with cap sheet over polyisocyanurate insulation (thickness as required to achieve the listed R-value) mechanically fastened to the galvanized metal decking.

End of Landscaping and Architectural specification section.

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### **1.8 STRUCTURAL DESIGN**

#### 1.8.1 Design Load Criteria

The building's loads shall be determined in accordance with the latest edition of ASCE Standard 7 entitled "Minimum Design Loads for Buildings and Other Structures." In the event of a conflict between the requirements of ASCE 7 and the requirements of any other specified or referenced codes, standards, or design manuals, the more stringent criteria shall govern. The building shall be classified as Occupancy Category IV for design purposes and load calculations.

Consider all loads including but not limited to dead loads, live loads, wind loads, earthquake loads, bridge crane loads, and equipment loads. All code required load combinations shall be investigated and worst case used for each element and portion of the structure. Co-ordinate with the bridge crane supplier for the design wheel loads. Mezzanine area above the Mission Sensor Training, Telecom Equipment, and Fire Suppression Room shall be a concrete slab capable of supporting the mechanical equipment to be installed. The minimum live load shall be 150 psf.

The load requirements for design of the Simulator foundation is described in the Foundation section that follows.

#### 1.8.2 Building Construction

The structural framing system and layout shall be coordinated with the architectural requirements. (See Section 1.7 for details). Provide gravity load support and lateral load resisting framing systems. The low bay roof framing shall consist of open web bar joists, interior steel beams and columns, and shall utilize the exterior load bearing reinforced CMU walls. The high bay simulator area shall be a steel frame system utilizing structural steel columns, beams, open web roof joists, and girts/sag rods for siding support. Both the low and high bays shall have metal roof decking that will be designed as diaphragm for lateral load distribution/transfer to the lateral loads resisting system. The lateral load resisting framing system shall be coordinated with architectural features such as doors, windows, louvers, openings, etc. The exterior CMU shall be utilized as shear walls for lateral loads in the main low bay area. The 1-ton capacity bridge crane in the flight simulation chamber shall be supported by crane runway beams. Coordinate crane runway location and design with the crane supplier. See paragraph 1.8.3 for further requirements.

Due attention and consideration shall be given to serviceability requirements in the structural design and detailing. Beam deflections shall be limited to code specifications for limiting damages to suspended ceiling, etc. The lateral load drift shall be considered in the brick veneer design and shall be limited to  $H/600$ .

##### 1.8.2.1 Foundation

Refer to the attached geotechnical report for the basis of the anticipated foundation system. See also Section 1.5 Geotechnical Design for further information and requirements of the foundation design.

The building first floor shall be a reinforced concrete slab and shall be supported as recommended in the geotechnical investigation report. The design requirements for granular fill, vapor barrier, compaction requirements, etc shall be coordinated with the final geotechnical investigation report. Minimum slab thickness shall be 5 inches. Slabs in the Mechanical/Electrical Room, Maintenance shop, and Storage areas, shall have thickness as required by design loads. The Mission Sensor Training Room, Cockpit and Navigation Training Room, and the Control Room require access flooring. These areas shall have depressed slabs. Co-ordinate with Section 1.7 Architectural Design for details of the load requirement, depression, etc. The base slab thickness in the depressed areas shall be designed for the post loads and shall be coordinated with the access floor manufacturer.

The foundation loads imposed by the flight simulator are unknown at this time since the equipment selection has not been finalized. The number and location of the simulator support points are also unknown. Therefore

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requirements for the design of the simulator foundation/reaction pad and the first floor slab in the high bay can not be specified at this time. It is anticipated that a 30 feet by 30 feet by 18 inches thick mat foundation/reaction pad will be required to support the simulator loads. The reaction pad/mat shall be one monolithic construction. The D-B Contractor shall be responsible for coordinating the final design loads and settlement tolerances, trench layout, and other requirements with the simulator manufacturer and provide an adequate reaction pad and trench design. The geotechnical consultant for the D-B contractor shall provide recommended foundation options for the support of the simulator.

### 1.8.3 Bridge Crane Requirements

Provide a one ton capacity bridge crane in the simulator bay. Provide crane runway beams and crane rails as required and recommended by the crane supplier. The crane runway beam deflection shall be limited to code specifications and shall be coordinated with the crane supplier. Crane rail attachment to the beams shall be as recommended by the crane supplier. Tolerances shall conform to the CMAA requirements.

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### **1.9 DEMOLITION**

#### **1.9.1 Dust and Debris Control**

Prevent the spread of dust and debris to avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution.

#### **1.9.2 Existing Work**

Protect existing work, which is to remain in place, be reused, or remain the property of the Government. Repair items that 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 must have Contracting Officer approval.

#### **1.9.3 Required Data**

Submit a demolition plan that shall include procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress, a disconnection schedule of utility services, a detailed description of methods and equipment to be used for each operation and of the sequence of operations. Include statements affirming Contractor inspection of the existing roof deck and its suitability to perform as a safe working platform or if inspection reveals a safety hazard to workers, state provisions for securing the safety of the workers throughout the performance of the work.

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### **1.10 FIRE PROTECTION**

The existing water capacity shall be evaluated for fire protection capability in meeting NFPA Standards at the site. The nearest fire hydrant shall be located to verify its location and capacity to meet pressure and flow requirements.

Install outside fire protection water lines, valves, and post indicator valves in accordance with the requirements of NFPA 24.

The fire protection design and construction work shall meet the applicable NFPA codes, and the occupancy type(s) shall be as determined by the 2000 International Building Code. Provide fire extinguishers [and cabinets] in accordance with NFPA 10. Cabinets shall be semi-recessed cabinets and shall have a natural aluminum finish with bubble glass door, sized to accommodate size of extinguisher provided.

#### **1.10.1 Fire Detection and Alarm System**

Provide a complete, supervised, automatic, microprocessor based addressable fire detection and alarm system for coverage of the FTS Building. Provide detectors in all spaces including under access flooring. Provide smoke detection devices where not subject to false alarm by operations in a space; use other types of detectors as appropriate in such spaces. Locate the system control panel in the SE Lobby 101 and locate a remote annunciator panel in the NE Lobby 122 unless requested otherwise by the local fire department/responder. The system is not required to have a mass notification feature.

Provide battery backup and emergency power supply with a minimum of 60 hours standby and 15 minutes alarm. Provide power to the system control panel from an emergency power panelboard circuit breaker. The new fire alarm control panel shall be connected to the telecommunication system and shall send alarm and trouble signals via telephone lines to the existing central station receiver station (Sur-Gard model MLR2E System III) located in the gatehouse. The contractor shall provide require programming so that signals are displayed in plain English language at the receiver station.

1.10.1.1 Initiating device circuits (IDC) and notification appliance circuits (NAC) shall be Class A and signal line circuits (SLC) shall be Class A, Style 7 in accordance with NFPA 72. Loop wiring shall return to the control panel via separate conduit run.

#### **1.10.1.2 Testing and Documentation**

The system shall be subjected to functional and operational performance tests in accordance with NFPA 72, including tests of each installed initiating and notification appliance. The recommended tests in NFPA 72 shall be considered mandatory. Tests shall include the meggering of system conductors to determine that the system is free from grounded, shorted, or open circuits; the megger test shall be conducted prior to the installation of fire alarm equipment. After completion of successful testing, the Contractor shall submit required NFPA 72 documentation to the Contracting Officer; a copy of the documents shall be included in the O&M Manual.

#### **1.10.1.3 Operations and Maintenance (O&M) Manual**

Provide an Operations and Maintenance Manual for the system in accordance with Specification 01781.

#### **1.10.1.4 Training**

Provide a minimum of 2 hours training for fire detection and alarm system operation.

#### **1.10.2 Fire Protection Requirements**

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The occupancy type(s) and construction type of the building shall be as determined by the latest International Building Code (IBC).

All exit requirements shall be designed in accordance with NFPA 101. Exit requirements shall be based on the occupant load as calculated according to IBC.

### **1.10.3 Fire Protection Systems**

A clean-agent fire suppression system shall be designed IAW the latest edition of NFPA 2001 to protect the Control Room (123). The suppression fluid medium utilized shall be FK-5-1-12 (as identified in NFPA 2001). The system design shall incorporate suppression of the room and the floor plenum. The clean-agent bottles shall be mounted and stored within the Fire suppression Equipment Room (129). The Control Room enclosure shall be sealed from leaks and shall be pressure tested IAW NFPA 2001 requirements. Provide detectors, abort switches, and pull stations as determined by NFPA. Ensure necessary alarms are provided, delays in the suppression systems' activations are provided to allow electrical safety shut-down of the equipment and personnel exodus, and manual alarm annunciation push button(s) are provided at the door exits as appropriate for the individual systems. The contractor shall be responsible for providing sufficient suppression fluid for testing of the system, and fully charged bottles at the completion of the testing.

Hydraulic calculations and drawings for the clean-agent suppression system shall be provided and approved by a professional fire protection engineer or NICET III or IV certified technician. Detail drawings shall conform to the requirements established for working plans as prescribed in NFPA 2001. The Contractor's submittal shall be prepared and sealed by a registered fire protection engineer who has had at least four years experience in fire protection/detection design. Qualifications shall be submitted to and approved by the Contracting Officer's Representative. Contractor to provide as-built record drawing sets to the COTR reflecting all changes or deviations from the contract drawings.

**1.10.3.1 Acceptance Testing:** Full hydrostatic testing shall be completed prior to government request for acceptance testing. Provide system cleaning and testing in accordance with NFPA 2001, the Fire Protection Engineer's recommendations, and the manufacturer's written instructions.

**1.10.3.2 Operations and Maintenance Manuals:** Operations and Maintenance Manual: Provide Operations and Maintenance Manuals for the fire protection systems installed. The manuals shall include model numbers of equipment being provided, parts break down where available, maintenance procedures, and sources.

**1.10.3.3 Training:** Provide instruction of Coast Guard personnel for all fire protection systems and equipment. Duration of training shall be a minimum of four hours for fire suppression system operations. Electronic audible/video recording of the training shall be provided to the users for future training of the operation and maintenance of all systems (provide 3 copies).

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### **1.11 PLUMBING**

#### 1.11.1 System Description

The plumbing design and construction work shall conform to the applicable requirements of the latest International Plumbing Code (ICC). Appropriate handicapped fixtures shall be provided as required. The domestic water system shall be supplied from the existing potable water main system and the sanitary drains shall drain by gravity to the existing sanitary sewer system. Plumbing fixtures shall be provided where indicated on the drawings and as noted. All piping penetrations through or into the Control Room (123) shall be sealed at the point of penetration to meet the requirements of NFPA 2001 for room tightness.

#### 1.11.2 Piping

1.11.2.1 Drain, Waste and Vent (DWV) pipe and fittings shall be as approved by the ICC Plumbing Code. Waste piping below ground supported slabs shall be cast iron to a point five feet beyond face of building. No-hub fittings shall not be utilized below slab. Clean-outs shall be provided at each change of direction of the building drain, horizontal waste or soil lines greater than 45 degrees. All vent penetrations through the roof shall be made through a roof jack designed for use with the roofing system furnished and color-matched to the roof.

1.11.2.2 Domestic water piping shall be as approved by ICC. Solder shall be lead free. Provide water hammer arresters as required. All distribution water piping shall be protected from freezing. All water piping shall be insulated.

#### 1.11.3 Fixtures

1.11.3.1 Lavatories, Urinals, and Water Closets: Shall be of white vitreous china, low-flow type, and shall meet ADA requirements for the handicapped where required. Water closets shall be elongated bowl wall mounted, wall discharge type conforming to ASME A112.19.2M. Provide solid white plastic elongated closed front seat with cover. Flushing action will be siphon jet.

Lavatories shall be vitreous china drop-in (as shown), vitreous china under-counter mounted sinks mounted on solid surface-surface vanities, or one piece integral sink with solid surface vanity top. (22"x16" oval minimum.)

All faucets shall have solid brass bodies, ceramic valving, and chrome plated or nickel finish over brass (polished bright) trim. Faucets shall be single lever, washerless type and shall have all brass and copper waterways. Plastic valves are not acceptable. The faucet flow rate shall be limited to 2.5 gpm at a flowing pressure of 80 psi.

Urinals shall be wall discharge type, conforming to ASME A112.19.2M, with integral trap and extended shields, siphon jet, top supply connection, back outlet, or waterless wall-mounted urinals.

1.11.3.2 Electric Water Cooler: shall be stainless steel, and handicapped compliant where required. They shall be Energy-Star rated where feasible.

1.11.3.3 Domestic Water Heater: Shall conform to ASHRA 90A high efficiency requirements. Point-of-Use heaters may be utilized where appropriate.

1.11.3.4 Hose Bibbs: Provide exterior frost-proof hose bibbs at each end of the building, or as necessary or indicated.

1.11.3.5 Countertop Kitchen Sink and Faucet: Provide 18 gauge, type 304 (18-8) nickel bearing stainless steel sink with integral mounting rim, single 22 x 25 x 10-inch deep compartment, with underside coated with sound dampening material. Provide stainless steel drain outlet with cup strainer. Provide 1-1/2-

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inch adjustable P-traps with drain piping to vertical vent stack. All faucets shall have solid brass bodies, ceramic valving, and chrome plated or nickel finish over brass (polished bright) trim. Faucets shall be single lever, washerless type and shall have all brass and copper waterways.

1.11.3.6 Mop or Floor Sink: IAPMO listed/ANSI Z124.2, white, 24"x36"x10", one piece molded with elevated self-draining shelf. Provide wall supported and braced faucet with vacuum breaker, pail hook with  $\frac{3}{4}$ " external hose thread, 4' hose and hose holder, wall mounted mop hanger strip and bumper guards for sink edge (two sides).

1.11.3.7 Floor Drains: Provide floor drains with drainage flange and slotted or perforated bronze or polished stainless steel strainers. Provide floor drains within the toilet areas.

1.11.3.8 Access Panels: Access panels shall be provided for all concealed plumbing that requires adjustment or maintenance.

1.11.4 Testing: Plumbing systems shall be cleaned, disinfected, and tested in accordance with ICC International Plumbing Code.

1.11.5 Training: Provide instruction of Coast Guard personnel for all plumbing systems and equipment. Duration of training shall be a minimum of one hour for each system. Video recording of the training shall be provided to the users for future training of the operation and maintenance of all systems (provide 3 copies).

1.11.6 Operations and Maintenance Manual: Provide Operations and Maintenance Manuals for the plumbing systems installed. The manuals shall include model numbers of equipment being provided, parts break down where available, maintenance procedures, and sources.

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### **1.12 HEATING, VENTILATING AND AIR-CONDITIONING (HVAC)**

#### 1.12.1 Requirements:

The mechanical design work and construction shall conform to the latest ASHRAE manuals and standards, ICC International Mechanical Code (IMC) and shall be designed to meet nationally recognized historical design conditions of the area. All areas of the building, with the exception of the fire suppression room, and the mechanical/electrical room, shall be conditioned to 72°F in the winter and 76°F in the summer. The relative humidity levels shall not exceed 60% or that allowed by ASHRAE for similar building usage. The HVAC equipment selection shall ensure that the building environment shall be properly maintained within the desired parameters during "off-peak" conditions, as well as during "peak" conditions.

Fresh air ventilation shall be provided in accordance with ASHRAE 62 and the ICC Mechanical Code, and shall be pre-conditioned prior to being directly connected to the return ducting of the HVAC units. The HVAC systems shall be designed to accommodate all building operations. Outside air shall be secured during non-occupied hours of operation periods (a means of over-ride shall be provided for unexpected periods of usage).

The toilet areas may be conditioned indirectly by pulling conditioned air into them via the exhaust systems.

Vestibules shall be treated as air-locks with appropriate HVAC.

The building shall be appropriately zoned to suit similar operational needs and orientation.

It is critical that the Simulator Chamber be provided with a means of de-stratification as a 5°F temperature differential in the range of motion of the projector enclosures on the external surface of the simulator can cause severe visual distortion or failure of the projectors. The critical temperature area of concern is the range of motion that the projectors experience as the simulator dome traverses. De-stratification equipment mounted in the overhead may be one way to create a vertical air movement. Air-handling unit equipment serving the Simulation Chamber may be mounted on the mezzanine above the Mission Sensor training room (128).

The simulator A/C is provided with the simulator contractor and is not part of this project. The equipment load in the simulator chamber is not anticipated to be a large part of the spatial load. Therefore the chamber HVAC load analysis shall be generated based on the shell, lighting, solar loads, and electrical loads, etc., with approximately a 10 % contingency for any future simulator load impact. As this is such a large space, ensure that equipment is selected to allow proper coverage during non-peak periods.

Areas such as the classroom which can have a large varied load shall also have a means of ensuring effective cooling/ heating at off-peak, as well as peak, loading periods. It is suggested that, as a minimum, two units (each unit being rated at 60% of load parameters) would serve these types of areas to provide the diversity required.

Control Room (124) shall be served by computer room cooling units that blow air into the recessed floor area. Provide two full capacity units for duplicity.

Provide an articulated-arm type of exhaust system for a soldering station located in the Maintenance Shop.

All piping and ductwork that penetrates the boundaries of the Control Room (123) shall be sealed IAW NFPA 2001 requirements for room tightness to suit the needs of the clean-agent fire suppression system.

Energy recovery systems shall be considered for use in this project.

The contractor shall be responsible for a site visit to obtain all of the equipment heat loads, periods of operation, and any other information relevant for use in running their HVAC analysis.

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Systems selected shall be based on a 25 year life-cycle costing analysis (no salvage value shall be considered), and shall include first costs, maintenance costs, replacement costs, energy costs, etc. When selecting HVAC systems the contractor must consider any LEED impacts. Although LEED certification points are important, the governing selection of equipment shall be the appropriate system selection for the application, and which shall be justified by proper life-cycle analysis comparisons.

1.12.2 Controls: Controls shall be as simple as possible. Energy conservation shall be a primary concern in controlling HVAC systems.

1.12.2.1 Exhaust fans shall be controlled by wall switches. Bathroom exhaust fans shall be hard-wired to run continuously.

1.12.2.2 HVAC Controls: The building HVAC systems shall be controlled by a "Bacnet" based DDC system to be tied into the training Centers main units.

1.12.2.3 "Demand" ventilation control shall be utilized in the classroom and conference room to ensure proper air quality.

