

**PROJECT DESIGN/BUILD  
RFP SPECIFICATIONS**

**FOR**

**CONSTRUCT NEW ESD/CIVPERS  
BUILDING #62**

**AT**

**US COAST GUARD BASE SUPPORT UNIT  
ELIZABETH CITY, NORTH CAROLINA**

**PROJECT NO: 32-3648867**



**OCTOBER 2011**

**DEPARTMENT OF HOMELAND SECURITY  
UNITED STATES COAST GUARD  
FACILITIES DESIGN & CONSTRUCTION CENTER  
(FDCC)**

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**Homeland  
Security**



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SECTION 00102

LIST OF RFP DRAWINGS, EXHIBITS AND ATTACHMENTS

**1.1 SUMMARY**

This section lists the RFP Drawings and Supplemental Drawings, Exhibits and Attachments for the project and supplements Section J "List of Attachments."

**1.2 RFP DRAWINGS**

RFP Drawings are provided to the Contractor in electronic format on compact disk. RFP drawings are as follows:

<u>DRAWING NO.</u>	<u>SHEET NO.</u>	<u>DISCIPLINE</u>	<u>DRAWING TITLE</u>
A323648867T101	T101	GENERAL	TITLE SHEET
A323648867C101	C101	CIVIL	EXISTING CONDITIONS PLAN
A323648867C102	C102	CIVIL	DEMOLITION PLAN
A323648867C103	C103	CIVIL	CONCEPT PLAN
A323648867C601	C601	CIVIL	PHOTO SHEET
A323648867C602	C602	CIVIL	PHOTO SHEET
A32364886A101	A101	ARCHITECTURAL	FLOOR PLAN
A32364886A301	A301	ARCHITECTURAL	SECTIONS & MISC
A32364886A401	A401	ARCHITECTURAL	PARTIAL PLANS & SCHEDULES
A32364886O101	O101	OUTFITTING	OUTFITTING PLAN
A32364886O102	O102	OUTFITTING	OUTFITTING PLAN & SCHEDULE

**1.3 SUPPLEMENTAL DRAWINGS, EXHIBITS AND ATTACHMENTS**

These supplemental drawings, exhibits and attachments are not part of the contract but are provided to the Contractor for information only. All supplemental drawings, exhibits and attachments are provided to the Contractor in electronic format on compact disk.

1.3.1 Reference Drawings

The following reference drawings are intended only to show the original construction. Drawings are the property of the Government and shall not be used for any purpose other than that intended by the contract. The Government does not guarantee that these drawings reflect present conditions and the Contractor is responsible for verifying actual conditions.

<u>DRAWING NO.</u>	<u>DRAWING NO.</u>	<u>DRAWING NO.</u>
CF-109501_01.pdf	CF-109515_15.pdf	CF-109528_28.pdf
CF-109502_02.pdf	CF-109516_16.pdf	CF-109529_29.pdf
CF-109503_03.pdf	CF-109517_17.pdf	CF-109530_30.pdf
CF-109504_04.pdf	CF-109518_18.pdf	CF-109531_31.pdf
CF-109504_05.pdf	CF-109519_19.pdf	CF-109532_32.pdf
CF-109506_06.pdf	CF-109520_20.pdf	CF-109533_33.pdf
CF-109507_07.pdf	CF-109521_21.pdf	CF-109534_34.pdf
CF-109508_08.pdf	CF-109522_22.pdf	CF-109535_35.pdf
CF-109510_10.pdf	CF-109523_23.pdf	CF-109536_36.pdf
CF-109511_11.pdf	CF-109524_24.pdf	CF-109537_37.pdf
CF-109512_12.pdf	CF-109525_25.pdf	CF-109538_38.pdf