1.12.3 HVAC ductwork shall be sheet metal, fabricated, constructed, braced, reinforced, installed, supported, and sealed in accordance with SMACNA DCS. All ducts other than exhaust ducts shall be insulated with exterior duct wrap insulation. Exhaust ducts shall be insulated the last 6 feet to the weather. All HVAC equipment returns shall be ducted. Ceiling plenums are not allowed for return air usage.

1.12.4 HVAC System Testing:

Balance and adjust systems and equipment to provide the specified operation. Provide system test, control sequence of operation test and an independent certified air/hydronic flow test/adjustment/balance (TAB)(include the coil data sheets). The TAB agency shall be certified by either the Associated Air Balance Council (AABC) or National Environmental Balancing Bureau (NEBB). After signed approval by the designer-of-record submit three copies of the TAB report to the Contracting Officer for final approval.

1.12.5 LEED

Provide copies of all LEED efforts towards the "Certified" level, including all justifications and calculations. FDCCLant will be soliciting the services of an independent LEED certified professional(s) to provide USCG self-certifying efforts to review, approve/disapprove, and sign-off on the LEED efforts and to determine that the intent of the level of "Certified" has been attained.

1.12.6 Operations and Maintenance Manual:

Provide Operations and Maintenance Manual for fire protection, plumbing, and HVAC.

1.12.7 Access Panels: Access panels shall be provided for all concealed plumbing that requires adjustment or maintenance.

1.12.8 Training:

Provide instruction of Coast Guard personnel for all fire protection, plumbing, low pressure air, and HVAC systems and equipment. Duration of training shall be a minimum of one hour for each system or discipline. Visual and audible electronic recording of the training sessions shall be provided to the users for operation and maintenance of all systems (3 copies).

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### **1.13 ELECTRICAL DESIGN**

Electrical system design and construction shall comply with NFPA 70 and IEEE C2, as applicable.

#### **1.13.1 Exterior Electrical Systems**

##### **1.13.1.1 Electrical Service:**

Electrical service to ATC Mobile is provided by the Alabama Power Company. The electrical system from the service point is a Coast Guard owned 12.47 KV underground electrical distribution system. Extend the existing electrical distribution system to a pad mounted transformer at the site of the new FTS building to provide power to the building. Existing connection may be made near the west end of Building 32. Electrical service shall be sized to include capacity for one identical future flight simulator chamber with flight simulator.

Relocate existing electrical lines and equipment that must remain in service where impacted by the new construction.

##### **1.13.1.2 Wiring methods:**

Underground conductors shall be installed in conduit: use either rigid galvanized steel, or PVC schedule 40 except PVC type EB may be used where encased in concrete (minimum 2"). Conduit run under roadways shall be either rigid galvanized steel or PVC type EB encased in steel reinforced concrete ductbanks.

1.13.1.3 High voltage (>600 volt) conductors shall be copper type EP or type XLP except provide other type conductors where required by service provider or to match existing facility system.

1.13.1.4 Provide electronic watt-hour demand metering of the building electrical service; provide connection of the meter to the Building Automation System (BAS) for BAS monitoring of power consumption.

##### **1.13.1.5 High Voltage (>600 volt primary) Transformer:**

Provide power to the new building from a pad mounted, 13.2 KV primary voltage, less flammable liquid insulated, two winding, 60 hertz, 65 degree C rise, self cooled, 95 KV BIL rated transformer located at the new building site. The high voltage compartment shall contain the incoming line, insulated high voltage load break connectors, bushing well inserts, six high voltage bushing wells configured for loop feed application, load break switch handle(s), access to oil-immersed fuses, dead-front surge arresters, tap changer handle, connector parking stands and ground pad.

1.13.5.1 Insulated high voltage load break connectors shall be rated 15 KV, 95 KV BIL, 200 ampere rms continuous current and have a steel reinforced hook-stick eye, grounding eye and test point.

1.13.5.2 Load break switch shall be radial feed oil immersed type rated 15 KV, 95 KV BIL, 200 ampere rms continuous current.

1.13.5.3 Current limiting fuses shall be oil immersed type, connected ahead of load break switch with minimum 50,000 rms amperes symmetrical interrupting rating.

1.13.5.4 Surge arresters shall be fully shielded, dead-front, metal-oxide-varistor, elbow type with resistance rated gap, suitable for plugging into inserts.

1.13.5.5 The transformer shall be mounted on a minimum 8 inch thick steel reinforced concrete pad. The pad top shall be approximately 4 inches above grade, shall be sloped to drain, shall be sized to extend a minimum 8 inches beyond the transformer enclosure and shall have ½" chamfers at the edges.

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### 1.13.2 Interior Electrical Systems:

Provide service entrance equipment and a system of panelboards, feeders and branch circuits as required to provide electrical power to equipment and outlets. Provide surge protective device (SPD) to protect service entrance equipment. Provide additional SPD's for panelboards serving flight simulator and flight training equipment in the mission sensor training room, control room, the cockpit and navigation training room, the sensor training room and the computer training room. Provide a service entrance main circuit breaker. Provide system voltage(s) based on lowest life cycle cost. Provide heavy-duty type disconnect switches where switches are rated higher than 240 volts and for double throw switches. Short circuit current rating and bracing of equipment shall exceed available fault current by at least 10 percent.

1.13.2.1 Short circuit analysis and coordination and protective device study shall be provided showing devices and settings. Calibrate, adjust, set and test each new adjustable circuit protective device to ensure that they will function properly prior to the initial energization of the new power system.

#### 1.13.2.2 Harmonic Load Mitigation

Provide measures such as K-rated distribution transformers, higher rated neutral conductors, separate neutrals for branch circuits as required to mitigate impact of harmonic loads on electrical distribution systems.

#### 1.13.2.3 Panelboards:

Provide bolt-on circuit breaker type panelboards. Provide 10% spare circuit breakers and 10% space only for all panelboards. Do not use series rated circuit breakers. Do not use fuses. Provide a minimum of one spare conduit to accessible areas from flush mounted panelboards. Directory cards shall identify load locations by room number or name. Panelboards should be located in dedicated electrical rooms.

#### 1.13.2.4. Wiring methods:

All wiring shall be installed in conduit, minimum size 1/2 inch except where larger sizes are recommended by equipment manufacturers or required for code compliance except that cable tray may be used to carry telecommunications and other low voltage cable. Wiring shall be run concealed or above suspended ceilings in finished spaces and may be run exposed elsewhere. Provide a green color insulated equipment grounding conductor in all raceway with ungrounded conductors. Provide a separate neutral conductor with each branch circuit serving receptacles in office and computer workstation areas.

Provide a separate wall mounted copper ground bar, minimum 24" long by 2" wide, with pre-drilled holes and 2" offsets from the wall at each electronic workbench location in the parts storage and maintenance shop; connect ground bars to the building grounding system.

Provide an equipotential ground plane in areas with raised flooring by connecting the access flooring support structure to the building systems ground.

1.13.2.4.1 Conduit shall be: rigid steel (zinc-coated); intermediate metal conduit, zinc-coated steel only; electrical metallic tubing (EMT); PVC Type EPC-40; flexible metal conduit; liquid-tight flexible steel conduit; and other types as specified for special power systems. Conduits penetrating designated secure area boundaries shall be rigid steel and shall have a dielectric fitting immediately inside the secure space at the boundary crossing.

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- a. Cable tray may be aluminum ladder rack or welded steel wire basket type.
- b. Fittings: Cadmium or zinc coated for metal conduit, EMT and flexible metal conduit; threaded type (split couplings are unacceptable) for rigid metal conduit and IMC; and compression type for EMT.
- c. Conductors: All conductors shall be copper, manufactured within 12 months of date of delivery. Power and lighting conductors shall be 600 volt, type THWN/THHN or XHHW.
- d. Provide color coding of ungrounded conductors as follows:

|           |          |          |
|-----------|----------|----------|
|           | 208Y/120 | 480Y/277 |
| Phase A – | black    | brown    |
| Phase B – | red      | orange   |
| Phase C – | blue     | yellow   |

### 1.13.2.5 Receptacles and Equipment Connections:

Provide electrical receptacle outlets and hard-wired equipment connections as: required for specific equipment items; required by the National Electrical Code (NFPA 70); required by the Space Criteria Sheets; as a minimum in accordance with the following general criteria; and as otherwise specified. Receptacle outlets shall be specification grade, heavy duty, grounding type, wall mounted 18" above the finished floor unless specified otherwise. Receptacle outlets for 20 ampere, 120 volt circuits shall be NEMA 15-R or NEMA 20-R duplex type unless otherwise specified; no more than six duplex or three quad receptacles shall be connected on a single branch circuit. Provide special purpose receptacle outlets for cord and plug connected equipment with configurations to match equipment plug requirements. Provide GFCI and AFCI protected outlets per NFPA 70 and as specified.

#### 1.13.2.5.1 General Criteria

- a. Offices: Provide receptacle outlets so that no point in any wall space is more than 6 feet from a receptacle.
- b. Copy rooms: Provide receptacle outlets so that no point in any wall space on non-door walls is more than 6 feet from a receptacle.
- c. Kitchens/lunchrooms/breakrooms: Provide one duplex outlet for general use for every 3 feet of cabinet countertop, but not less than one per countertop. Provide dedicated outlets as indicated for specific equipment items. Provide one duplex outlet for each 10 feet of wall space measured at the floor line, excluding cabinet counter top areas. All outlets shall be GFCI protected.
- d. Corridors: Provide a minimum of one general-purpose hospital grade NEMA 5-20R, duplex receptacle every 40 feet of corridor length with a minimum of one per corridor. Connect corridor receptacles for cleaning equipment use on separate circuits serving only corridor receptacles.
- e. Janitor's Closet : Provide a minimum of one GFCI protected outlet per space.
- f. Toilet Rooms/Areas: Provide a minimum of one GFCI protected outlet per space; locate outlets adjacent to each sink, 6 inches above the counter top or top of the sink.
- g. Shop Spaces: Provide a dedicated 20 ampere circuit to a duplex receptacle outlet at each electronic workbench location. Provide emergency "red mushroom" pushbuttons at approximately 20 foot intervals in shop space areas with electronic workbenches; actuation of the pushbutton shall disconnect all power from all the electronic workbenches in the space.

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Provide duplex outlets on walls in other than workbench locations with a minimum of one outlet per 20 feet of wall length, mounted 36" aff. All duplex outlets in shop spaces shall be either GFCI type or GFCI protected.

h. Telecommunications room: Provide a dedicated emergency power panel. Provide duplex outlets for equipment connections every 6 linear feet of wall space; provide a minimum of two 20 ampere circuits to provide power for the wall outlets. Provide one dedicated floor mounted quad receptacle outlet at each equipment rack location. Provide a separate UPS in each equipment rack.

i Electrical and Mechanical Equipment rooms: Provide one duplex receptacle for every 50 feet of wall length with a minimum of one per space.

j Storage Rooms: Provide one duplex receptacle for every 50 feet of wall length with a minimum of one per space, located near the entry door .

k. Other spaces: One for every 50 feet of wall space at the floor line, minimum of one per space.

l. Exterior: Provide one 20 ampere GFCI or GFCI protected duplex receptacle for every 150 feet of exterior wall length, with outlets located preferably near entrances. Outlets provided per NFPA 70 requirements for HVAC equipment maintenance may be counted for the required outlet.

m. Provide a duplex NEMA 5-20R receptacle with dedicated circuit for the following equipment:

Copiers  
Water Coolers  
Vending Machines  
Microwaves  
Coffee Makers

n. Provide special purpose receptacle outlets and/or connections for GFCI (Government Furnished, Government Installed) and GFGI (Government Furnished, Government Installed) equipment items as specified and indicated on the Space Criteria Sheets. Coordinate with the Contracting Officer for determining the exact requirements for this equipment. The Contractor shall provide receptacle outlets and/or power connections for each piece of equipment. Locations of each piece of equipment will be verified during design.

o. Provide a duplex receptacle outlet adjacent to CATV outlets where CATV outlets are located at 4'0" or higher above finished floors, intended for wall bracket mounted televisions.

p. Provide a duplex receptacle adjacent to overhead projector mounting locations.

q. Provide a duplex receptacle outlet between 12 and 18 inches from each quad telecommunications outlet.

r. Provide power connections for control panels as required for special systems such as the fire detection and alarm system, intrusion detection, and other system control panels requiring electrical power.

### 1.13.2.6 Lighting:

#### 1.13.2.6.1 Interior Lighting:

Provide fluorescent lighting except that HID lighting may be utilized in medium height applications. Minimize the number of different lamp types utilized. Provide occupancy sensors for rest rooms, storage areas, private

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offices and other areas as appropriate. Provide dimming for lighting of areas where tasking requires varying illumination levels (e.g. conference and training rooms). Use the following design target lighting levels for the spaces listed; use IESNA recommendations for other spaces. Use compact fluorescent lighting rather than incandescent lighting except where incandescent lighting is the only type available for the specific application. Any reduction of illumination levels below target footcandles in order to meet LEED power density requirements for the building shall be approved by the Contracting Officer.

| <u>Space</u>                                 | <u>FC Illumination</u> |
|--|------------------------|
| Storage, Corridors, Mech & Elec. Rooms       | 20                     |
| Rest Rooms (toilets)                         | 30                     |
| Vestibule, Lobbies, Corridors, Waiting areas | 20                     |
| Offices, Shops, Telecomm rooms               | 50                     |
| Conference, Classroom, & Training rooms      | 50 (dimnable)          |
| Flight Simulation Chamber                    | 50                     |
| Control Room                                 | 50                     |
| Copy Room                                    | 30                     |
| Flight Planning                              | 50                     |
| Briefing Rooms                               | 50                     |
| Break Room                                   | 30                     |

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a. Fluorescent fixtures shall have electronic ballasts. Maximize use of fixtures with T-8 lamps. Industrial and strip fixtures shall have full solid steel end plates. Troffers shall have .156" minimum thickness acrylic lenses. Fixtures in office areas shall be parabolic type; prismatic lens fixtures may be used in other finished areas. Fixtures in mechanical and electrical rooms may be industrial type, either pendant or surface mounted.

b. HID fixtures shall be metal halide pulse start type. Provide fixtures with quartz auxiliary lamps or supplementary lighting in areas illuminated solely by HID fixtures.

c. Exit lights shall be LED type with emergency battery back-up.

d. Provide emergency battery lighting to illuminate paths of egress and in toilet rooms, training rooms, classrooms, electrical and telecommunications rooms and other areas where loss of light could present immediate personnel danger upon loss of illumination for the period when the emergency generator is not on line; emergency lighting in other areas should be provided from lighting fixtures powered from emergency power panelboards. Emergency battery lighting shall be provided either by separate battery pack type fixtures or by use of battery packs in standard lighting fixtures. Battery pack type fixtures shall have maintenance free nickel cadmium or lead acid batteries with tungsten halogen lamps.

e. Exterior/Site Lighting:

1) Provide exterior lighting for task illumination, physical security and personnel safety. Use IESNA recommendations for footcandle levels except where higher illumination levels are required for physical security or special operations. Provide parking area lighting utilizing pole mounted lighting; new parking area lighting shall match that installed in the adjacent existing hangar parking lot. Light poles shall be wind rated, with fixtures installed, to exceed the 50 year mean recurrence wind for the area. Provide individual photocell control of pole mounted fixtures.

2) Provide exterior building mounted wall pack lighting for illumination of all building entries and adjacent approaches and sidewalks where exterior pole mounted lighting does not provide adequate illumination. Building mounted lighting shall be photocell controlled.

### 1.13.2.7 Emergency power:

Provide a standby natural gas engine generator set with automatic transfer switch to serve a separate emergency power distribution system with distribution panelboards, wiring and raceway. Locate the generator above the 100 year flood plain. Emergency power system shall meet requirements of NFPA 110 for EPSS level 1, type 10 unless specified otherwise. Provide generator remote alarm panel in the control room. The emergency power distribution system shall be normally powered from commercial power; upon loss of commercial power the system shall be powered from the generator via an automatic load transfer switch.

Emergency power loads shall include all NFPA 101 required emergency and egress lighting; electrical outlets and lighting in the Mission Sensor Training Room 128; lighting in Control Room 124; the public address system; the telecommunications room including equipment, lighting and HVAC; the intrusion detection system; the fire detection and alarm system, the flight simulator vacuum pump circuit in the control room; selected lighting in the flight simulation chamber; and all lighting, receptacles and HVAC for conference room 104.

### 1.13.2.8 Uninterruptible Power Supply (UPS)

Uninterruptible power supplies (UPS's) shall be provided complete with batteries with sufficient capacity to power the UPS for 15 minutes operation at its full rated capacity. Provide UPS's as indicated in the specifications or in the space criteria sheets.

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1.13.2.9 Flight Simulator and Training Room equipment special power requirements. The following electrical feeders and equipment shall be provided under this contract; the feeders and equipment will be used for future connection of training equipment which is not in the scope of this contract.

1.13.2.9.1 Provide a 225 ampere, 480/277 volt, three phase, four wire, 60 hertz electrical feeder to Mission Sensor Training Room 128 to provide power for future simulator motion control equipment. Terminate the feeder at a 225 ampere rated, three pole circuit breaker.

1.13.2.9.2 Provide a 400 ampere, 208/120 volt three phase, four wire 60 hertz electrical feeder to Control Room 124 for future simulator operations training equipment. The feeder shall connect to a Government Furnished, Contractor Installed 100 KVA UPS.

1.13.2.9.3 Provide a 20 ampere 120 volt single phase emergency power electrical circuit to Control Room 124 to provide power to the future flight simulator vacuum pump. Provide a UPS for the circuit and terminate the circuit in a 20 ampere, 120 volt enclosed circuit breaker.

1.13.2.9.4 Provide a 60 ampere, 208/120 volt three phase, four wire 60 hertz electrical feeder to Mission Sensor Training Room 128 to provide power for future sensor training equipment. Terminate the feeder at a 100 ampere rated, 120/208 volt, 20 pole panelboard with two 30 ampere, 3 pole and six 20 ampere, 1 pole branch circuit breakers.

1.13.2.9.5 Provide a 60 ampere, 208/120 volt three phase, 60 hertz electrical feeder to Cockpit and Navigation Training Room 113 to provide power for future cockpit and navigation training equipment. Terminate the feeder at a 100 ampere rated, 20 pole panelboard with two 30 ampere, 3 pole and six 20 ampere, 1 pole branch circuit breakers.

### 1.13.2.10 Lightning Protection System:

Provide a lightning protection system for the MPA Flight Training Systems Building. The system shall be master labeled by a testing laboratory or by a testing laboratory or certified installer. Provide a perimeter ground ring around the building with #1/0 bare stranded copper cable and 10 foot x 3/4 inch copper clad steel ground rods at 20-foot intervals. All connections to the ground ring shall be exothermically welded.

### 1.13.2.11 Intrusion Detection System:

Provide an intrusion detection system (IDS) for intrusion coverage of the Mission Sensor Training Room 128. Provide a control panel in the room with balanced magnetic switches on the entry doors, volumetric detectors in the room space, door access controls with keypad to permit authorized entry and other equipment as required to detect intrusion in the room. The intrusion system control panel shall be connected to the telecommunication system and shall send alarm and trouble system signals via telephone lines to the existing central station receiver station (Sur-Gard model MLR2E System III) located in the gatehouse. The contractor shall provide require programming so that signals are displayed in plain English language at the receiver station.

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### 1.13.2.12 Cable Television:

Provide a complete system with conduit, splitters, amplifiers and RG-6 cable terminated at flush mounted type F wall outlets. Provide a CATV outlet in the waiting room area at the location of the wall mounted television mount shown on the drawings. Make arrangements with and coordinate the system installation with the local CATV service supplier for connection of CATV service to the building system. All CATV cabling in interior locations shall be run in conduit or pathway systems separate from telecommunications conduit or pathway systems. Test cabling after installation but before system components are connected using time domain reflector (TDR); cable sections showing greater than 6 dB loss due to shorts, kinks and other impedance discontinuities shall be replaced.

### 1.13.3 Testing

Provide tests and inspection of electrical systems. Tests shall include: insulation resistance of wiring; ground resistance of grounding systems; load test of generator; automatic transfer switch operation; access control system operation, security system operation, and operational tests of all electrical equipment. Tests shall include those recommended by the equipment manufacturer and those required by applicable codes and NEMA and ANSI standards. Equipment shall not be placed in service until testing has been completed and test results have been evaluated.

1.13.3.1 Generator on site tests shall be in accordance with NFPA 110.

### 1.13.4 Operations and Maintenance Manual

Provide Operations and Maintenance Manual for new electrical equipment in accordance with Specification 01781.

### 1.13.5 Training

Provide training for operation and maintenance of each system, including the government furnished UPS, generator, IDS system in accordance with Specification 01781; provide a minimum of 2 hours training for each system.

## 1.14 TELECOMMUNICATIONS DESIGN

1.4.1 General Scope: Provide new telecommunications backbone and horizontal cabling infrastructure including cabling, work area outlets, cabinets, racks, patch panels, cable support tray, conduit paths and miscellaneous support equipment as required to provide telecommunications systems for the new MPA Flight Training Systems (FTS) Building. Installation shall comply with category 5e standards as annotated in the ANSI/TIA/EIA-568-B (series) standards. **The T568A wiring standard shall be used for all pin/pair assignments and telecommunications terminations; and shall be designated in construction specifications, and on applicable shop prints.** All fiber shall be terminated using SC style terminations. Relocate existing telecommunications lines and equipment that must remain in service where impacted by the new construction.

1.4.1.1 Existing Conditions: The Main Distribution Frame (MDF) room that will be tied into is located on the second floor of the existing main hangar building (Bldg 5). There is an optical fiber distribution room located in Supply Building 4. The server room is located in the IRM Building 33. The ATC Mobile PBX is a GSA owned Nortel Meridian located in the main hanger building (Bldg 5) second floor Equipment Room. Maintenance and installation of new extensions is contracted through GSA. IRM Mobile indicates that there is enough room for expansion of the current PBX.

### 1.14.2 Contractor Requirements

1.14.2.1 Contractor/subcontractor designing the horizontal and campus telecommunications cabling infrastructure shall be a certified BICSI RCDD or hold an industry equivalent certification. Contractor/subcontractor performing horizontal and campus telecommunications cabling installation shall be a certified BICSI Level 2 Installer or hold an industry equivalent certification or higher. Contractor/subcontractor performing horizontal and campus telecommunications cabling testing shall be a certified BICSI Technician or hold an industry equivalent certification or higher.

### 1.14.3 General

1.14.3.1 Design, provide, and test all backbone and horizontal cabling, terminations, and cross-connections in accordance with the ANSI/TIA/EIA-568-B standard.

1.14.3.2 Provide all cabling pathways and telecommunications spaces in accordance with the TIA -569-B standard. This standard requires a 150% expansion capability for all pathways and spaces.

1.14.3.3 Provide plywood backboards in the Telecommunications Room in accordance with the TIA -569-B standard. The backboards shall be fabricated from sheets of ¾ inch exterior grade "A/C" plywood. The "A" side of the plywood shall be exposed. The plywood shall be mounted on each wall (except wall with door frame) vertically, 10 inches off the floor and extended up to the ceiling; or 8 feet and 10 inches from the floor, whichever is lower. The plywood shall be installed in full 8 foot by 4 foot sheets, where possible. All plywood shall be painted with two coats of light colored fire retardant paint on all surfaces (unless clearly stamped as pre-treated, fire retardant plywood).

1.14.3.4 The administrative requirements of the telecommunications system shall be accomplished in accordance with the ANSI/TIA/EIA-606-A standard and shall include the layout of outside plant cabling, and underground conduits. Cabling run sheets, block diagrams, and riser diagrams shall be provided to the Contracting Officer's Representative in either a spreadsheet format, as part of as-built drawings, or as an appendix to other reports.

1.14.3.5 The grounding and bonding infrastructure shall be designed and provided in accordance with the NFPA-70 and the J-STD-607-A standard.

1.14.3.6 Provide and install equipment racks in the Telecommunications Room. The equipment racks shall be open frame style enclosures with 19" mounting capability. The racks shall have at least 75 inches of vertical mounting space. Equipment racks shall be designed for mounted equipment depths of 32 inches, minimum and shall comply with TIA/EIA 310-D. Provide a 3 feet minimum clearance space at the front, back, and on non-joined sides of telecommunications and electronic equipment racks.

1.14.3.7 Provide all outside plant cabling and underground conduits, pathways, and access holes between the MPA FTS Building and applicable outbuildings and/or the existing manhole system which would allow access to the existing ATC Mobile telecommunications and data networks. Outside plant cabling, spaces and pathways shall conform to the requirements of the ANSI/TIA/EIA-758 standard, Article 250 of the National Electrical Code (NEC), and the National Electrical Safety Code (NESC).

1.14.3.7.1 All outside plant conduit shall have a minimum diameter of four (4) inches. All conduits shall be encased in concrete with a minimum 2500 lb/in<sup>2</sup> compressive strength and steel reinforcement where vehicular traffic is above the pathway.

#### 1.14.4 Space Allocations

1.14.4.1 Telecommunications Room: A space 9.5' X 10' will meet the needs to locate two (2) equipment racks and all telecommunications equipment required. This room shall be a Horizontal Cross-Connect Room dedicated only for telecommunications, and will provide the distribution of all horizontal data and voice cabling.

#### 14.4.5 Grounding and Bonding

1.14.5.1 Provide a Telecommunications Main Grounding Bus-bar (TMGB) in the Telecommunications Room in accordance with the J-STD-607-A standard.

1.14.5.1.1 The TMGB shall be a ¼" by 4" (nominal width) by 12" (minimum length) flat copper stock that is drilled to accept bolt-on compression lugs. The TMGB shall be isolated from its mounting hardware and any building structural metal. Provide space for four spare ground lugs on the TMGB.

1.14.5.2 Bond all appropriate components (i.e. racks, metal conduits, raceways, and raceway segments) to the ground system. Provide and install bolted type ground lugs for connection of each ground connector. Provide connection of the TMGB grounding system to the universal building ground in accordance with the J-STD-607-A standard. Total resistance from the TMGB to ground shall be 5 ohms or less. Attachment to a cold water pipe is an unacceptable source of ground and shall never be used.

1.14.5.3 Provide bonding and grounding to the Base Wide Main Distribution Frame for Telecommunications in accordance with the J-STD-607-A standard.

#### 1.14.4.6 Backbone Cabling

##### 1.14.4.6.1 Pathway

Provide a minimum of two 4" conduits for telecommunications outside plant cabling from the new FTS building telecommunications room to the existing manhole system as required. Anticipated point of connection to the manhole system is at communications manhole MHC-13.

1.14.6.2 Copper Cable: Provide a 200 pair PE-89, 24AWG, copper cable from the Main Distribution Frame (MDF) room in Building 5 to the MPA Flight Simulator Building EF via the new 4" and existing conduit pathways. Final terminations on both ends (from the lightning protection blocks) shall be made to 110 style blocks.

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1.14.6.2.1 Provide lightning protection modules at both termination points for all new copper backbone cabling. Protector packs shall be loaded with 230V gas modules with 66 IN / 66 OUT terminations.

1.14.6.3 Fiber Optic Cable Provide a 24 strand optical fiber shall be shall be run from the MDF in Building 5 to the Flight Simulator Building TR via the new 4" and existing 4" conduit pathways. The fiber shall be loose-buffered, gel-filled, 62.5/125 µm core/cladding diameter, multimode, indoor/outdoor OFNR fiber optic cable and shall meet the requirements of Article 770 of the NEC (NFPA 70) for its application, unless otherwise specified.

1.14.6 3.1 Terminations on both ends shall be with ceramic SC style connectors. Appropriate fan-out kits must be used in the termination of any loose tube optical fiber. Pull fiber within 1 ¼" innerduct via a separate 4" conduit and leave pull string in place when finished.

1.14.4.6.1.2 Provide conduit and pull boxes in accordance with the TIA/EIA-758 standard. All conduit penetrations shall be fire-stopped in accordance with the TIA -569-B standard. All conduit runs, whether empty or utilized, shall have nylon pull tape installed. Pull tape shall have footage markings and a 200-pound minimum pull strength. Pull tape shall be secured at each end of the conduit.

#### 1.14.4.7 Horizontal Cabling

1.14.4.7.1 All horizontal cabling shall be CAT 5e and shall conform to the ANSI/TIA/EIA-568-B standards.

1.14.4.7.2 All workstation outlets shall be terminated to Pin/Pair Assignment T568A in accordance with the ANSI/TIA/EIA-568-B standards.

1.14.4.7.3 Connections in the Horizontal Cross-Connect room shall be terminated to Pin/Pair Assignment T568A in accordance with the ANSI/TIA/EIA-568-B standards and in rack-mounted, Category 5e patch panels using 110 style back planes. Voice and data ports shall be installed in a serial format at the patch panels.

1.14.4.7.4 Provide and terminate all copper cable and fiber in accordance with the ANSI/TIA/EIA-568-B standards.

1.14.4.7.5 Provide and install Category 5e racks, Category 5e patch panels, Category 5e copper stranded patch cords, and all other equipment and cabling required unless otherwise specified.

1.14.4.7.6 All cabling and equipment shall be installed to conform to the requirements of the ANSI/TIA/EIA-569-A, J-STD-607-A, and NFPA 70 standards.

1.14.4.7.7 The Horizontal Cross-Connects shall be built to conform to the requirements of the ANSI/TIA/EIA-569-B standard.

1.14.4.7.8 Telecommunications outlet requirements:

1.14.4.7.8.1 Work Area Outlets (WAO). Each WAO shall be a quadruplex (quad) outlet with four (4) 8P8C (RJ-45) style jacks (two voice/two data) or a duplex outlet (one voice/one data) with two (2) 8P8C (RJ-45) style jacks, as specified. WAO's shall be provided in accordance with the following general guidelines and as noted on the Individual Space Criteria sheets.

1.14.4.7.8.1.1 In general, provide one (1) quad drop at every location designated with a desk or as specified or shown on the RFP drawings.

1.14.4.7.8.1.1.2 Provide one (1) quad drop at every separate printer, fax, and/or copier location.

1.14.4.7.8.1.1.3 Deep style (2.75" depth) or plaster ring style junction boxes shall be used for telecommunications quadruplex work area outlets.

#### 1.14.4.7.8.2 Voice Only (Simplex) Phone Outlets

Voice only phone outlets are intended for direct mounting of wall mounted telephones on the outlet wall plate, unless specified otherwise.

1.14.7.8.2.1 Provide one (1) outlet in the break room.

1.14.4.7.9 Electrical outlets shall be placed no closer than one foot from telecommunications outlets. Partitioned outlet boxes intended for electrical and telecommunication terminations within the same outlet box shall not be used.

#### 1.14.4.7.10 Conduits for Horizontal Cabling

1.14.4.7.10.1 Conduits from communication rough in locations to space overheads, cable trays, or to the telecommunications room shall be 1" minimum and shall be designated in construction specifications and on applicable shop prints.

1.14.4.7.10.2 All conduit runs, whether empty or utilized, shall have nylon pull tape installed. Pull tape shall have footage markings and a 200-pound minimum pull strength. Pull tape shall be secured at each end of the conduit.

#### 1.14.4.8 Testing

1.14.4.8.1 Conduct tests on all copper and fiber cables in accordance with the ANSI/TIA/EIA standards and contract specifications.

1.14.4.8.2 Submit a written test plan to the Contracting Officer at least 30 days prior to testing. The Government will review and comment on the test plan.

1.14.4.8.2.1 Notify the Contracting Officer, in writing, and at least 10 working days prior to testing and coordinate testing with the Contracting Officer's representative to ensure that all testing is observed by the Contracting Officer's Representative and/or other designated Coast Guard personnel.

1.14.8.3 Test all telecommunications grounds.

1.14.8.4 All category 5e testing shall be for Basic Link and not for Channel.

1.14.8.5 Submit hard and soft copies (Microsoft Office 2003 compatible) of all test results to the Contracting Officer.

## **1.15 PUBLIC ADDRESS SYSTEM DESIGN**

1.15.1 Provide a public address system utilizing drop-in ceiling speakers (Bogen CS2X2/VR or equal) of sufficient quantity to provide audible coverage in all possibly manned spaces and hallways in the FTS Building. Where drop-in speakers are not feasible, a suitable round flush-mount ceiling speaker may be used. If flush mount type speakers are utilized, tile bridges and ceiling speaker enclosures (for plenum spaces) shall be used when required. Volume management shall be required on interior speakers either individually or as a zone. Speakers shall be supported by 16AWG shielded 2-conductor cable.

1.15.1.1 Four 15 watt Reentrant horn type speakers shall be installed to the building exterior allowing all sides coverage but shall not produce feedback from any existing exterior base speakers.

1.15.1.2 A 250 watt telephone paging amplifier shall be installed in an equipment rack within the telecommunications equipment room and tie back to the existing PA system located in Hangar 1.

1.15.1.3 Provide all ancillary cards, modules etc. to allow the PA system within the FTS Building to operate fully with the existing base-wide Bogen PA system.

### 15.1.2 Testing

1.15.12.1 Submit a written test plan to the Contracting Officer at least 30 days prior to testing. The Government will review and comment on the test plan.

1.15.1.2.2 Notify the Contracting Officer, in writing, and at least 10 working days prior to testing and coordinate testing with the Contracting Officer's representative to ensure that all testing is observed by the Contracting Officer's Representative and/or other designated Coast Guard personnel. Submit hard and soft copies (Microsoft Office 2003 compatible) of all test results to the Contracting Officer.

1.15.1.3 Operations and Maintenance (O&M) Manual Provide an Operations and Maintenance Manual for the system in accordance with Specification 01781.

1.15.1.4 Training Provide a minimum of one hour of training for public address system operation.

End of Section

SECTION 01160

CONSTRUCTION DESIGN DOCUMENTS

PART 1 GENERAL

1.1 GENERAL DOCUMENTATION REQUIREMENTS

The Contractor shall provide design documents for constructing the MPA Flight Training Systems Building to representatives of the Contracting Officer for review and validation of conformance to specified project criteria. The design documents shall represent a project design that conforms to the design/build criteria specified in Section 01158, "Design/Build Criteria." Construction Design Documents shall be provided as specified herein.

1.2 DESIGN OWNERSHIP

All design documentation, including all supporting data, when submitted to the Government, shall become the property of the Government, except as specified otherwise in the contract.

1.3 QUALIFICATIONS OF DESIGNER

All of the work specified in this section and Section 01158, "Design/Build Criteria" shall be designed by and prepared under the direct supervision of the registered A/E design team submitted with the contractor's proposal.

1.4 SUBMITTALS

Construction design documents shall be submitted for approval as specified and shall be accompanied by pertinent calculations and documentation as specified herein.

1.5 CONSTRUCTION DESIGN DRAWINGS

Submit Contractor produced construction design documents for all work required by this Request For Proposals (RFP). Construction design documents shall be in sufficient detail to show compliance with the RFP contract requirements.

Utilization of the Government's RFP drawings as part of the Contractor produced construction design documents constitutes acceptance of the design responsibility by the Contractor.

1.5.1 Drawing and Computer Aided Drafting and Design Standards

Except as specified otherwise in this specification section, the construction design drawings shall meet the applicable drawing standards contained in the Tri-Services CADD Standard Release 1.8, and National CAD Standard (NCS) Version 1, with some minor modifications to comply with the FDCCLANT Standards. The FDCCLANT modifications consist of: colors and pen weights or "plot styles" for plotting, drawing and sheet numbers, CADD file names, and symbols.

All CADD drawings shall use the FDCC LANT titleblock furnished to the Contractor by the Government. The design, configuration and attributes of this titleblock shall not be altered in any way. The Government uses a file management software program, "Adept", which extracts data from the attributes in each of the titleblock fields. If the attributes are changed, the data will not be extractable. The Contractor's electronic drawing files will be checked at each submission for compliance, and if they are not acceptable, the Contractor will be required to insert new titleblocks and edit the fields appropriately.

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The CADD program to be used to generate the design drawings shall be compatible with and provided in AutoCad Release 2005 or earlier (.dwg format). Submit all CADD files for each design submittal on CD ROM disks.

A CD ROM disk containing electronic files of the RFP drawings, RFP specifications, Individual Space Criteria Sheets and Supplementary Information will be provided to the Contractor for use in preparing the Contractor-produced construction design documents.

### **1.6.2 Facilities Design and Construction Center Drawing Numbers**

The Contractor-produced construction design drawings shall be numbered consecutively with FDCCLANT drawing numbers. Drawing numbers shall be assigned by FDCCLANT, and issued to the Contractor by FDCCLANT's Design Project Manager.