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<u>DRAWING NO.</u>	<u>DRAWING NO.</u>	<u>DRAWING NO.</u>
CF-109513_13.pdf	CF-109526_26.pdf	CF-109539_39.pdf
CF-109514_14.pdf	CF-109527_27.pdf	CF-109540_40.pdf
CF-109541_41.pdf	CF-109570_70.pdf	c5572d01.pdf
CF-109542_42.pdf	CF-109571_71.pdf	c5572d02.pdf
CF-109543_43.pdf	CF-109572_72.pdf	c5572d03.pdf
CF-109544_44.pdf	CF-109573_73.pdf	c5572d05.pdf
CF-109545_45.pdf	CF-109574_74.pdf	c5572d06.pdf
CF-109546_46.pdf	CF-109575_75.pdf	c5572d07.pdf
CF-109547_47.pdf	CF-109576_76.pdf	c5572d08.pdf
CF-109549_49.pdf	CF-109577_77.pdf	c5572d09.pdf
CF-109550_50.pdf	CF-109578_78.pdf	c5572d10.pdf
CF-109551_51.pdf	CF-109579_79.pdf	c5572d11.pdf
CF-109552_52.pdf	CF-109580_80.pdf	c5572d12.pdf
CF-109553_53.pdf	CF-109581_81.pdf	c5572d13.pdf
CF-109554_54.pdf	CF-109582_82.pdf	c5572d14.pdf
CF-109555_55.pdf	CF-109583_83.pdf	c5572d15.pdf
CF-109557_57.pdf	CF-109584_84.pdf	c5572d16.pdf
CF-109558_58.pdf	CF-109585_85.pdf	c5572d17.pdf
CF-109559_59.pdf	CF-109586_86.pdf	c5572d18.pdf
CF-109560_60.pdf	CF-109587_87.pdf	c5572d19.pdf
CF-109561_61.pdf	CF-109588_88.pdf	c5572d20.pdf
CF-109562_62.pdf	CF-109589_89.pdf	c5572d21.pdf
CF-109563_63.pdf	CF-109590_90.pdf	c5572d22.pdf
CF-109564_64.pdf	CF-109591_91.pdf	c5572d23.pdf
CF-109565_65.pdf	CF-109592_92.pdf	c5572d24.pdf
CF-109566_66.pdf	CF-109593_93.pdf	c5572d25.pdf
CF-109567_67.pdf	CF-109594_94.pdf	c5572d26.pdf
CF-109568_68.pdf	CF-109595_95.pdf	c5572d27.pdf
CF-109569_69.pdf	E201 #7290-D	c5572d28.pdf
		c5572d29.pdf
		c5572d30.pdf
		c5572d31.pdf
Site Plan w/ Conduit & Fiber Drawing I1106D35.edrw		
Building #61 Pavement Landscape & Drainage Drawings 12/30/04		
G-001.pdf	C-001.pdf	C-101-C108.pdf
C501-C502.pdf	A110.pdf	E-101.pdf

**1.3.2 Boring Logs**

A report of the geo-technical investigation (McCallum Testing Laboratories, Inc) was performed for the Proposed Parking Apron for C130J's project dated 1/28/03 will be provided. This apron site is located to the east of the new ESD site. Drawing CF-109529\_29 of the existing Thrun Hall Barracks #61 contains boring logs for that building.

**1.3.3 Lift Station Information**

The existing Thrun Hall Barracks Building #61 utilizes a lift station and force main to the Base's main lift station located in Building 29. Specifications of the existing lift station are provided as Supplemental Information titled "Data on Existing Lift Station".

**1.3.4 Environmental Assessment**

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An Environmental Assessment / Finding of No Significant Impact were prepared by URS Corporation in February 2010.

1.3.5 Asbestos and Lead Based Paint Investigations

- a. Lead, Asbestos, and Radon Assessment, Report #40, US Coast Guard Support Center Elizabeth City, Housing & UPH and Station Hobucken; dated October 1998- Abbreviated
- b. Asbestos Survey Thrun Hall dated 1990.
- c. Asbestos Samples and Testing by URS Corp. in April 2008

1.3.6 Installation Design Parking Standards

Army TM 5-803-5

1.3.7 Hydrant Flow Test Results

A fire hydrant flow test was run on October 11, 2011 at Hydrants 36, 37, and 38 (see RFP Drawing C-101 for locations). Contractor shall be responsible for verifying the results.