### **1.6.3 Seal on Documents**

All Final Contractor-produced construction design drawings and calculations shall be signed, dated, and shall bear the seal of a registered Architect and or Engineer, and a Registered Communications Distribution Designer (RCDD) for Telecommunications Design Documents. The seal shall be the seal of the Designer of Record for that drawing.

### **1.6.4 As-Built Construction Design Drawings**

The Contractor's Designer(s) of Record shall provide as-built CADD drawings. The modified as-built CADD files shall be forwarded, along with the marked-up as-built drawings and specifications to the Contracting Officer at the completion of the contract. As-Built CADD files shall have all XREFs "bound" (inserted), so that there is only one electronic file required per sheet.

### **1.6.5 State And Local Government Consultation, Review and Inspection: The Contractor's Designer is required to coordinate its efforts with appropriate state and local officials and designated Coast Guard officials, which include the Facility Engineer at USCG ATC Mobile, as well as FDCCLANT's Commanding Officer, or his authorized representative. The Contractor's Designer is an independent contractor and is not an agent of the Government. Accordingly, during consultations, the Contractor's Designer must inform state and local officials of its status and cannot bind the Coast Guard to any course of action. The Contractor's Designer shall, in preparing the design for the facility, consult with appropriate state and local governmental officials from the station's locale.**

Upon a request by state or local officials, and on approval by the Contracting Officer, submit the design in a timely manner to such officials for review and comment. Submittal of the design for state and/or local code and zoning review for permitting purposes however, is at the Coast Guard's direction and does not constitute recognition of, or an obligation to, comply with state or local administrative procedural requirements including but not limited to obtaining building permits. Accordingly, the Contractor's Designer will not, without the Contracting Officer's approval, appear at formal local or state public meetings or hearings or make application for building permits or zoning variances. The Contractor's Designer will, however, notify the Contracting Officer of any such meetings or hearings where the proposed project is to be considered and may be requested to attend such meetings or hearings with the Contracting Officer or other Government officials.

## **1.7 CONSTRUCTION DESIGN TECHNICAL SPECIFICATIONS**

Contractor-produced construction design technical specifications may be incorporated into the construction drawings, in lieu of producing a separate bound specification manual. Specifications included on the construction drawings shall identify materials, and methods or standards of installation and execution.

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### 1.7.1 Specifications Furnished with this RFP

Even though a separate bound specification is not required, the requirements of RFP Specification Section 01158, "Design/Build Criteria" and RFP Drawings and RFP Individual Space Criteria Sheets establish a minimum level of material/product quality and execution quality expected by the Government. Where product manufacturers and brand names are indicated in the RFP documents, manufacturers offering products that do not substantially differ from those specified and which comply with the specified requirements may be provided.

### 1.7.2 Submittal Reduction Procedures

Construction product and equipment submittals required by the Contractor's construction design documents, such as manufacturer's product data, may be waived for this project if the Contractor provides proprietary materials, methods, or systems as specified below.

#### 1.7.2.1 Contractor Specified Proprietary Materials or Methods

Contractor construction design documents may list manufacturer's names and model numbers for products. Each product description shall include manufacturer, product name, model number, options, and alterations to the standard manufacturer's product.

## 1.8 DESIGN SCHEDULE

See Section 01320 for schedule requirements. The Contractor is not prohibited from "fast tracking" (e.g. sitework and civil work phase, geotechnical work phase, foundation work phase, structural work phase, building enclosure work phase, remaining work phase). If the Contractor elects to fast track the design and construction, it shall be reflected in the project schedule.

## 1.9 DEVIATIONS FROM RFP REQUIREMENTS

Deviations from RFP requirements shall not appear on Contractor-produced Construction Design Document submittals unless the deviation has been previously submitted to, reviewed by, and approved by the Contracting Officer. Deviations shall be clearly presented so that these differences are easily identifiable during the review process.

The review of design submittals does not constitute approval or acceptance of any deviations from the RFP, unless such deviations have been specifically pointed out in writing by the Contractor and specifically approved in writing by the Contracting Officer.

## 1.10 VARIATIONS

A variation is considered to occur when there is a change to a contractor's submitted design and/or construction method that does not affect compliance with the terms of the contract. Variations require endorsement from the A/E of record prior to implementation. Variations do not require Contracting Officer's approval but notification of the planned change is required at least two working days in advance.

## 1.11 SITE VISIT INSPECTIONS

Provide site visits during construction. Representatives with the Contractor's Designers of Record shall periodically visit the site during construction at the completion of major structural work, as well as at the completion of electrical, plumbing and mechanical rough-ins. They shall also be present during the final inspection. Trip reports shall be prepared and submitted to the Government. Trip reports

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shall note the overall quality of construction, percent complete, and whether or not the construction is in conformance with the approved construction documents.

A minimum of three site inspections for each designer of record architect, structural, mechanical and electrical shall be provided over the period of construction. Inspections shall be included as tasks in the Contractor’s schedule. The Contractor shall provide seven days notice to the Contracting Officer prior to the inspections.

**PART 2 PRODUCTS**

**2.1 DESIGN SUBMITTAL PROCESS**

**2.1.1 Fast Track/Traditional Design Option**

Contractor has the option to either fast track construction or start construction after the design is completed. In either case the contractor is proceeding at his own risk until the Government has completed their review and accepted the design documents as meeting project requirements. Any non-conforming work completed will be removed and replaced at no further cost to the Government. Rework of non-conforming work will not serve as the basis for a time extension. The design package (or packages for fast tracking) shall consist of the following submittals:

- a. Pre-final Construction Design Documents Submittal
- b. Final Construction Design Documents Submittal

**2.1.2 Design Reviews by FDCCLANT and ATC Mobile**

Submit copies of all submittals required by this specification section to:

Contracting Officer  
 Facilities Design and Construction Center – Atlantic  
 5505 Robin Hood Road Suite K  
 Norfolk, VA 23513-2431  
 ATTN: Heather Brubeck

Facility Engineering Officer  
 U.S. Coast Guard ATC Mobile  
 8501 Tanner Williams Road  
 Mobile, AL 36608-8322  
 ATTN: MS. Susan McEnergy

**2.1.2.1 Duration of Reviews**

The Contractor shall allow the number of consecutive calendar days specified below, as the time required by the Government to review each design submittal. The time for review begins upon receipt of the submittal at FDCCLANT and ends when submittal leaves FDCCLANT.

- a. Pre-final Construction Design Submittal: 21 calendar days
- b. Final Construction Design Submittal: 14 calendar days

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### 2.1.2.2 Quantities of Construction Design Documents

- a. Pre-final Construction Design Submittal: Submit 3 (2) full size design drawing sets, 10 (4) half-size (11"x17") design drawing sets, 3 (1) copies of calculations, manufacturer's product catalog data, and supporting data; quantities in parenthesis are part of total quantities, but shall be sent directly to ATC Mobile (address as noted above). Provide one CD with electronic files of submitted items.
- b. Final Construction Design Submittal: Submit 4(2) full size drawing sets of sealed and signed original drawings, 10 (4) half-size (11"x17") drawing sets reproduced from the full-size originals, and 3(1) copies of revisions to other documents previously submitted; quantities in parenthesis are part of total quantities, but shall be sent directly to ATC Mobile (address as noted above). Return the review comments from the Pre-Final Submittal with Designer of Record responses. Provide one CD with electronic files of all submitted items including Designer of Record comment responses in MS Word format (.doc).

### 2.1.3 Fully Assembled Design Submittal (fast tracking)

Fully Assembled Design Submittal: Original full-size reproducibles of all previously approved design drawings (and specifications if applicable), ten combined, assembled, and bound half-size copies of all "previously approved design" submittals, and 1 CD with electronic files (2005 autocad "dwg", ms word "doc" and adobe "pdf" formats).

### 2.1.4 Revisions to Final Construction Design Drawings

Any variations to Final Design documents must be brought to the attention of the Contracting Officer prior to implementing the variation. Deviations from the Final Design drawings must be submitted for approval by the Contracting Officer prior to implementing the deviation. Deviations are considered revisions and must be annotated on the drawing, logged in the revision block and must clearly indicate the specific scope and location of the revision. Drawing revisions shall be accomplished either by revised drawings or revision sketches, and incorporated into as-builts drawings.

### 2.1.5 LEED Submittal Efforts

Contractor shall submit a list of the anticipated LEED subject points striving to obtain towards the certification goal. Submit LEED documentation forms for USCG self-certification efforts at the specified submittal submission schedules. Submissions are to include all necessary justifications for attaining the specific LEED points, including all life-cycle costing efforts required for justifications. USCG shall be submitting to an independent LEED accredited professional certified by the US Green Building Council (USGBC) for review, comments and final approvals.

## 2.2 SITEWORK AND CIVIL WORK DESIGN SUBMITTAL

### 2.2.1 Site work and Civil Work Design Drawings accompanying the RFP

The site work and civil work design drawings accompanying this RFP present the baseline requirements to be used by the Contractor to develop the project design. The Contractor shall add to, supplement, and complete these RFP drawings to fully comply with the specified RFP site work and civil work design/build criteria. The design and design data presented on the RFP drawings shall not be changed unless the requirements of the paragraph "Variations From RFP Documents" are met.

The Contractor shall complete the site work and civil work design by revising the RFP drawings as specified below. If additional drawings are required, they shall be generated in compliance with the RFP. Obtain a survey of the site and any additional information that may be required for a complete

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design and construction project. Obtain any necessary digging permits prior to start of excavation. The Contractor shall obtain the services of an independent utility marking company. Scan the construction site with electromagnetic or sonic equipment, and mark the surface of the ground, pier deck or paved surface where existing underground utilities or utilities encased in pier structures are discovered. Verify the elevations of existing structures, piping, utilities, and any type of underground or encased obstruction not indicated to be specified or removed but indicated or discovered during scanning in locations to be traversed by piping, ducts, and other work to be conducted or installed. Adjust any existing structures to meet proposed grades.

### 2.2.2 Civil Construction Design Calculation Submittal

Provide design calculations at the Pre-final Construction **Design** submittal. Note that by Utilities Contract dated 9/20/79 with the Mobile Area Water and Sanitary Sewer, this entity maintains and operates a sewer line and force main to handle a peak flow of 300,000 GPM of sewage generated by the Coast Guard Base.

### 2.2.3 Civil Construction Design Documents

Construction Design Documents shall be in sufficient detail to show compliance with the RFP contract requirements.

## 2.3 GEOTECHNICAL WORK CONSTRUCTION DESIGN SUBMITTAL

### 2.3.1 Contractor's Geotechnical Report

Submit a written Geotechnical Report based upon subsurface investigation data and all field and laboratory testing accomplished by the Contractor's Geotechnical Consultant or provided by the Government with this RFP and all additional field and laboratory testing accomplished at the discretion of the Contractor's Geotechnical Engineer. A registered Professional Engineer regularly engaged in geotechnical engineering shall seal and sign the Geotechnical Report.

### 2.3.2 Geotechnical Site Data Drawings

Provide geotechnical site data drawings at Pre-final Construction **Design** Submittal.

**For** borings performed by the Contractor, the boring logs including the hole number, date of drilling, make of drill, type of drilling, sampling depths, blow counts, driller's visual description of the soil, unified soil classifications, surface elevation at each boring referenced to boring referenced to the vertical datum utilized for the project, water table elevations 24 hours after completion of drilling, and locations of these borings shall be indicated on the drawings submitted with the Contractor's design. Boring data shall not be scanned, but must be drawn in the CAD drawing.

## 2.4 STRUCTURAL

### 2.4.1 General:

2.4.1.1 General notes on the Structural Construction Design Drawings shall show, in addition to the requirements of the IBC, the following:

- (1) Material strengths, such as  $f'_c$  for concrete,  $F_y$  for steel, or  $F_b$  for timber.
- (2) Codes and criteria used
- (3) All waterfront design loads
- (4) Pile data or allowable soil bearing capacity

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2.4.1.2 On the first sheet of the Structural Construction Design Drawings, provide a statement (certification) that the design includes all seismic load effects required by ASCE 7.

2.4.2 Structural Construction Design Documents:

Documents shall be in sufficient detail to show compliance with the RFP contract requirements.

2.4.3 Structural Calculations: Provide at Pre-final Construction Design Submittal.

## 2.5 ARCHITECTURAL

2.5.1 General

On the first sheet of the Architectural Construction Design Drawings, provide building code information (Building area, Use Group, Occupancies, Construction Type, Egress requirements, fire ratings, etc.)

2.5.2 Architectural Construction Design Documents:

Construction Design Documents shall be in sufficient detail to show compliance with the RFP contract requirements.

## 2.6 MECHANICAL DESIGN

2.6.1 General

Construction Design Documents shall be in sufficient detail to show compliance with the RFP contract requirements.

2.6.2 Mechanical Construction Design Documents:

a. Heating, Ventilating and Air Conditioning Plans:

Provide floor plan(s) showing functional layouts of mechanical features such as equipment location, ductwork, accessories and all associated sizes.

Provide complete schedules for all equipment. Provide legend, symbols and abbreviations for each item indicated on the drawings.

Location of room thermostats, ventilation air control, and timed setback override switches shall be shown on the drawings.

HVAC Testing Adjusting and Balancing: The Contractor's designer shall indicate on the drawings (in addition to the duct class, seal class, and leakage class) the leakage test pressure to be used to test ductwork, or duct sections. Refer to SMACNA HVACADLTM, Appendix B, "Sample Leakage Analysis" for guidance in determining leakage test pressures. TAB's testing personnel shall be from an independent, certified NEBB or AABC authorized, testing firm and test report shall be in the form of one of these organization's samples.

Provide Building Life Cycle Cost (BLCC) for 25 year life expectancy. Analysis shall include first costs, annual utility cost, annual maintenance costs. Costs shall not include salvage costs. BLCC efforts shall be provided for all system considerations for LEED certification efforts and provided NLT than the prefinal submittal efforts.

Mechanical Calculations:

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a. Provide a load analysis for pre-final submittal, and revised calculations for the final submittal utilizing a commercially available HVAC program, such as Carrier, Trane, or Elite. The calculations shall include the flow and friction loss calculations for the various medium (duct and pipe losses.) Ensure that all corrected data is provided at the final acceptance submittal.

b. Plumbing Plans:

Provide floor plan(s) showing fixtures, equipment locations, piping runs, accessories and all associated sizes. Potable water and sanitary piping shall be shown on separate floor plans. Provide elevations and details where necessary to provide clarity for construction. Include the following:

- (1) Legend and symbols for each item indicated on the drawings.
- (2) Location of fixtures, associated equipment, and piping.
- (3) Show locations of all access panels required to service, replace or operate concealed plumbing fixtures (isolation valves, water hammer arrestors, shower control valves, etc.
- (4) Provide one-line isometric riser diagrams of major piping systems.

Plumbing Calculations: Provide analysis for pre-final submittal, and revised calculations for the final submittal plumbing calculations at Pre-final Construction Design Submittal.

c. Fire Protection Plans:

Provide detail-working drawing of system layout in accordance with NFPA 13, "Working Drawings (Plans)".

Fire Protection Calculations: Provide analysis for pre-final submittal, and revised calculations for the final submittal, to substantiate compliance with hydraulic design requirements and NFPA code requirements. These calculations shall be generated from a commercially available computer program dedicated to providing hydraulic calculations for sprinkler systems, and shall reflect signed approval by the Fire Protection engineer, or a NICET III or IV certified technician.

## 2.7 ELECTRICAL DESIGN

### 2.7.1 General

Construction design documents shall be in sufficient detail to show compliance with the RFP contract requirements.

### 2.7.2 Electrical Construction Design Documents:

a. Legend and Symbols

Provide legend and symbols for each item indicated on the drawings, and a listing of all abbreviations used on drawings with their meanings.

b. Floor Plans

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Provide separate floor plan(s) for lighting and power. Note, telecommunications plans and details shall be maintained on separate plans. Floor plan drawings shall show locations of electrical equipment and branch circuit wiring.

Provide lighting fixture manufacturers information on drawings to indicate proposed lighting.

### c. Riser Diagrams

Power One-Line/Riser Diagrams: Provide a power and/or one-line diagram showing the service feeder, distribution transformer, emergency generator, main distribution panel(MDP), loads served from the MDP, including sub panels and step-down transformers with associated wire and conduit quantities and sizes shown on the diagram. Provide available fault at all busses and characteristics of all protective devices.

### d. Schedules

- (1) Panelboard Schedules
- (2) Lighting Fixture Schedule

## 2.7.3 Electrical Design Calculations

Submit design calculations for the following requirements:

- (1) Short Circuit Current Analysis: Provide calculations for the electrical distribution system based on the one line/riser diagram.

- (2) Lighting:

Interior: Provide interior lighting calculations keyed to the lighting floor plan and the lighting fixture schedule.

Exterior: Provide site plan of area illuminated with calculated exterior illumination levels shown numerically on the plan.

- (3) Load Analysis for Normal Power: Indicate connected load and demand load using appropriate diversity and demand factors. Provide load calculations for panelboards and calculations for associated feeders (conduit and conductor sizes and quantities).

- (4) Load calculations for sizing of emergency generator based on demand load and starting requirements of motor loads.

## 2.8 TELECOMMUNICATION DESIGN

### 2.8.1 General

Construction Design Documents shall be in sufficient detail to show compliance with the RFP contract requirements.

### 2.8.2 Telecommunications Construction Design Documents

- a. Provide floor plans showing locations of telecommunications and public address system outlets and equipment, conduit and cable tray pathways, entrance facility and telecommunications room layout, all grounding systems and horizontal distribution.

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- b. Provide riser diagrams showing telecommunications system backbone cabling, equipment racks and horizontal distribution.
- c. Provide site plan showing existing and new conditions including locations of new handholes, ductbanks and underground cabling.

PART 3 EXECUTION

Not Used.

End of Section

SECTION 01200

DESIGN-BUILD PROGRESS PAYMENTS

1. GENERAL

This section covers the submittal requirements for design-build progress payments.

1.1 RELATED CONTRACT CLAUSE

Section I contract clause 52.232-5 "Payments under Fixed-Price Construction Contracts."

1.2 DESIGN SUBMITTALS

- a. Design Submittal (pre-final)
- b. Final Design Submittal
- c. Construction Submittal Reviews
- d. Site Visit Reports During Construction
- e. Final Inspection Reports
- f. As-Built Design Drawings

1.3 SUBMITTALS DURING CONSTRUCTION

SD-01 Preconstruction Submittals

- a. Schedule of Prices.

1.3.1 Request for Progress Payment

Payment requests during design may be made upon submission of each design submittal, and will be based on the portion of the Base Bid for Design Services indicated in Part 3 of this section. Apply for progress payments using "Contractor's Monthly Estimate for Payment Voucher" which includes (form FD&CC-4) and the required payment certification that are available from the Contracting Officer. Electronic copies are available.

1.3.1.1 Documentation for Materials Delivered But Not Installed

Paid invoices for materials stored on site for which progress payments are requested shall accompany the application for payment. Requests for payment for materials stored offsite will normally not be approved.

Payment requests for services provided for construction submittal review, site visits during construction, and final inspections may be made monthly based on the portion of the Base Bid for Design Services indicated in Part 3 of this section.

Payment request for As-Built Design Drawings may be made upon submission of the as-built drawings (see Section 01160 Design Documents), and will be based on the portion of the Base Bid for Design Services indicated in Part 3 of this section.

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1.3.1.2 Required Schedule Updates

In accordance with FAR Clause 52.236-15, Schedules for Construction Contracts and section 01320, submit updated progress documentation along with the request for payment, including request for final payment.

1.4 TIMING FOR SUBMITTALS DURING CONSTRUCTION

1.4.1 Initial Submission

Submit an original schedule of prices with the progress documentation required by section 01320 for the Government's approval in accordance with section 01320.

1.4.2 Progress Payments

Progress payment requests may be submitted once a month to coincide with the progress update.

2 PRODUCTS

Not used.

3 EXECUTION

3.1 SCHEDULE OF PRICES

The schedule of prices shall be prepared in conjunction with the development of the complete performance schedule. Prepare and deliver to the Contracting Officer a schedule of prices on the forms furnished by the Government. Provide a detailed breakdown of the contract price, giving quantities for each of the various kinds of work, design phases, unit prices and extended prices therefore.

3.1.1 Design Phase

|                 |                          |
|-----------------|--------------------------|
| 100% Submittal  | 55% of Design Base Bid   |
| Final Submittal | 25% of Design Base Bid   |
| Any Option      | 80% of Design Option Bid |

3.1.2 Construction Phase

|   |   |
|---|---|
| Construction Submittal Reviews                      | 8% of Design Base Bid<br>and any option |
| Site Visits During Construction & Final Inspection* | 7% of Design Base Bid<br>and any option |
| As-Built Drawings                                   | 5% of Design Base Bid<br>and any option |

\* See Section 01160, Construction Design Documents, paragraph 1.11 Site Visit Inspections, for Scope of Work for Site visits and inspections by the Designer of Record.

3.1.3 Contract Modifications

Each contract modification shall be added to the end of the approved schedule of prices.

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### **3.2 CONTRACTOR MONTHLY VOUCHER ESTIMATE**

The contractor's monthly voucher estimate consists of the approved schedule of prices and the data elements below.

- a. Percent of Installation Complete To Date: Insert the percent complete value for this activity.
- b. Material Invoices Submitted To Date: The sum of the paid material invoices for the specific activity shall be placed in this field.
- c. Amount Payable To Date: The value in this field shall be automatically calculated and shall not be overtyped. The amount payable to date for stored material equals the greater of (1) the material invoices submitted to date column or (2) the material activity cost multiplied by the percent of installation complete to date value for the activity. The total amount shall not exceed the material activity cost. The labor value payable to date is calculated by multiplying the labor value activity cost by the percent of installation complete to date.
- d. Amount Payable To Date Last Month: The value in this field is carried over from the previous months approved invoice amount payable to date column.
- e. Amount Payable This Month: This value shall be automatically calculated and shall not be overtyped. The value is calculated by subtracting the amount payable to date last month value from the amount payable to date column. This value represents the amount earned for a specific activity without regard to retainage.
- f. Required Calculations: The last page of the contractor monthly voucher estimate shall include the following calculated values - (1) The Total Contract Value which is the sum of the activity cost field column values which shall also equal the current total contract price, including approved modifications; (2) Subtotals of the amount payable columns (to date, to date last month, this month); (3) Percent Complete Based On Installed Material which is the sum of the activity cost labor column multiplied by the percent of installation complete to date and then divided by the sum of all of the values listed in the activity cost labor column; and, (4) Percent Earned To Date which is the total amount payable to date divided by the total contract value.

#### **3.2.1 Payment for Stored Materials**

Although Section I contract clause 52.232-5 does not require payment for materials received but not installed, the Contracting Officer may consider requests for, and may authorize payment for the cost of the material based on the lesser of the following: (1) The total value of all invoices submitted for the activity; and (2) The value listed in the material total cost field. In order for requests for payment to be considered, the material shall be per the approved submittal, on site, and properly stored or protected.

##### **3.2.1.1 Material Invoices**

Paid material invoices shall be legible and clearly document the type, quantity and cost of the materials covered by the invoice. The contractor shall clearly mark on each invoice the activity number which payment is being requested. For invoices covering more than one activity, the contractor shall indicate both the activity number and the percentage of the total invoice to be applied. Incomplete or unreadable invoices will not be considered when processing payment requests.

End of Section

SECTION 01320

DESIGN-BUILD PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings, Contract Provisions, Special Provisions, Supplementary Provisions, and other Division 1 Specification Sections apply to this Section.

1.02 SUMMARY

- A. This Section specifies administrative and procedural requirements for various Design and Construction Progress Documentations required for proper performance of the Work.
- B. All costs incurred by Contractor to correctly implement and update the schedule shall be borne by Contractor and are part of this Contract.
- C. Schedules required include the following
1. Contract Construction Progress Schedule in CPM format and related narrative.
  2. Submittals Schedule.
  3. Schedule of Tests and Inspections.
  4. Record, As-Built CPM Schedule.
- D. Reports required include the following:
1. Daily Construction Reports.
  2. Material Location Reports.
  3. Field Correction Reports.
  4. Special Reports.
  5. Monthly Progress Reports.

1.03 DEFINITIONS

- A. Activity: The fundamental unit of work in a Project plan and schedule. Each activity has defined geographical boundaries and a detailed estimate of resources required to construct the task. Each activity is assigned a unique description, activity number, activity codes, and dollar value.
- B. CPM Network: The structure of the schedule. The network is the representation that defines the construction logic in terms of all the activities with their logical dependencies.
- C. Contract CPM Schedule: A cost- and resource-loaded CPM schedule covering the entire Contract Duration from the Notice to Proceed through Final Acceptance of the Work.
- D. Contract Duration/Time: The total time, in calendar days representing the duration necessary for completion of all physical and administrative requirements under this Contract and any authorized

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extension thereof.

- E. Critical Path: The critical path is the longest connected chain of interdependent activities in a CPM network that impacts the completion of the Project.
- F. Excusable Delay: An unforeseeable delay, beyond the control of Contractor, experienced due to no fault or negligence by Contractor, its subcontractors, or suppliers.
- G. Predecessor Activity: An activity that precedes another activity in the network.
- H. Successor Activity: An activity that follows another activity in the network.
- I. Total Float: The amount of time an activity can be delayed from its earliest start date without delaying the end of Project.
  - 1. Float time is not for the exclusive use or benefit of either the Government or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
  - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
  - 3. Float and Slack is defined as the amount of time between the early start date and the late start date, or the early finish date and the late finish date of any of the activities in the network analysis schedule.

### 1.04 PLANNING

- A. The total Contract Duration and intermediate milestones if applicable, as indicated in the Contract requirements.
- B. Contractor shall prepare a practical work plan to complete the Work within the Contract Duration, and complete those portions of work relating to each intermediate milestone date and other Contract requirements. Contractor shall generate a computerized CPM schedule in Precedence Diagram Method (PDM) format for the Work.
- C. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of approval of the Schedule.
- D. Failure of Contractor to comply with requirements of this Section may be considered cause for withholding progress payments or termination for default.

### 1.05 SUBMITTALS

- A. General: Contractor shall provide all schedule submittals on computer disk media as well as tabular printouts, and 24-by-36-inch time-scaled logic diagrams. The latest version of Microsoft Projects, Primavera P3 or SureTrak scheduling software shall be used. All costs incurred by Contractor to correctly implement, computerize and update the CPM Schedule shall be borne by Contractor and are included in the Contract Price. The number of copies of each submittal shall be as described in this Section or as may be requested by COTR.
- B. Contract CPM Schedule: The Contract CPM Schedule and its related narrative as described in this Section shall be submitted as early as practicable after the Notice to Proceed, but in no event later than 30 calendar days after the Notice to Proceed. Within 15 calendar days, COTR will respond with approval or direction to change and Contractor shall resubmit within 10 calendar days, if required.

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- C. Daily Progress Report: Submit duplicate copies to COTR by noon on the day following the date of actual progress.
- D. Monthly Progress Report: All components of the Monthly Progress Report described in this Section shall be submitted as attachments to Contractor's monthly Application for Payment.
- F. Record As-Built CPM Contract Schedule: A Record Contract Schedule accurately reflecting actual progress of Work shall be submitted, as part of this Contract's Record Documents. All activities shall have actual dates that are true and accurate.

## PART 2 - PRODUCTS

### 2.1 NETWORK SCHEDULE CHART

The network shall consist of time scaled activities with logical interdependencies shown on a diagram with accompanying mathematical analyses.

Prepare a horizontal time scaled performance schedule with the total project divided and subdivided into a sufficient number of work activities to accurately graphically display the work schedule, sequence in which the work is to be accomplished, activity duration, and interdependence of activities. A bar shall depict the start, finish, and duration of each activity. The bar shall be shaded to indicate progress. In addition to construction activities, procurement times for critical items, including submittal turn-around, shall be shown on the schedule. The diagram shall clearly show the activities of the critical path.

#### 2.1.1 Format

Provide network charts on sheets, 24 inches by 36 inches, or 11 inches by 17 inches, or via electronic means providing the information is legible on a computer screen and can be readily reproduced on standard laser printers. Use continuation sheets as required. Establish the time schedule for the entire project duration across the top of the sheet; divide into months and subdivide into weeks. Extend these division lines vertically from top to bottom of page. Units of 1/2 inch equal to 1 week are suggested. Indicate project name, location, contract number, data date, submission date, and general schedule data on each sheet. Provide a legend defining all symbols.

##### 2.1.1.1 Required Columns

The following columns shall be provided on the left side of each sheet:

- Activity Number (ID #)
- Activity Name
- Duration
- Early and late start dates
- Late start and late finish dates
- Actual start and actual finish dates
- Total float
- Actual duration
- Percent complete

##### 2.1.1.2 Activity Bars

Each of the activity bars shall be color coded and hatched to distinguish between the baselines, critical, non-critical, milestones, and also indicate progress. Critical path activities shall be colored red. Each activity bar shall be labeled with the activity name and percent complete.

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### 2.1.1.3 Required Sorts

The original network chart shall be sorted by early start and then by early finish dates. The activity numbers shall be assigned in ascending order based on the results of this sort and shall not change for the remainder of the project duration.

### 2.1.3 Required Activities

The following specific activities shall be shown on the diagram and in the numerical analysis. The durations indicated are minimum calendar days. The order, sequence, and interdependence of all significant work items including mobilization, demobilization, testing and commissioning, construction, procurement, fabrication, and delivery of critical or special materials and equipment; utility interruption coordination; submittals and approvals of critical Samples, Shop Drawings, procedures, or other reasonable requirements that may be requested by COTR:

- Bond
- 
- Design Elements:
  - 
  - Site Visit
  - Pre-final Design Submission
  - Permits requiring Govt signature
  - Government Review (14 days review)
  - Final Design Submission (14 days)
  - Final Design
  -
- Construction Activities:
  - Submittal Submission requiring Government review
  - Critical Submittal Approvals per Submittal Section (Include a 21 day review period activity with each critical submittal approval entry)
  - Procurement time for critical items
  - Work by the Government, or utility agencies, and other third parties that may affect or be affected by Contractor's activities.
  - Government furnished materials and equipment utilizing delivery dates indicated in "FAR 52.245-2, Government Furnished Property (Fixed-Price Contract)."
  - Pre-Start Meetings with Major Subcontractors (e.g. mason, carpenter, roofer, plumber, and electrician)
  - Specialized equipment – including installation and testing and acceptance by the Government
  - Activity durations not in excess of 14 calendar days, except non-construction activities such as procurement and fabrication. Activities shall be broken down in the level of detail prescribed by COTR.
  - A narrative that explains the basis for Contractor's determination of construction logic, estimated durations, estimated quantities and production rates, hours per shift, workdays per week, and types, numbers, and capacities of major construction equipment to be used. A listing of non-working days and holidays incorporated into the schedule shall be provided.
  - Mechanical Testing & Balancing (TABs) Report Submitted
  - Mechanical Testing & Balancing Approval (21 day duration)
  - Draft O&M Manuals Preparation
  - Draft O&M Manual Review
  - Corrected O&M Manuals Preparation
  - Corrected O&M Manual Review (Reviewed as part of final inspection)
  - Final O&M Manual Submission (14 days)
  - Request for Final Inspection (minimum of 14 days prior to requested date)
  - Final Inspection (3 days)
  - Instruction to Government Personnel

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- Correct Punchlist (14 days)
- Coast Guard Acceptance (On or before contract completion date)

- Critical Path Activities: The Contract CPM Schedule shall be prepared to include the data for the total Contract and the critical path activities shall be identified, including critical paths for interim completion dates. Scheduled start or completion dates imposed on the schedule by Contractor shall be consistent with Contract milestone dates. Milestone dates shall be the scheduled dates specified in the Contract and shall be prominently identified. The Contract CPM Schedule shall accurately show all as-built activities completed from the issuance of the Notice to Proceed up to the submittal of this schedule.

### **2.1.3.1 Final Inspection**

The final inspection activity will only be held after the following events have occurred. Contractor shall ensure that all applicable activities are indicated as predecessors:

Facility ready for use for intended purpose.

All systems are operational.

All Test & Inspection Reports received.

Mechanical Testing & Balancing Report has been approved.

All submittals approved.

Up to date as-built drawings at the site.

Corrected O&M Manuals submitted to the Government.

Receipt of a letter from the contractor at least 2 weeks in advance requesting the inspection occur.

## **2.2 REPORTS**

### **2.2.1 Narrative Report**

A narrative report shall be provided with all schedule revision submissions to identify and explain the changes from the previously approved schedule. The report shall identify each changed activity by ID number, description, and the specific change. The narrative report shall be sorted by ID number.

### **2.2.2 Logic Report**

A logic report shall be provided with the original complete network schedule submission and all subsequent revisions. The report shall be generated with the schedule software, sorted by ID number and include the ID number, activity description, predecessor activity ID number(s), and successor activity ID number(s). Critical path activities in shall be highlighted.

### **2.2.3 Activity Report**

An activity report shall be provided with the original complete performance schedule, updated schedule submissions, and revised schedules. A software generated report of the ID number, activity description, responsibility code, original duration, remaining duration, percent complete, early start date, early finish date, late start date, late finish date, total float or slack, quantity, and units of measure for each activity. Actual start and actual finish dates shall be printed for those activities in progress or completed. The report shall be sorted in ascending order by the total float or slack.

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### PART 3 - EXECUTION

#### 3.01 PROJECT SCHEDULER

- A. Engage a project scheduler, either as Contractor's employee or as Contractor's consultant, to provide planning, evaluation, and reporting using CPM scheduling, and to prepare required schedules.
1. Project Scheduler shall be an active participant at all meetings related to Project progress, alleged delays, and time impact.
  2. Time-impact analyses and special reports shall be provided at no additional cost to the Government.

#### 3.02 CONTRACT CPM SCHEDULE

- A. Scheduling Requirements: The Contract CPM Schedule shall be a computerized time-scaled CPM Schedule in PDM format that includes the following:
1. The order, sequence, and interdependence of all significant work items including mobilization, demobilization, testing and commissioning, construction, procurement, fabrication, and delivery of critical or special materials and equipment; utility interruption coordination; submittals and approvals of critical Samples, Shop Drawings, procedures, or other reasonable requirements that may be requested by COTR.
  2. Work by the Government, or utility agencies, and other third parties that may affect or be affected by Contractor's activities.
  3. Adequate referencing of all work items to identify subcontractors or other performing parties.
  4. Activity Coding may be provided by the COTR to establish minimum requirements for structure and values for the first 5 code fields.
  5. Activity durations not in excess of 14 calendar days, except non-construction activities such as procurement and fabrication. Activities shall be broken down in the level of detail prescribed by COTR.
  6. A narrative that explains the basis for Contractor's determination of construction logic, estimated durations, estimated quantities and production rates, hours per shift, workdays per week, and types, numbers, and capacities of major construction equipment to be used. A listing of non-working days and holidays incorporated into the schedule shall be provided.
- B. Critical Path Activities: The Contract CPM Schedule shall be prepared to include the data for the total Contract and the critical path activities shall be identified, including critical paths for interim completion dates. Scheduled start or completion dates imposed on the schedule by Contractor shall be consistent with Contract milestone dates. Milestone dates shall be the scheduled dates specified in the Contract and shall be prominently identified. The Contract CPM Schedule shall accurately show all as-built activities completed from the issuance of the Notice to Proceed up to the submittal of this schedule.
- C. Required Submittals: On a monthly basis, Contractor shall submit five copies of each of the following components of the Contract CPM Schedule:
1. A time-scaled plot of the schedule network in PDM format showing logic ties for all

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activities including submittals and procurement activities.

2. The narrative described in Subparagraph 3.02-A-6 above.

### **3.03 DAILY CONSTRUCTION REPORTS**

- A. Prepare a daily construction report (Sample forms are at the end of this Section), recording the following information concerning events at the site, coordinate with requirements in Division 1 Section "Quality Requirements," and submit duplicate copies to COTR by noon of the day following day of actual progress:
  1. List of subcontractors (by trade group) at the site.
  2. List of separate contractors at the site.
  3. Approximate count of personnel (by trade group) at the site.
  4. Equipment (by trade group) at the site.
  5. High and low temperatures, general weather conditions.
  6. Accidents (refer to accident reports).
  7. Meetings and significant decisions.
  8. Unusual events (refer to special reports).
  9. Stoppages, delays, shortages, losses.
  10. Meter readings and similar recordings.
  11. Emergency procedures.
  12. Orders and requests of governing authorities.
  13. Change Notices/Directives and Contract Modifications received, implemented.
  14. Services connected, disconnected.
  15. Equipment or system tests and startups.
  16. Partial Completions, occupancies.
  17. Substantial Completions authorized.
  18. Material deliveries.