1.3.8 Drawing and Computer Aided Drafting and Design Standards

- a. Appendix L -Criteria for Computer Generated Drawings
- b. Appendix M -Criteria for Electronic Deliverables
- c. FDCC File Naming Guide
- d. Contractor Design Submission Transmittal Form
- e. AutoCAD drawing sheet template files and plot styles
  1. FDCC A-Landscape
  2. FDCC A-Portrait
  3. FDCC D Arch
  4. FDCC D Civil
  5. Fdcclant.stb (Plot Style Table)

--End of Section--



SECTION 01110

DESIGN-BUILD GENERAL PARAGRAPHS

PART 1 GENERAL

1.1 SCOPE OF WORK

Design and construct the Electronics Support Detachment/Civilian Personnel Building (#62) (ESD/CIVPERS), Telecommunications Equipment Shelter (Building #67) and the demolition of the existing Thrun Hall Barracks Building (#61) at USCG Base, Elizabeth City, North Carolina. The scope includes, but is not limited to: general building construction, site development, storm water management, parking, underground utilities, paving, sidewalks, landscaping, fire sprinkler systems, fire protection, telecommunications, telecommunications equipment shelter, outfitting (furniture and equipment) of ESD Building, attaining LEED certification, disposing of the demolished material off site, etc. Do the work in accordance with the RFP requirements and as shown in the Government-approved Contractor-produced Construction Design Documents.

1.2 CONTRACTING OFFICER'S REPRESENTATIVE

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

1.3 NEW UTILITY SERVICES

All utilities on USCG Base Elizabeth City are owned and managed by the Government, except for natural gas. 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, sewer, gas, and telephone. The local utility providers are as follows:

Company/Govt Office	Service	Telephone Number
Elizabeth City FE *	Electricity	252 225-6587
Elizabeth City FE	Water	252 225-6587
Elizabeth City FE	Sewer	252 225-6587
Piedmont Natural Gas Comp	Natural Gas	252 331-9051
Elizabeth City FE	Telephone**	252 225-6587

\* FE = facilities engineering  
\*\* for connection of Govt lines

On Elizabeth City

1.3.1 Water

There will be no charge to connect to the Government water lines.

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### 1.3.2 Sewer

There will be no charge to connect to the Government sewer lines.

### 1.3.3 Gas

Make all arrangements and pay all fees to Piedmont Natural Gas Company to bring natural gas to the jobsite. There will be a charge to connect to the natural gas lines. The contractor will be responsible to provide gas service into the building from the Piedmont gas meter(s).

### 1.3.4 Telephone Service

Temporary telephone service to the contractor's trailer is available via the local telephone company at the contractor's expense. There will be no charge to connect to the Government telephone lines for permanent telephone service to the Thrun Hall complex.

### 1.3.5 Electrical

There will be no charge to connect to the Government underground High Voltage power system.

## 1.4 PERMITS

Contractor's responsibility for permits is discussed in Section I contract clause 52.236-7 "Permits and Responsibilities" and in Section 01158 "Design/Build Criteria," paragraph 1.3 "Design Related Permits", and paragraph 1.4.1 "Design Requirements Overview." The Contractor shall comply with all terms and conditions of permits, whether the Contractor or the Government obtains the permit.

## 1.5 DRAWINGS FURNISHED

One compact disc (CD) of the plans and specifications will be furnished to the Contractor without charge.

## 1.6 GOVERNMENT-FURNISHED ITEMS

Not applicable.

## 1.7 RELOCATED EQUIPMENT AND ITEMS

Pursuant to Contract Clause "FAR 52-245-1, Government Property", the Government will furnish materials and equipment for installation by the Contractor: The scope of work is identified in specification section 01158 "Design/Build Criteria," paragraph 1.7.14.3. Notify the Contracting Officer 30 days before the items are needed.

## 1.8 WORK SEQUENCE

Before demolition of the existing barracks and galley may begin, two conditions shall be met:

1. The contractor has 420 days to design and build the new ESD/CIVPERS Building (#62) and Telephone Equipment Shelter (bldg #67) to be ready for beneficial occupancy by the Government. Allow the Government 60 days to reconnect the telecommunications infrastructure in the ESD portion of the new building and the telephone equipment shelter. Therefore, the total duration is 490 days after award.
2. At another project site on base, the new barracks (bldg #23) and galley (bldg #24) are under construction and the current schedule is for the new barracks to be ready for occupancy by

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October 31, 2012. Allow the Government 60 days to move personnel and equipment from the existing barracks to the new barracks. Therefore, the earliest date the existing barracks and galley (Building #61) could be demolished is January 1, 2013 (even if contractor and the Government should complete work in paragraph 1 earlier than January 1, 2013).