### **3.05 MATERIAL LOCATION REPORTS**

- A. At weekly intervals, prepare a comprehensive list of materials delivered to and stored at the site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for all materials or items of equipment being fabricated or stored away from the building site. Submit copies of list to COTR at weekly intervals.

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### **3.06 FIELD CORRECTION REPORT**

- A. When the need to take corrective action that requires a departure from the Contract Documents arises, prepare a detailed report including a statement describing the problem and recommended changes. Indicate reasons the Contract Documents cannot be followed. Submit a copy to COTR immediately.

### **3.07 SPECIAL REPORTS**

- A. When an event of unusual or significant nature occurs at the site, prepare and submit a special report. List the chain of events, persons participating, and response by Contractor's personnel, an evaluation of the results or effects, and similar pertinent information. Advise COTR in advance when such events are known or predictable.
  - 1. Include tabular CPM reports, time-scaled logic diagrams, resource curves and histograms, and narratives as requested by COTR.
- B. Submit special reports directly to COTR within three calendar days of an occurrence. Submit a copy to other parties affected by the occurrence.

### **3.08 MONTHLY PROGRESS REPORTING**

- A. General: Approval of Contractor's monthly Application for Payment shall be contingent, among other factors, on the submittal of a satisfactory monthly schedule update.
- B. Monthly Schedule Update Meetings: Monthly schedule updates shall be the product of joint review meetings between Contractor, COTR, and major active subcontractors. The joint review shall focus on actual progress for the preceding month, planned progress for the upcoming month supported by a Contractor-prepared Four-Week Look-Ahead Schedule, impact to schedule if any due to change notices issued, adverse weather, and any effected changes to the Construction CPM Schedule. The agreed on progress, and changes, if any, shall be incorporated into the schedule update to be submitted. The update shall always represent the actual history of accomplishment of all activities, and will form the basis for Contractor's Application for Payment. Contractor's delay claims shall be presented for discussion and, when possible, resolution.
- C. Required Submittals: On a monthly basis, Contractor shall submit two copies in electronic format of the updated CPM schedule and five copies of each of the following components of the Monthly Progress Report:
  - 1. A monthly progress narrative, the content of which shall be prescribed by COTR, but shall include as a minimum a description of overall progress for the preceding month, a critical path analysis, a discussion of problems encountered and proposed solution thereof, delays experienced and proposed recovery measures, a monthly reconciliation of weather impact, the status and impact of contract modifications, documentation of any logic changes, and any other changes made to the schedule since the previous monthly update.
  - 2. CPM schedule reports listing completed activities, activities in progress, and remaining activities in the format requested by COTR.
  - 3. Documentation of delivered material in the form of paid invoices or other evidence that Contractor has clear title for the material delivered.
  - 4. Monthly schedule updates for progress payments shall be prepared in conjunction with the monthly invoice. The contractor and on-site Government representative shall jointly review the update progress schedule to verify the listed actual start dates, percent complete for activities in progress, and actual finish dates for completed activities. Additionally, field

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verification of the materials stored on-site including required submittals, the material invoices, and material costs for the applicable activity on the schedule of values shall be conducted. Mutual agreement by the contractor and Government representative for each of the entries on the schedule update and payment voucher is desired, however, the Government's estimate of the percent complete for an activity shall govern. Activities not agreed upon shall be so noted by the contractor and initialed by the Government's on-site representative prior to formal submission. Note: Combination of a schedule update and schedule revision as a single submittal will be immediately rejected and returned to the contractor without review. If a schedule revision is required by the Government or desired by the contractor (concurrently with an update/pay request), it shall be submitted separately for approval by the Government.

- D. If critical activities of the schedule are delayed and such delay is not excusable as defined in this Section, the remaining sequence of activities and/or duration thereof shall be adjusted by Contractor through such measures as additional manpower, additional shifts, or the implementation of concurrent operations until the schedule produced indicates Work will be completed on schedule. Except as provided elsewhere in the Contract, all costs incurred by Contractor to recover from inexcusable delays shall be borne by Contractor.

### 3.09 DELAYS AND REQUESTS FOR EXTENSION OF TIME

- A. The determination for an extension of the Contract Time will be made by the Contracting Officer according to the provisions of the Specifications.
- B. Contractor acknowledges and agrees that delays in activities, irrespective of the party causing the delay, which according to the computer mathematical analysis do not affect any critical activity or milestone dates on the CPM network at the time of the delay, shall not become the basis for an extension of the Contract Time. The only basis for any extension of time will be the demonstrated impact of an excusable delay on the critical path. In demonstrating such impact, Contractor shall provide adequate detail as required by the Contract, and Contractor must prove that:
1. An event occurred.
  2. Contractor was not responsible for the event in that the event was beyond the control of Contractor, and was without fault or negligence of Contractor, subcontractor, or supplier, and the event was unforeseeable.
  3. The event was the type for which an excuse is granted according to the "Default" provision of this Contract.
  4. Activities on the critical path of the Work were delayed.
  5. The event in fact caused the delay of the Work.
  6. The requested additional time is an appropriate and reasonable extension of the Contract Time, given the actual delay encountered.
- C. Time Extensions for Unusually Severe Weather
1. If unusually severe weather conditions are the basis for a request for an extension of the Contract Time, such request shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that weather conditions had an adverse effect on the critical activities of the scheduled construction.
  2. The schedule of anticipated adverse weather below will constitute the base line for monthly

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(or a prorated portion thereof) weather/time evaluation by the Contracting Officer. On issuance of the Notice to Proceed and continuing throughout the Contract on a monthly basis, actual adverse weather days will be recorded by Contractor on a calendar day basis (include weekends and holidays) and compared to the monthly anticipated adverse weather days set forth below.

- a. For purposes of this clause, the term "actual adverse weather days" shall include days that can be demonstrated to have been impacted by adverse weather.
- b. Monthly Anticipated Adverse Weather Calendar Days:
  - 1) January - 7.
  - 2) February - 5.
  - 3) March - 6.
  - 4) April - 6.
  - 5) May - 8.
  - 6) June - 6.
  - 7) July - 6.
  - 8) August - 7.
  - 9) September - 5.
  - 10) October - 5.
  - 11) November - 5.
  - 12) December - 6.
- c. The number of actual adverse weather days shall be calculated chronologically from the first to the last day in each month. Contractor shall not be entitled to any claim for time extension based on adverse weather unless the number of actual adverse weather days exceeds the number of anticipated adverse weather days, and unless such adverse weather days prevent work for 50 percent or more of Contractor's workday. In preparing the Contract Schedule, Contractor must reflect the above anticipated adverse weather days on all weather-dependent activities. Weather-caused delays shall not result in any additional compensation to Contractor.
3. On days where adverse weather is encountered, Contractor shall list all critical activities under progress and shall indicate the impact adverse weather had, if any, on the progress of such activities. This information must be presented at the end of the adverse weather day to COTR or its authorized representative for its review and approval.
4. If Contractor is found eligible for an extension of the Contract Time, the Contracting Officer will issue a modification extending the time for Contract completion. The extension of time will be made on a calendar day basis.

### **D. Required Submittals**

1. Provide a written Time Impact Analysis (TIA) illustrating the influence of each change or delay on the Contract completion date or milestones, utilizing the current updated Project Schedule. Each TIA shall include a fragnet demonstrating how the Contractor proposes to incorporate the changes or delays into the Project Schedule. A fragnet is defined as a sequence of new activities and/or activity revisions that are proposed to be added to the existing schedule to demonstrate the influence of delay and the method for incorporating delays into the schedule as they are encountered. The TIA shall be submitted with the cost proposal for each proposed change or delay. Incorporate contract modifications into subsequent monthly updates only after approval by the Contracting Officer. Contract Modifications shall be added as items posted at the bottom of the original schedule with new activity numbers

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2. Include with request, two copies of submittal of impacted schedule, in electronic format, and photocopies of all relevant documents that support the claim.
3. Submit all required items within the following time periods:
  - a. 10 calendar days of event occurrence.
  - b. 10 calendar days of Contractor's knowledge of impact.
  - c. 14 calendar days of written request by COTR.
4. Expiration of time periods without submittal shall constitute forfeiture of rights for these specific impacts.

### 3.10 RECORD, AS-BUILT CPM SCHEDULE

- A. After all Contract work items are complete, and as a condition of final payment, Contractor shall submit three copies of a Record, As-Built CPM Schedule showing actual start and finish dates for all work activities and milestones, based on the accepted monthly updates. These schedule submittals shall be in tabular and in time-scaled PDM plot formats.

**DAILY CONSTRUCTION REPORT**

Complete Report in detail daily and submit to the Government Representative by 10:00AM on the following workday. Attach additional sheets if required. Contractor shall initial and date additional sheets. Attach test reports, records of inspection, delivery slips, and references. Box 7 - Indicate contractor or trade responsible for work described in Box 8. Note all deficiencies where indicated.

|               |               |              |
|---------------|---------------|--------------|
| 1. Contractor | 2. Report No. | 3. %Complete |
|---------------|---------------|--------------|

|                 |               |          |         |
|-----------------|---------------|----------|---------|
| 4. Contract No. | Project Title | Location | 5. Date |
|-----------------|---------------|----------|---------|

|             |      |             |      |             |
|-------------|------|-------------|------|-------------|
| 6. Weather: | A.M. | Temperature | P.M. | Temperature |
|-------------|------|-------------|------|-------------|

| 7. Contractor or Subcontractor | Location & Description of Work Performed Today | Worker Class | No. of Workers | Total Hours |
|--------------------------------|--|--------------|----------------|-------------|
|                                |  |              |                |             |

|                           |                                      |
|---------------------------|--------------------------------------|
| 8. Equipment Used on Site | 9. Idle Equipment & Personnel on job |
|                           |                                      |

|                              |                            |               |
|------------------------------|----------------------------|---------------|
| 10. Spec Para and/or Dwg No. | MATERIAL DELIVERED TO SITE | Submittal No. |
|                              |                            |               |



SECTION 01330

DESIGN-BUILD SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 PERMIT, DESIGN AND CONSTRUCTION SUBMITTALS REQUIRED

- A. Permit Submittals. See requirements in Section 01158, paragraph titled "Design Related Permits" for required permit submittals.
- B. Design Submittals. See requirements in Section 01160 for required design submittals, quantities of design submittals and other pertinent requirements.
- C. In-Progress Construction Submittals. Submit any technical data, catalog cuts, manufacturers test reports, concrete trip tickets, etc., required and approved by the designer of record.
- D. Use the standard Coast Guard submittal forms as cover sheets on all submittals required and approved by the designer of record when submitting for information only copies of submittals. Number submittals sequentially. When re-submitting a submittal due to rejection, keep the same submittal number with the suffix "rev (#)", where the # is the appropriate revision number. Keep track of all submittals sent and received on the submittal register. The In-Progress submittals will be determined and numbered by the designer of record.
- E. See section 013xx Design-Build Schedule Progress Documentation for additional information. Update the design-build schedule and equipment delivery schedule at weekly intervals or when schedule has been revised. Reflect any changes occurring since the last update.

1.1.1 Shop Drawings

Defined in FAR clause 52.236-21 "Specifications and Drawings for Construction."

1.2 TIMING OF SUBMITTALS

Submit submittals in sufficient time and in such sequence to avoid delays in the work. Submittals, test reports and certifications shall be submitted and approved prior to payment for the applicable item.

Except when substitutions or deviations are involved, submittals requiring approval by the contracting officer will be reviewed and returned to the contractor within 3 weeks.

1.3 DEFINITIONS

1.3.1 Types of Submittals

All submittals are classified as indicated in paragraph "Submittal Descriptions (SD)". Submittals also are grouped as follows:

- a. Shop drawings: As used in this section, drawings, schedules, diagrams, and other data prepared specifically for this contract, by contractor or through contractor by way of subcontractor, manufacturer, supplier, distributor, or other lower tier contractor, to illustrate portion of work.

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- b. Product data: Preprinted material such as illustrations, standard schedules, performance charts, instructions, brochures, diagrams, manufacturer's descriptive literature, catalog data, and other data to illustrate portion of work, but not prepared exclusively for this contract.
- c. Samples: Physical examples of products, materials, equipment, assemblies, or workmanship that are physically identical to portion of work, illustrating portion of work or establishing standards for evaluating appearance of finished work or both.
- d. Administrative submittals: Data presented for reviews and approval to ensure that administrative requirements of project are adequately met but not to ensure directly that work is in accordance with design concept and in compliance with contract documents.

### 1.3.2 Submittal Descriptions (SD)

#### SD-01 Preconstruction Submittals

Certificates of insurance  
Surety bonds  
List of proposed subcontractors  
List of proposed products  
Construction Progress Schedule  
Submittal schedule  
Schedule of prices  
Health and safety plan  
Work plan  
Quality control plan  
Environmental protection plan

#### SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the contractor for integrating the product or system into the project.

Drawings prepared by or for the contractor to show how multiple systems and interdisciplinary work will be coordinated.

#### SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

#### SD-04 Samples

Physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

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Field samples and mock-ups constructed on the project site establish standards by which the ensuring work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

### **SD-05 Design Data**

Calculations, mix designs, analyses or other data pertaining to a part of work.

### **SD-06 Test Reports**

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports

Daily checklists

Final acceptance test and operational test procedure

### **SD-07 Certificates**

Statements signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

Confined space entry permits.

### **SD-08 Manufacturer's Instructions**

Preprinted material describing installation of a product, system or material, including special notices and Material Safety Data sheets concerning impedances, hazards and safety precautions.

### **SD-09 Manufacturer's Field Reports**

Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

Factory test reports.

### **SD-11 Closeout Submittals**

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

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As-built drawings

**1.3.3 Request for Information (RFI)**

A request from the contractor or a subcontractor to the Government, seeking an interpretation or clarification of some requirement of the contract documents. The contractor shall clearly and concisely (e.g. citing specifications and/or drawing references) set forth the issue for which clarification or interpretation is sought and why a response is needed from the Government. The contractor shall, in the written request, set forth their interpretation or understanding of the contract's requirements, along with reasons why such an understanding has been reached. Responses from the Government will not change any requirements of the contract documents unless so noted in the Request for Information response by the Government. Responses to contractor inquiries shall be as outlined in paragraph 3.4 of this section.

**1.3.4 Drawing/Plan Clarification**

An answer from the Government, in response to an inquiry from the contractor, intended to make some requirement(s) of the drawings or plans clearly understood. Drawing/plan clarifications may be sketches, drawings, or in narrative form and do not change any requirements of the drawings or plans. Responses to contractor inquiries shall be as outlined in paragraph 3.4 of this section.

**1.3.5 Field Changes/Adjustments**

A bilateral agreement between the Government and prime contractor which involve minor changes in the plans and specifications to facilitate the proper execution of work; does not change scope, time, quality or price; and, does not affect terms or conditions of the contract. Field changes are normally prepared by the COR/Government inspector and are effective upon signature by the Coast Guard Project Manager and the prime contractor's authorized representative. Combining of changes to achieve the no impact requirement is not allowable. Deviations in material or means and methods of execution shall not be authorized by use of field changes.

**1.4 SUBMITTAL REGISTER**

A submittal register shall be prepared and provided by the contractor on or before the pre-construction conference following award of the contract. Required submittals are identified on the cover sheet of the drawings. The contractor shall indicate critical submittals to the Contracting Officer with dates to be submitted and critical dates for approval prior to the pre-construction conference. Maintain at the site an up-to-date Submittal Register showing the status of all submittals.

**1.5 MAILING REQUIREMENTS**

Submittals shall be submitted as follows:

| Item   | Submitted to for Approval | Copies Required                             |
|--|---------------------------|---|
| Permits per section 01158                                    | Contracting Officer (KO)  | See 01158 for quantity of permits required  |
| Design Submittals per section 01160                          | KO                        | See 01160 for quantity of design submittals |
| Submittals required by sections 01110 or 01330 or FAR clause | KO                        | See paragraph 1.7                           |

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|  |                             |   |
|--|-----------------------------|---|
| (i.e. Schedule of Values,<br>Progress schedules,<br>Payment vouchers, etc.)<br>Sample Panels or<br>Installations   | COR @ Site                  | See paragraph 1.7                                 |
| Technical Construction<br>Type: catalog cuts, shop<br>drawings, calculations and<br>certificates required by the<br>DoR except Sample Panels<br>or Installations | Designer of Record<br>(DoR) | KO & COR at Site (with Designer's<br>annotations) |
| Test Reports (Factory &<br>Field),<br>Certificates required by<br>DoR  | DoR                         | KO & COR at Site (with DoR's<br>annotations)      |

**1.6 IDENTIFYING SUBMITTALS**

Identify submittals requiring contracting officer approval, except sample panel and sample installation, with the following information permanently adhered to or noted on each separate component of each submittal and noted on the transmittal form. Mark each copy of each submittal identically, with the following:

- a. Project title and location.
- b. Construction contract number.
- c. The section number of the specification from which the submittal is required.
- d. The submittal description (SD) number of each component of the submittal.
- e. When a resubmission, an alphabetic suffix on the submittal description, for example, SD-10A, to indicate the resubmission.
- f. The name, address, and telephone number of the subcontractor, supplier, manufacturer and any other second tier contractor associated with the submittal.

**1.6.1 Format for Product Data (only for product data requiring contracting officer approval):**

- a. Present product data submittals for each section as a complete, bound volume. Include a table of contents listing page and catalog item numbers for product data.
- b. Indicate, by prominent notation, each product which is being submitted; indicate the specification section number and paragraph number to which it pertains.
- c. Supplement product data with material prepared for the project to satisfy submittal requirements for which product data does not exist. Identify this material as developed specifically for the project.

**1.6.2 Format for Shop Drawings (only for shop drawings requiring contracting officer approval):**

- a. Shop drawings shall not be less than 8 1/2 by 11 inches nor more than 30 x 42 inches and shall be drawn to a minimum scale of 1/8-inch equals 1 foot.

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- b. Present 8 1/2 x 11 inches sized shop drawings as part of the bound volume for the submittals required by the section. Present larger drawings in sets.
- c. Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to the information required in the paragraph entitled "Identifying Submittals."
- d. Dimensional drawings, except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Identify materials and products for work shown.