3. Once conditions of paragraph 1 and 2 are met, contractor has 60 days to demolish and remove offsite the existing barracks and galley (building #61).
4. Once demolition of the barracks and galley is complete and all debris removed offsite, contractor has 90 days to construct the new storm drainage and parking lot at the site of the removed barracks and galley.

### 1.9 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.

### 1.10 UNDERGROUND UTILITIES

The underground utility locations shown on the drawings are not exact. "Miss Utility" locator services are not available at Base Elizabeth City. Use a private utility locator service, at contractor expense, to locate underground utilities. Notify the COR and the Facilities Engineer's representative at least 48 hours before excavating. Mark the excavation route and intersecting utilities. The COR or the locator service sub-contractor will review the contractor's layout and notify the contractor if any known utilities have been left unmarked. Should excavation cross 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 Base Utilities: The Contractor shall not operate nor disturb the setting of control devices in the station utilities system, including water, sewer, and electrical services. The Government will operate the control devices as required for the normal conduct of the work. The Contractor shall notify the Contracting Officer giving reasonable advance notice when such operation is required.

### 1.11 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.

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Contractor personnel requiring access to the installation must submit their names, date of birth, and social security numbers to the Base Support Unit Elizabeth City Security Office, at least 24 hours in advance of the need to enter the installation.

For vehicle access, the following is required:

1. Vehicles must have current proof of insurance and registration
2. Drivers must have valid drivers license
3. All passengers and personnel must have a valid driver's license or other State-issued identification that includes photograph, name and address

In addition, the building site is near a major Coast Guard airport and runway. Use of tall equipment, such as cranes, will require FAA clearance and tower clearance before crane operations may occur. Clearance notifications to the FAA shall be a responsibility of the contractor.

#### 1.12 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.

#### 1.13 STORM PROTECTION

Should warnings of winds of gale force or stronger be issued, the Contractor shall take every practical precaution to minimize danger to persons, the work, and to adjacent property. Precautions shall include, but not limited to, closing all openings, removing all loose material, tools and equipment from exposed locations, and removing or securing scaffolding and other temporary work.

#### 1.14 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.

#### 1.15 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.

#### 1.16 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.

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- 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.

### 1.17 MINOR DEMOLITION, CUTTING, AND PATCHING:

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

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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.

1.18 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 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 01158**

### **DESIGN/BUILD CRITERIA** (Nov 2010)

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

##### **1.1.1 PROJECT DESCRIPTION**

Project consists of the demolition of the existing Thrun Hall Barracks building (#61) and related site work, and the construction of a new single-story ESD/CIVPERS building (#62), Telecommunications Equipment Shelter (TES, Building #67) and its related site work. The demolition of the existing barracks is tied to the completion of a new barracks currently under contract. The existing barracks must remain undisturbed and functional until the new barracks is occupiable. See Section 01110 for additional scheduling limitations and phasing.

Thrun Hall barracks is eligible for inclusion on the National Register of Historic Places (NRHP). Therefore, its demolition is considered an adverse effect under the National Historic Preservation Act. However, USCG has completed mitigations to the adverse effects of this action under a memorandum with the North Carolina State Historic Preservation Office (NCSHPO) and the Advisory Council on Historic Preservation (ACHP) in May 2011.

##### **1.1.1.1 Anti-Terrorism/Force Protection (ATFP)**

This project shall comply with all applicable antiterrorism/force protection (ATFP) requirements as dictated by DOD United Facilities Criteria documentation and *United States Coast Guard Physical Security Requirements* manual.

Site Planning (UFC 4-010-01, B-1): The new building and its surrounding site shall be fully ATFP compliant, as per the requirements in Unified Facilities Criteria (UFC) document 4-010-01, section B-1. The proposed building is identified as a *Inhabited Building*, but because of the importance of the internal functions it shall be treated the same as a *Primary Gathering Building* within a controlled perimeter achieved by existing base fencing. Parking and roadways are allowed within the controlled perimeter.