### 1.6.3 Format of Administrative Submittals:

- a. When the submittal includes a document that is to be used in the project or becomes a part of the project record, other than as a submittal, do not apply the Contractor's approval stamp to the document, but to a separate sheet accompanying the document.

## 1.7 QUANTITY OF SUBMITTALS

### 1.7.1 Number of Copies of Product Data:

It is preferred that most submittals be provided electronically via email. Product data requiring review and approval by the Contracting Officer for items sent electronically will be returned via email with scanned copies of any items requiring signatures. However, hard copies of product data requiring review may be submitted instead. Provide three copies of items, one will be returned to the Contractor.

### 1.7.2 Number of Copies of Shop Drawings

Submit shop drawings in compliance with the quantity requirements specified for product data. Shop drawings may be provided electronically as long as the drawings can be reproduced on standard laser printers at the 11" x 17" size.

### 1.7.3 Number of Copies of Administrative Submittals:

- a. Unless otherwise specified, submit the administrative submittals in compliance with the quantity requirements specified for product data.
- b. Submit administrative submittals required under "SD-19, Operation and Maintenance Manuals" to conform to section 01781, "Operation and Maintenance Data."

## PART 2 PRODUCTS

Not used.

## PART 3 EXECUTION

### 3.1 GENERAL REQUIREMENTS FOR SUBMITTALS REQUIRING CONTRACTING OFFICER APPROVAL

#### 3.1.1 Contractor Review and Certification

Review and certify all submittals before submitting them to the FDCC LANT Construction Project Manager. Word the certification as follows:

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I certify that the material or equipment shown and marked in this submittal is the same as that proposed to be incorporated into Contract Number [\_\_\_\_\_], complies with the contract documents, can be installed in the allocated space, and is submitted for Government approval.

Certified by \_\_\_\_\_ Date \_\_\_\_\_

The certification shall be signed by the person designated in writing by the contractor as having that authority. Stamp each sheet of submittals except that data submitted in a bound volume or on one sheet printed on two sides may be stamped on the front of the first sheet only. The signature shall be in original ink. Stamped signatures are not acceptable. Submittals will not be processed unless this review and certification has been provided by the contractor.

### 3.1.2 Material Approval Request

Every submittal shall be accompanied by a Material Approval Request form completed in full. Material Approval Request forms will be provided to the Contractor. Do not submit items from more than one specification section on the same Material Approval Request Form. As far as practical, submit all submittals for each section as one submission. Each item included with each submittal shall be listed as a separate line item on the Material Approval Request form. In addition to the information to be provided on the Material Approval Request form, submittals shall include the following information:

- a. Names of contractor, supplier, or manufacturer, as applicable.
- b. Identification of revisions on resubmittals.
- c. Identification of Substitution or Deviation: If an item submitted is a substitution or deviation from contract requirements, stamp "Substitution" on the submittal and note and explain the reasons for and details of the substitution or deviation, a list of sources contacted to obtain specified product, a cost comparison, identify variations from contract requirements and changes required in other work or products. In submitting substitutions or deviations, the contractor represents that he/she will coordinate the installation of accepted substitutions or deviations, and additional costs or delays caused by the substitution or deviation will not constitute grounds for any adjustments to the contract price.

**NOTE:** Substitutions or deviations require approval of the Contracting Officer and if allowed will require a contract modification. Substitutions or deviations may increase the processing time for reviewing submittals.

### 3.1.3 Resubmittals

Make changes and corrections required by Approving Authority. Indicate changes made which were not requested. Resubmit as originally specified. Use same submittal number as initial submittal except add a suffix of -A, -B, etc. for each subsequent resubmittal. Contractor may be subject to payment of costs incurred by the Government for the review of resubmittals. Stamp/mark resubmittals as "RESUBMITTAL".

### 3.2 SUBSTITUTION OR DEVIATION:

- a. If an item submitted is a substitution or deviation from contract requirements, stamp "Substitution" on the submittal and note and explain the reasons for and details of the substitution or deviation, a list of sources contacted to obtain specified product, a cost comparison, identify variations from contract requirements and changes required in other work or products. Use the form at the end of Section 01450, Quality Control.

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- b. In submitting substitutions or deviations, the contractor represents that he/she will coordinate the installation of accepted substitutions or deviations, and additional costs or delays caused by the substitution or deviation will not constitute grounds for any adjustments to the contract price.
- c. Substitutions or deviations require approval of the Contracting Officer and if allowed will require a contract modification. Substitutions or deviations may increase the processing time for reviewing submittals.

### **3.3 REQUESTS FOR INFORMATION (RFI)**

- a. In the event that the contractor, subcontractor, or supplier, at any tier, determines that some portion of the drawings, specifications, or other contract documents require clarification or interpretation by the Government, the contractor shall submit a Request for Information in writing to the Contracting Officer's Representative. See form at the end of this section for an example form. Requests for Information may only be submitted by the contractor and shall only be submitted on the Request for Information form provided by the Government. The contractor shall clearly and concisely set forth the issue for which clarification or interpretation is sought and explain why a response is needed from the Government. In the Request for Information, the contractor shall set forth their interpretation or understanding of the requirement, along with reasons why such an understanding has been reached.
- b. The Government will review all Requests for Information to determine whether they are requests for information within the meaning of this term. If the Government determines that the document is not a Request for Information or missing required information from the contractor, it will be returned to the contractor, unreviewed as to content, for resubmittal in the proper manner (i.e. submittal, request for deviation, etc.).
- c. Responses to requests for information shall be issued within 10 days of receipt of the request from the contractor, unless the Government determines that a longer period of time is necessary to provide an adequate response. If a longer period of time is determined necessary by the Government, the Government will, within 10 days of receipt of the request, notify the contractor of the anticipated response time. The 10 days referred to herein will start on the date stamped received "in from the contractor" by the Government. If the contractor submits a Request for Information on an activity with 10 days or less of float on the current project schedule, the contractor shall not be entitled to any time extension due to the time it takes the Government to respond to the request, provided that the Government responds in the 10 days set forth above.
- d. Responses from the Government will not change any requirement of the contract documents unless so noted in the response to the Request for Information. If noted as a change, the Government will issue either a no-cost Field Adjustment or formal modification under the Changes clause of the contract. If the contractor believes that a response to a Request for Information will cause a change to the requirements of the contract documents, the contractor shall immediately give written notice to the Contracting Officer stating that the contractor considers the response to be a change order. Failure to give such written notice immediately shall waive the contractor's right to seek additional time or cost under the Changes clause of the contract.

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FROM: \_\_\_\_\_ PHONE #/FAX #: \_\_\_\_\_  
To: Steven D. Allen, P.E. Fax #: \_\_\_\_\_  
(FDCC LANT, Project Manager)  
**Project Title: Flight Simulator Training Facility Mobile AL**  
**Contract #: HSCG47 Contractor: \_\_\_\_\_**  
**Subject: \_\_\_\_\_ REQUEST FOR INFORMATION # \_\_\_\_\_ Date: \_\_\_\_\_**  
DRAWING/SPEC REFERENCE: \_\_\_\_\_  
**REQUEST/CONDITIONS (Note: If this is a request to deviate/substitute from the contract requirements refer to paragraph 3.3 of specification section 01300):**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**CONTRACTOR'S INTERPRETATION (Instructions: If an interpretation of the drawing or specification is requested because of an ambiguity, the contractor shall provide their interpretation. Use back of form/additional pages if additional space is required.):**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

BY: \_\_\_\_\_ SUBMITTED  
RESPONSE REQUIRED BY DATE: \_\_\_\_\_

**GOVERNMENT'S RESPONSE:**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**The above response can NOT change the contract. All changes must be authorized by the Contracting Officer. If you believe this reply constitutes a change, notify the Contracting Officer immediately.**

BY: \_\_\_\_\_ RESPONSE PREPARED  
DATE: \_\_\_\_\_

Dist: Original to Contractor  
Copy to: KO \_\_\_\_\_, Project File \_\_\_\_\_, A-E \_\_\_\_\_, On-Site Inspector \_\_\_\_\_

END OF SECTION

SECTION 01450

QUALITY CONTROL

PART 1 GENERAL

1.1 APPLICABLE PUBLICATIONS

1.1.1 AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):

ASTM E329 Agencies Engaged in the Testing and/or Inspection of  
Materials Used in Construction

1.2 GENERAL

This contract will be administered under Section E contract clause 52.246-12 "Inspection of Construction."

1.3 SUBMITTALS

Submit the following as specified in section 01330 "Submittal Procedures":

1.3.1 SD-07 Certificates

Laboratory Accreditation.

1.3.2 Construction Quality Control Documents, Test Reports, Factory Test Reports, Field Test Reports, and Field Inspections

Field test reports and field inspections conducted and submitted at the job-site on the same day, shall be attached to the Daily Construction Report in lieu of submission using a Material Approval Request form.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 INSPECTION, SAMPLING AND TESTING

Provide all necessary equipment, instruments, qualified personnel, facilities, and test fluids and gases, and perform all inspections, sampling, testing, and certifications specified in the individual sections.

3.1.1 Advance Notification and Documentation

Notify the COR at least 48 hours in advance of the dates and times scheduled for all field tests. Note in block 11 of the Daily Construction Report and submit separate reports for each field test or inspection conducted indicating the following information on the report:

- a. Specification Section
- b. Paragraph Number
- c. Name of the Test or Inspection
- d. Location of Test (provide sketch if necessary to clearly document location at the site)

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- e. Name of Inspector/Technician
- f. Name of Laboratory, if applicable
- g. Date and Time of the Inspection/Test
- h. Minimum Requirements/Acceptable Test Results
- i. Actual Inspection/Test Results
- j. Statement indicating whether or not the work meets the specified requirements

### 3.1.2 Testing Labs

Provide an independent construction materials testing laboratory accredited by a laboratory accreditation authority to perform sampling and tests required by this Contract. Laboratories engaged in testing of construction materials shall meet the requirements of ASTM E329. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA.

### 3.1.3 Repeated Tests and Inspections

Repeat tests and inspections after each correction made to nonconforming materials and workmanship until tests and inspections indicate the materials, equipment, and workmanship meet contract requirements. Repeated tests and inspections shall be performed at no additional cost to Government.

## 3.2 DAILY INSPECTION REPORTS

Fill out Daily Construction Report (DCR) forms as required by Section 01320, paragraph 3.03, Daily Construction Reports. Daily Construction Report forms are available as electronic files suitable for printing the end of section 01320.

## 3.3 NONCONFORMANCE NOTICE

A notice issued by the Contracting Officer's Representative documenting that the work, or some portion thereof, has not been performed in accordance with the requirements of the contract documents. Sample forms are at the end of this Section. Payment shall not be made on any portion of the work for which a nonconformance notice has been issued and the work not corrected to the satisfaction of the Contracting Officer's Representative. Upon receipt of a Nonconformance Notice, the contractor shall provide a written response within 7 days. The contractor's response shall detail either (a) why they believe that the work was performed in accordance with the contract documents, or (b) what corrective action they intend to take, at their sole expense, to correct the nonconforming work. If the contractor disputes issuance of the notice, the Government will respond by either (a) withdrawing the Notice of Nonconformance or (b) directing the contractor to correct the work. If directed to correct the work, the contractor shall do so within 7 days after receipt of such direction from the Contracting Officer, or such other time as may be agreed to with the Contracting Officer.

## 3.4 FIELD CHANGE/REQUEST FOR DEVIATION/REQUEST FOR VARIATION

**Variations** are changes to contractor's approved design or construction processes that do not affect compliance with meeting terms of the contract or request for proposal. This form attached to the end of this specification section provides a record of the variations to ensure the as-built documents are accurate. **Deviations** are requests for changes to the contract terms that must be authorized by the contracting officer and a formal change order issued before they may be implemented. **Field changes** involve minor changes which are necessary for the proper execution of work do not affect the quantity, quality, price, or time of performance of the Contract. Should the Contractor feel a field change represents a cost or additional time he should notify the C.O.R. and request a formal change to the contract.

**NOTICE OF NONCONFORMANCE**

NOTICE NO.

PROJECT TITLE: \_\_\_\_\_

CONTRACT NO: HSCG47- \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

**NONCONFORMANCE INFORMATION**

DRAWING  
REFERENCE

SPECIFICATION  
SECTION

CONDITION REQUIRING CORRECTION:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

GOVERNMENT REPRESENTATIVE: \_\_\_\_\_

(SIGNATURE)

DATE

**ACKNOWLEDGEMENT**

*I ACKNOWLEDGE RECEIPT OF THIS NOTICE.*

CONTRACTOR'S REPRESENTATIVE: \_\_\_\_\_

(SIGNATURE)

DATE

**CORRECTION INFORMATION**

RESOLUTION:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

GOVERNMENT REPRESENTATIVE: \_\_\_\_\_

(SIGNATURE)

DATE

Routing: Original to Contracting Officer Copy – Contractor Copy – COR

NOTICE OF VARIATION TO DESIGN: # \_\_\_\_\_  
**REQUEST TO DEVIATE FROM CONTRACT REQUIREMENTS:** # \_\_\_\_\_  
**FIELD CHANGE NOTICE:** # \_\_\_\_\_  
**CONTRACT:** # HSCG47- \_\_\_\_\_

**DATE:** \_\_\_\_\_

**RFI: # ( as appropriate )** \_\_\_\_\_

---

**Description of Variation/Deviation/Field Change :**

---

**Designer of Record Signature (for Variations)** \_\_\_\_\_

**Authorized Contractor Representative** \_\_\_\_\_

---

**Contracting Officer's Representative:** \_\_\_\_\_

**Construction Project Manager:** \_\_\_\_\_

**Contracting Officer (for Deviations):** \_\_\_\_\_

**Variations** are changes to contractor's approved design or construction processes that do not affect compliance with meeting terms of the contract or request for proposal. This form provides a record of the variations to ensure the as-built documents are accurate. **Deviations** are requests for changes to the contract terms that must be authorized by the contracting officer and a formal change order issued before they may be implemented. **Field changes** involve minor changes which are necessary for the proper execution of work do not affect the quantity, quality, price, or time of performance of the Contract. Should the Contractor feel a field change represents a cost or additional time he should notify the C.O.R. and request a formal change to the Contract.

End of Section

SECTION 01500

TEMPORARY FACILITIES

PART 1 GENERAL

This section covers temporary facilities in support of the construction activities.

Provide and maintain temporary facilities during the contract as required by BOCA, NEC, OSHA, and NFPA codes, the Coast Guard station's regulations, other health and safety codes, and the requirements of section 01575 "Temporary Environmental Controls." Obtain the approval of the COR before installing or relocating temporary facilities. Install temporary facilities before starting work unless otherwise approved by the COR.

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

FHWA MUTCD (1988) Manual on Uniform Traffic Control Devices

1.2 SUBMITTALS

Submit the following in accordance with section 01330, "Submittal Procedures."

1.2.1 Construction Site Plan

Prior to the start of work, submit a site plan showing the locations of temporary facilities including layouts and details, interior space layout and HVAC provisions, site adaptation drawings and details, and utilities capacity requirements and connection details, equipment and material storage area (onsite and offsite), and access and haul routes used for this contract. Show locations of safety and construction fences, site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and worker parking areas.

1.2.2 SD-02 Manufacturer's Catalog Data

- a. Government Inspector Trailer

1.3 GOVERNMENT INSPECTOR TRAILER

Provide, for the exclusive use of the Government, a freestanding and separate trailer with at least 160 square feet of usable floor area. The trailer shall be weather tight and provided with heating and cooling to maintain 68 degrees F in winter and 78 degrees F in summer. Equip trailer with a plan table, standard size office desk with drawers, file cabinet, plan rack, two chairs, waste basket, 50 foot-candles of illumination at the desk and plan table, and duplex electric outlets. Provide door with padlock hasp and staple, and operable locking windows with screens. Place trailer where directed by the COR.

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### **1.4 TELEPHONE SERVICE FOR THE GOVERNMENT INSPECTOR**

Provide 3 direct telephone service lines and a cordless telephone with digital answering machine in the Government inspector's trailer, and "high-speed" internet connection. The contractor is responsible for installation and monthly service charges; the Government will reimburse the contractor for the Government's long distance charges.

### **1.5 ELECTRICITY FOR USE DURING CONSTRUCTION**

The contractor will be allowed to connect to the Coast Guard's electrical distribution system without charge, but Contractor shall limit power usage to 120/208 volt AC, three phase, 60 hertz, 50 amperes. Temporary electrical service is not available at the existing surrounding buildings near the jobsite. Install and maintain the temporary connection, convert and transfer power to the work, and disconnect it upon completion of work. Make connection arrangements with the COR.

### **1.6 POTABLE WATER FOR USE DURING CONSTRUCTION**

The contractor will be allowed to connect to the Coast Guard's potable water system and use reasonable amounts of potable water without charge. Provide backflow preventers on connections to domestic water lines. Make connection arrangements with the COR.

### **1.7 SANITARY FACILITIES**

Provide chemical toilets or equally effective units for employees and require their use. Periodically empty and dispose of waste. Keep facilities clean and free of nuisance such as pests, odor, and vermin. Place facilities where directed by the COR. Upon completion of the work remove the sanitary facilities and leave the area clean and free of nuisance.

### **1.8 CONSTRUCTION FENCE**

Temporary safety fence, including gates and warning signs, shall be bright orange, high density polyethylene grid or approved equal, a minimum of 42 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers. Remove the fence upon completion and acceptance of the work.

### **1.9 CONSTRUCTION PROJECT SIGN**

Provide sign as shown on the drawings, with graphics painted by a professional sign painter. Coat all exposed surfaces of supports, framing, and surface material with at least one coat of primer and one coat of exterior paint.

### **1.10 HEATING, COOLING, VENTILATING AND ENCLOSURE OF WORK**

Provide as required to accommodate construction; maintain environmental conditions specified in other sections; protect materials and finishes from damage due to temperature, humidity, or weather; cure materials and disperse humidity; and to prevent accumulations of dust, fumes, vapors, and gases.

### **1.11 RAMPS, STAIRS, LADDERS, STAGING AND SIMILAR ACCESS ELEMENTS**

Provide as required to perform work and facilitate its inspection during installation. Comply with requests of Government authorities (such as OSHA inspectors) performing inspections. When permanent stairs or elevators are available for access during construction, cover and protect finished surfaces from damage and deterioration.