The project shall fulfill the appropriate conventional construction standoff distances as required by UFC 4-010-01, Table B-1. For a *Primary Gathering Building*, the required conventional construction standoff distance of 82 feet shall be satisfied and achieved by a combination of passive vehicle barriers (i.e. tall curbs, bollards, landscaping features, etc.).

A 33 feet unobstructed space is required on all sides of the building. The 33 feet unobstructed space may overlap with the 82 feet conventional construction standoff distance.

##### **1.1.1.2 Room Requirements/Space**

See RFP Drawings for room layout and sizes.

##### **1.1.1.3 Accessibility**

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

#### **1.1.2 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.

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New construction and modification to existing construction shall comply with requirements of:  
American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highways and Streets (2004)

American Association of State Highway and Transportation Officials (AASHTO) Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT<400), 1<sup>st</sup> Edition

American Association of State Highway and Transportation Officials (AASHTO) Manual on Uniform Traffic Control Devices (2009)

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

American Society of Heating Refrigeration and Air Conditioning (ASHRAE)

American Water Works Association (AWWA)

Energy and Independence Security Act

EPA Office of Water's "Cross Connection Control Manual, WH 550A, #570/9-89-003

DOD Installation Design – Parking Standards TM 5-803-5,

International Building Code (IBC)

International Energy Conservation Code (IECC)

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)

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)

North Carolina Department of Transportation Secondary Roadway Standards (NC DOT)

North Carolina Department of Transportation Standard Specifications for Roads And Structures

North Carolina Department of Environment and Natural Resources (NCDENR)

NSF International (NSF)

Plastic Pipe Institute (PPI)

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

Telecommunications Industry Association (TIA-222) Structural Standard for Antenna Supporting Structures and Antennas

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

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)

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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)

Waterline material, transport, storage, installation, and testing shall comply as a minimum with the requirements of:

AWWA C605-94	Standard for Underground Installation of Polyvinyl Chloride (PVC) Pressure Pipe and Fittings for Water
AWWA C651	Standard for Disinfecting Water Mains
AWWA C900-97	Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 in. through 12 in. (100mm through 300mm), for Water Distribution
AWWA C905-97	Standard for Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 14 in. through 48 in. (350mm-1200mm), for Water Distribution
AWWA M23	AWWA Manual of Supply Practices PVC Pipe—Design and Installation, Second Edition
ASTM D1784	Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds
ASTM D1785	Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120
ASTM D2152	Test Method for Degree of Fusion of Extruded Poly(Vinyl Chloride) (PVC) Pipe and Molded Fittings by Acetone Immersion
ASTM D2241	Poly (Vinyl Chloride) (PVC) Plastic Pipe (SDR-PR)
ASTM F477	Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F1057	Standard Practice for Estimating the Quality of Extruded Poly (Vinyl Chloride) (PVC) Pipe by the Heat Reversion Technique
NSF-14	Plastics Piping System Components and Related Materials
NSF-61	Drinking Water System Components--Health Effects
PPI TR-2	PVC Range Composition Listing of Qualified Ingredients

## **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 an administration type building with multiple tenants, and containing the base telephone system and is the hub for all telecommunications on the base.

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

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

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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

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.

Submit a complete summary of all permits/approvals required for the project within 45 days of contract award. 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 Period for Permit Preparation (from Contract Award to Submission to FDCC)  
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.

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- 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:

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

Signature: CAPT G.G. BONNER, P.E.  
Captain, U. S. Coast Guard  
Commanding Officer  
Facilities Design and Construction Center

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

Contractor is required to place all public notice type newspaper advertisements required for each application. Advertisements shall be placed so as to properly coincide with permit/approval submission.

The cost of all permits and advertisements shall be included in the Contract Sum.

### 1.3.2 NPDES Permit for Construction Activity

The National Pollutant Discharge Elimination System (NPDES) stormwater program requires construction site operators engaged in clearing, grading, and excavating activities that disturb 1 acre or more to obtain coverage under an NPDES permit for their stormwater discharges. Contractor shall ensure that the North Carolina Department of Environment and Natural Resources (NCDENR) requirements for the Stormwater NPDES permitting program are met.

#### 1.3.2.1 Storm Water Pollution Prevention Plan

Contractor's design and construction practices shall be in compliance with the NCDENR MS4 general permit and SWM plan guidelines, goals, and objectives. The Contractor shall submit and obtain all necessary permits from the NCDENR in order to begin construction. In this regard, the Contractor shall obtain an approved Storm Water Pollution Prevention Plan (SWPPP) and, if required, an executed Notice of Intent (NOI) and/or any other necessary documents from the NCDENR prior to beginning of mobilization and demolition activities. In general, storm water pollution prevention shall indicate where and which best management practices are being implemented to prevent storm water runoff contamination to downstream conveyance systems.

### 1.3.3 SUSTAINABLE DESIGN AND LEED-NC CERTIFICATION

This project shall incorporate the sustainable design principles and guidelines of the "Whole Building Design Guide" and is to be designed with the intent of maximizing the use of sustainable design and development

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practices. 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).

### 1.3.3.1 Sustainable Design

This facility shall be designed and constructed in an environmentally responsible manner, utilizing sustainable design concepts, systems and materials to the maximum extent practical to provide a facility that meets the following goals:

- a. Energy efficiency; E-PACT 2005
- b. Executive Order 13423
- c. Energy Independence and Security Act (EISA) 2007
- d. Reduces or eliminates toxic and harmful substances;
- e. High indoor air quality (IAQ) conditions;
- f. Use of building materials that can be recycled;
- g. Use of recycled content materials, including EPA designated products;
- h. Efficiency in resource and materials utilization;
- i. Minimizes waste products during both the construction and operation of the facility;
- j. Promotes O&M practices that reduce or eliminates harmful effects on people and the natural environment;
- k. Can be easily modified as occupant needs change and easily adapted or converted to other uses.

### 1.3.3.2 LEED-NC for New Construction Certification

Leadership in Energy and Environmental Design for New Construction (LEED-NC) Green Building Rating System™

1.3.3.2.1 The Contractor shall utilize the principles of integrated sustainable design contained in the latest LEED-NC rating system and will utilize this system in the design and construction of this project. The contractor shall provide an analysis of the LEED-NC criteria as it applies to the design of this project and include that analysis with each design submittal. Use ASHRAE 90.1 as the baseline when estimating energy savings. The analysis report shall include the following:

- a. An explanation of each LEED-NC point obtained by the project
- b. Total LEED-NC score for the project
- c. A statement signed by a registered professional engineer or an architect that in their opinion the LEED-NC items listed in "a" and "b" above, will provide at least the minimum points required to meet the LEED-NC classification of "Silver."

1.3.3.2.2 The facility shall be certified by the US Green Building Council (USGBC) LEED-NC at least at the minimum level of "Silver."

1.3.3.2.3 Contractor shall pre-register the building with the USGBC, develop the LEED-NC Design strategy, compile all required documentation, fill out USGBC forms and pay all associated fees as required to obtain certification by USGBC.

1.3.3.2.4 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.

1.3.3.3 E-PACT 2005: The federal government is mandated to meet the energy and potable water reduction requirements as set forth in E-PACT 2005. In that regard the facilities, unless noted otherwise in

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the RFP documents, must reflect at least a 30% energy reduction from the baseline set forth in ASHRAE 90.1. Also as required in E-PACT 2005, all associated energy consuming products shall be Energy Star qualified product or FEMP designated products where available.

## **1.4 CIVIL AND SITEWORK DESIGN**

### **1.4.1 Design Requirements Overview**

The proposed site for the new ESD/CIVPERS building shall be located off the main perimeter road (Moukawsher Drive), northwest of the existing Coast Guard Thrun Hall Barracks building. This area is currently used for a parking lot for Building 55. There are multiple existing utilities under the parking lot that serve other facilities. The placement of the new building should take into consideration the Contractor's ability to maintain operable utility services to the other facilities on the base throughout demolition and construction of this project.

Contractor shall include in his base bid the utility design requirements for incorporating into construction the phasing and relocation of electrical, telecommunication, and data lines from the existing location of the ESD in the Barracks building to the newly constructed ESD building. The relocation of the ESD will require special consideration during the installation of the utility and data systems. See Paragraphs 1.4.1.10, 1.7, 1.8, 1.13, and 1.14 of section -1158 for further information.