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### **1.12 BARRIERS**

Provide temporary barriers with warning lights where construction work intersects existing roads, walkways, at open excavations, and where pedestrian and driver safety may be endangered in the area of work. Provide barriers and warning signs to re-route pedestrians and drivers around potentially dangerous areas. Barriers shall be manufacturer's standard A-frame, barrel, or Jersey style with flashing amber lights and reflective orange/white striping on both sides of the barrier. Minimum barrier height shall be 42".

### **1.13 INTERRUPTION OF VEHICULAR TRAFFIC**

If during the performance of work, it becomes necessary to modify vehicular traffic patterns at any locations, notify the Contracting Officer at least 15 days prior to the proposed modification date, and provide a Traffic Control Plan detailing the proposed controls to traffic movement for approval. The plan shall be in accordance with State and local regulations and the FHWA MUTCD, Part VI. Provide cones, signs, barricades, lights, or other traffic control devices and personnel required to control traffic.

### **1.14 WARNING SIGNS**

Provide warning signs at the limits of construction stating that access is restricted to authorized personnel and that hard hats are required. Also provide warning signs to warn pedestrians and drivers around potentially dangerous areas.

### **1.15 DISPOSITION OF TEMPORARY FACILITIES**

Relocated Coast Guard facilities and contractor-furnished facilities shall become property of the contractor and shall be removed from the site upon completion of the project.

## **PART 2 PRODUCTS**

Not used.

## **PART 3 EXECUTION**

Not used.

End of Section

SECTION 01575

TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.1 APPLICABLE PUBLICATIONS

CODE OF FEDERAL REGULATIONS (CFR)

|            |   |
|------------|---|
| 40 CFR 261 | Identification and Listing of Hazardous Waste   |
| 40 CFR 262 | Standards Applicable to Generators of Hazardous Waste   |
| 40 CFR 265 | Interim Status Standard for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities |

1.2 GENERAL

Protect the environment and preserve the natural resources during construction. Comply with Federal, State and Local regulations that pertain to the environment. Prepare and submit an Environmental Protection Plan for the project. Although contract performance will result in some adverse environmental impacts, The Environmental Protection Plan shall address each of the following subparts and discuss measures that will be used to meet the requirements of each subpart.

1.3 SUBMITTALS

Submit the following to the Contracting Officer within 30 days after contract award and before performing any work at the site. Submit for approval in accordance with section 01330, "Submittal Procedures."

1.3.1 SD-01 Preconstruction Submittals

Environmental Protection Plan

1.3.1.1 Purpose

The purpose of the Environmental Protection Plan is to describe in detail methods and procedures by which the contractor intends to minimize/mitigate adverse impact to the environment resulting from this work. As a minimum the plan shall document the contractor's means and methods for complying the specification requirements with the following elements included:

- a. General Information: Provide a general overview of the plan including its purpose, general site information and a letter designating an Environmental Manager for the project signed by an officer of the firm.
- b. Protection and Preservation of Natural Resources
- c. Protection of Historical and Archeological Resources
- d. Storm Water Management & Control
- e. Waste Management

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### f. Volatile Organic Compounds

#### 1.4 CLASS 1 ODS PROHIBITION

Class 1 ODS as defined in Section 602(a) of the Clean Air Act shall not be used in the performance of this contract, nor be provided as part of the equipment associated with the work. This prohibition shall be considered to prevail over any other provisions, specification, drawing, or referenced document.

#### 1.5 QUALIFICATIONS AND DUTIES OF THE ENVIRONMENTAL MANAGER

The Environmental Manager shall be directly responsible for coordinating contractor and subcontractor compliance with Federal, State, local and station requirements. The Environmental Manager shall ensure compliance with hazardous materials and hazardous waste requirements, implement the Environmental Protection Plan, ensure compliance with storm water management requirements and coordinate any remediation of regulated substances. The Environmental Manager shall have successfully completed the training program specified in 40 CFR 265 for the waste streams anticipated as part of the work.

### PART 2 PRODUCTS

Not used.

### PART 3 EXECUTION

#### 3.1 PROTECTION AND PRESERVATION OF NATURAL RESOURCES

Upon completion of work, repair, restore, or replace scarred or damaged features to an equivalent or improved condition. The Contracting Officer shall approve the repair or restoration method in advance. Confine construction activities to within the work area(s) indicated or specified.

##### 3.1.1 Protection

Except as designated, do not remove, cut, deface, injure or destroy trees or shrubs without written authorization from the Contracting Officer. Provide necessary protection for trees & shrubs in such areas as to prevent injury, defacing, destruction or other damage by construction operations. Do not use trees or shrubs as anchorage points for any ropes, cables, or guys without written authorization from the Contracting Officer. Replace trees and other landscaping features damaged by unauthorized activities as directed by the Contracting Officer. Remove displaced rocks from uncleared areas. Protect monuments, markers, and works of art.

##### 3.1.2 Temporary Construction

Remove traces of temporary construction such as haul roads, work areas, and stockpiles of materials. Restore areas of temporary construction to an equivalent or improved condition as existed before construction activities occurred.

##### 3.1.3 Seeding

Grade, till, and seed all areas disturbed by construction. Include topsoil and nutriment during seeding.

##### 3.1.4 Water Resources

Perform work in a manner that minimizes adverse environmental impacts on water resources. Take precautions necessary prevent, contain, and collect and release of fuels, oils, or other hazardous

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substances on the water. Notify the Contracting Officer immediately (within 2 hours) in the event of a fuel, oil or other hazardous substance spill.

### 3.1.5 Other

Fuel and lubricate equipment in a manner that protects against spills and evaporation. Provide a temporary berm around temporary fuel and liquid chemical storage tanks to contain the tank contents in the event of a leak or spill.

## 3.2 HISTORICAL AND ARCHEOLOGICAL RESOURCES

Carefully protect in-place and report immediately to the Contracting Officer if items that may be of historical or archeological interest or human remains are discovered or uncovered. Stop work in the immediate area of discovery until directed by the Contracting Officer to resume work. The Government retains ownership and control over historical and archeological resources.

## 3.3 STORM WATER MANAGEMENT AND CONTROL

### 3.3.1 Burn-off

Burn-off of ground cover is not permitted.

### 3.3.2 Erosion Protection

Earthwork brought to final grade shall be immediately finished. Protect side and back slopes upon completion of rough grading. Plan and conduct earthwork to minimize the duration of exposure of unprotected soils. Use the following methods to prevent erosion, control sedimentation, and prevent waterborne soil from entering surface waters, ditches, and storm drain inlets:

- a. Mechanical Control: Divert runoff by constructing ditches or berms, and then filter runoff using straw bale dikes, filter fabric dams, or other methods.
- b. Sediment Basins: Trap sediment in temporary basins sized to accommodate the runoff of a local 50-year storm. Pump basins dry and remove accumulated sediment after each storm. Use a paved weir or vertical overflow pipe for overflow. Institute effluent quality monitoring programs.
- c. Vegetation and Mulch: Provide temporary protection on side and back slopes as soon as rough grading is completed or sufficient soil is exposed to require protection to prevent erosion. Protect slopes by accelerated growth of vegetation, mulching, or netting. Stabilize slopes by hydroseeding, sodding, anchoring mulch or netting in place, or other methods.

## 3.4 WASTE MANAGEMENT

### 3.4.1 Solid Waste Control

Pick up waste and debris and place in covered containers furnished by the Contractor. Empty containers and remove waste and debris from Government property at least weekly. Remove wastes without spilling or contaminating streets, the site, and other areas. Offsite disposal shall be at a licensed landfill and shall comply with all local, state and federal requirements.

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### 3.4.2 Control and Disposal of Hazardous Wastes

Hazardous wastes are defined in 40 CFR 261. The Contractor shall identify all activities that may generate hazardous waste and provide documented waste determination for the waste stream to the Contracting Officer. Hazardous wastes that are produced as a result of performing work under this contract shall be handled, stored, transported, and disposed of according to 40 CFR 262, where applicable. Prevent hazardous wastes from entering the ground, drainage areas, and surface waters. Immediately notify the COR of hazardous material spills. Hazardous wastes generated on Government property shall be identified as being generated by the Government. All necessary documentation including hazardous waste manifests shall be signed by an authorized representative of the facility prior to removal of waste from the site. Under no circumstances shall hazardous waste be brought onto Government property.

### 3.5 VOLATILE ORGANIC COMPOUNDS (VOC)

The Contractor and all subcontractors are required to comply with the local VOC laws and regulations and shall have an acceptable VOC compliance plan. The plan shall demonstrate that the use of paints, solvents, adhesives, and cleaners comply with local VOC laws and regulations governing VOC materials, and that all required permits have been obtained or will be obtained prior to starting work involving VOC's, in the air quality district in which the work will be performed. An acceptable compliance plan shall contain, as a minimum, a listing of each material subject to restrictions in the air quality management district in question, the rule governing its use, a description of the actions which the contractor will take, a description of the actions which the contractor will use to comply with the laws and regulations, and any changes in the status of compliance during the life of the contract. Alternatively, if no materials are subject to the restrictions in the air quality management district where the work will be performed, or if there are no restrictions, the compliance plan shall so state.

### 3.6 DUST CONTROL/FOREIGN OBJECT DEBRIS (FOD) CONTROL

Project site is near an active runway with operational aircraft taxiing and taking off and landing. Keep dust down at all times including non-working hours. Dry power brooming is not permitted; instead use vacuuming, wet mopping, or wet brooming. Air blowing is permitted only for cleaning non-particulate debris such as steel reinforcing bars. When sandblasting, provide tarp drop cloths and windscreens under and around blasting operations to confine and collect dust, sand, paint, and debris. Concrete blocks, concrete, and asphalt shall be wet cut. Ensure loose material cannot blow onto runway area causing potential damage to aircraft.

End of Section

SECTION 01781

OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.1 OVERVIEW

This Section describes the requirements for:

- a. Project O&M (Operation and Maintenance) Manual.
- b. Posted operating instructions.
- c. Equipment nameplates.
- d. Valve tags.
- e. Instruction of Coast Guard personnel.

1.1.1 Phased Construction Projects

Provide an O&M Manual, posted operating instructions, nameplates, valve tags, and instruction of Coast Guard personnel upon completion of each phase or stage of projects that are constructed in phases or stages.

1.2 SUBMITTALS

Submit in accordance with this section and section 01330, "Submittal Procedures."

1.2.1 SD-10 Operation and Maintenance Data

- a. Draft O&M Manuals
- b. Corrected O&M Manuals
- c. Final O&M Manuals

1.2.1.1 Submissions

- a. Draft O&M Manuals

Submit two copies of a draft O&M manual for review by the Designer of Record, one copy to the Contracting Officer (for information only) and correction by the contractor prior to the final inspection.

During equipment start-up/testing, compare actual operating procedures to those stated in the manual; revise manual as needed.

- b. Corrected O&M Manuals

Submit two copies of the corrected O&M manual for verification to the Designer of Record during the final inspection, and one copy to the Contracting Officer (for information only). Comments and one copy of the manual will be returned by the Designer of Record to the contractor for final correction.

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### c. Final O&M Manuals

Provide three sets of final O&M Manuals to Contracting Officer within 14 days after approval of the corrected O&M Manual. Provide one copy of manuals on compact disk.

### 1.2.2 Schedule of Instruction

Submit a proposed schedule of systems/equipment operational instruction to the Contracting Officer at least 7 days before the first instruction session. Instructions shall be coordinated to occur as part of the last day or two of the final inspection.

## PART 2 PRODUCTS

### 2.1 O&M MANUAL

Provide Operation and Maintenance (O&M) Data/Manuals, which are specifically applicable to this contract and a complete and concise depiction of the provided equipment or product. Organize and present information in sufficient detail to clearly explain O&M requirements at the system, equipment, component, and subassembly level. The manual shall be a one-point reference source for Coast Guard personnel and maintenance contractors to operate and maintain the systems and equipment listed in the specification sections. Prepared text and instructions shall be written at a Flisch-Kincaid Grade Level of 7 to 8 with a Flisch Reading Ease Score of 60 to 70. Compile the manual using the equipment manufacturers' data along with supplemental instructions and drawings that you prepare. Supplemental instructions shall include a complete description of the system operation along with step-by-step procedures for start-up, shut down, seasonal changes, and dealing with emergency situations. Include tables indicating any set points and drawings indicating location of equipment, valves, etc. as described below.

Manuals shall be in vinyl-covered three ring binders sized for 8-1/2-by-11-inch pages. Provide a title page and table of contents. For each chapter provide hard paper tab dividers with chapter title or equipment name printed on the faces and tabs. On the spine and front cover of the manual, print, in lines that are horizontal when the manual is upright on a shelf:

{Operation and Maintenance Manual  
Title of Project}

#### 2.1.1 Format and Content

Arrange the manual so there is a separate chapter for each system or major piece of equipment. Then subdivide each chapter into sections that provide the following information for each system or major piece of equipment:

- a. Narrative: Describe the function and sequence of operation, and provide a trouble-shooting chart, for each system and major piece of equipment. Include when any O&M Data Package is specified in an individual technical sections.
- b. Equipment Information: Provide manufacturer's printed description, specifications, and drawings for each piece of equipment. Equipment model number, characteristics (BTU, gpm, head, horsepower, voltage, etc.), equipment nameplate symbol, and manufacturer shall be listed. Equipment model provided shall be indicated on all schedules, charts and lists along with accessories provided. Inapplicable information on accessories not provided or unrelated manufacturers equipment shall be crossed out. Correlate identification of equipment with nomenclature used on plans, e.g.: FCU-1 (fan coil unit-1), etc. Included when O&M Data Package 2, 3, 4, or 5 is specified in an individual technical sections.

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- c. Operating Instructions: Provide detailed step-by-step instructions for the system or each piece of major equipment as it is used on this project. Discuss operating procedures, sequences, and options; control sequence; start up; adjustments; typical flow rates, pressures, temperatures, and other variables; shut-down; safety precautions; and negative and prohibitive instructions. Data that can only be determined by test operation shall be written in blanks provided for that purpose. Make reference to nameplate data, valve numbers, manufacturers' literature, schematics, and other parts of the manual to help personnel understand the procedures. Included when O&M Data Package 3, 4, or 5 is specified in an individual technical sections.
- d. Maintenance Instructions: Describe routine maintenance to be performed and the maintenance interval (daily, weekly, 1,000 hours, etc.) for each piece of equipment including batteries. Develop a maintenance schedule reflecting these intervals based on manufacturer's written data. In a separate subsection, provide overhaul instructions for equipment that can be overhauled. Provide manufacturers' detailed instructions if available. Included when any O&M Data Package is specified in an individual technical sections.
- e. Spare Parts: For major pieces of equipment provide a list of manufacturer's recommended spare parts as well as special tools or instruments needed to perform routine maintenance. Special tools required shall be provided with the equipment at time of installation. Included when O&M Data Package 2, 3, 4, or 5 is specified in an individual technical sections.
- f. Parts List: For major pieces of equipment provide a parts list with part numbers and sources of supply. Included when O&M Data Package 2, 3, 4, or 5 is specified in an individual technical sections.
- g. Motor Data: Identify each motor and provide voltage rating, code letter, full load amperes, horsepower, speed, service factor, duty and type. Included when O&M Data Package 2, 3, 4, or 5 is specified in an individual technical sections.
- h. Drawings, Diagrams, and Charts:
  - (1) Provide piping and duct diagrams and schematics for HVAC, plumbing, fuel, and compressed air systems showing all major equipment, major valves and controls. Identify equipment by nameplate symbol. Identify valves by valve tag number with normal or seasonal operating positions indicated. Provide half-size scaled drawings systems with individual systems highlighted in contrasting colors with system color identification chart.
  - (2) Provide wiring diagrams of HVAC systems electrical power and temperature controls. Ensure operation of the temperature controls is identified in the operating instructions (paragraph 2.1.1.c).
  - (3) Provide wiring diagrams and schematics of all electrical systems, emergency generator and transfer switch systems, fire detection and alarm systems, intrusion detection and alarm systems, public address systems, telephone systems, cable TV systems, computer systems and major pieces of equipment.
- i. Provide manufacturer's warranty information.

## 2.2 BATTERIES

Provide charging instructions and maintenance information, e.g.:

- a. Normal and abnormal reading of:

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- (1) Voltages
- (2) Currents (charging and float)
- (3) Specific gravity

### **2.3 POSTED OPERATING INSTRUCTIONS**

Provide and post operating instructions and valve line-ups for the equipment and systems specified in other sections. Include start up, adjustment, operation, shutdown, safety-precautions, and other items of instruction necessary for safe operation.

Unless otherwise specified in sections 02 through 16, the instructions shall be typed or printed, framed under plastic, and posted next to the equipment. Instructions exposed to the weather shall be made weather tight. Safety precautions shall be "double-struck, boldface" print, or printed in red to draw attention to the precautions.

### **2.4 NAMEPLATES**

Unless otherwise specified in sections 02 through 16, provide minimum 3/4-by-2-1/2-by-1/16 inch thick black laminated plastic nameplates with 3/16-inch high white block lettering for the equipment and systems specified in other Sections. Nameplates shall be lettered with the following:

- a. Item ID name or symbol shown on drawings.
- b. Capacity or size if not on manufacturer's nameplate.
- c. For monitoring and measuring equipment such as meters, gages, and thermometers, nameplate shall also identify what is being measured. For example, the nameplate for thermometer No. 1 in a hot water supply line shall indicate "Thermometer No. 1 - HWS" or similar wording.

### **2.5 VALVE TAGS**

Provide stainless steel valve tags for all valves except stop valves in supplies to plumbing fixtures. Secure tags with beaded chains or other means acceptable to the COR. Provide a valve chart that identifies each valve, its function, and the system of which it is a part. Frame one copy of the valve chart under plastic and wall-mount in the Mechanical Room. Provide another copy of the valve chart in the O&M Manual.

### **2.6 INSTRUCTION OF COAST GUARD PERSONNEL**

Provide instructors to instruct Coast Guard personnel in the operation, trouble shooting, maintenance, and adjustment of the systems and equipment specified in other sections. Duration of instruction shall be as specified in the other sections. Instruction shall be given as part of the final inspection. Only one system shall have instruction at a time. The instruction sessions shall be recorded on DVD or "blue-ray" DVD, and two copies shall be provided to the Contracting Officer.

## **PART 3 EXECUTION**

Not used.

End of Section