Location of existing utilities indicated on the site survey and utility maps is approximate only. 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 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 and construction shall be in accordance with applicable codes and standards and the requirements referred to in Section 01160 Construction Design Documents.

Contractor shall be responsible for locating and marking all government owned utilities (electric, storm sewer, sanitary sewer, water, high voltage electric, and telephone on base in concrete duct bank system). Contractor shall be responsible for insuring that privately owned utilities are marked.

The existing utilities shown on the RFP drawings are based on GIS information and record drawings. The Government is not responsible for the accuracy of the information provided.

#### **1.4.1.1 Site Planning**

Parking layout, open spaces, and parking space dimensioning shall incorporate the existing base's bordering site layouts and functionality. If such existing site layouts and bordering functionality is unavailable, Contractor shall use the guidelines as provided in Section 00102, 1.3.7 – "Installation Design Parking Standards" reference TM 5-803-5, "Installation Design – Parking Standards".

1.4.1.2 See paragraph 1.4.7.3 Parking Lots for parking requirements.

1.4.1.3 The pavement and parking along the west side of Building 63 shall be removed and replaced. The new parking layout and design shall incorporate connectivity to the existing drive lane on the south side of Building 63.

1.4.1.4 The existing pavement and gate providing access to the airfield apron area shall be removed in its entirety. Contractor shall replace the gate with new fencing matching existing fencing.

1.4.1.5 Existing tree in the middle of the Thrun Hall barracks shall remain and be incorporated into the new parking lot as green space.

1.4.1.5 All new "consumable" type utility systems (i.e.; water, electricity, 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.

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### 1.4.1.6 Finish Floor Elevation

The contractor shall determine the most efficient and economical building finish floor elevation, but it shall be no lower than elevation 7.5 feet (from MSL). If necessary, steps and ramps leading to the building entrance(s) shall be designed and constructed to access the determined building finish floor elevation. The exterior finish grade at the perimeter of the building shall be no less than 6 inches lower than the Finish Floor Elevation.

### 1.4.1.7 UFAS Requirements

Finish grade shall transition up at personnel entrances to allow for handicapped accessibility. All building entrances, parking and sidewalks shall be designed to be accessible to the physically handicapped, in accordance with the latest edition of the Uniform Federal Accessibility Standards (UFAS).

### 1.4.1.8 Fire Department Access Road

The Contractor shall coordinate with the local fire AHJ (Authority Having Jurisdiction) the required ingress/egress to accommodate the AHJ's truck's turning radii, width, and loading requirements as specified by NFPA 1.

### 1.4.1.9 Truck Access

The Contractor shall provide sufficient access for ingress/egress and turning radii of an AASHTO 2004 SU design vehicle to the rear of the ESD building. The access road shall have provisions for the vehicle to turn around and to maneuver for backing up and for loading/unloading. The access road shall be paved, a minimum of 20 feet wide, and have a passive vehicle control gate with locking mechanism. See paragraph 1.4.9 Site Security for more information.

### 1.4.1.10 Telecommunications Equipment Shelter (TES)

The Contractor shall provide a Telecommunications Equipment Shelter (TES). Refer to section 01158 Paragraphs 1.7, 1.8, and 1.14 for more information. The TES shall be located within no more than 125 feet of existing MH/HH #12 (See RFP Drawings for location). Minimum FFE elevation shall be provided in accordance with paragraph 1.4.1.6 of this section.

## 1.4.2 Site Clearing, Excavation, Earthwork, Grading, and Drainage

1.4.2.1 The Contractor shall clear and grub all trees and vegetation necessary for construction; but, shall also save as many trees as possible. D/B Team will make an effort to preserve the existing tree located in the center of the Thrun Hall Barracks building and incorporate it into the design of the new parking lot. 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.

1.4.2.2 Design final grades to drain away from building per the requirements of IBC Section 1803.3. For open areas including parking areas, use sheet flow and concrete curbing to divert runoff into storm collection inlets and piped off to existing storm water structures. Once drainage systems have been established and site improvements completed, a post rain storm event inspection shall confirm that standing water has not collected within the Limits of Construction.

1.4.2.3 In developing Storm Water Pollution Prevention Plan (SWPPP), D/B Team shall use site planning, design, construction, and maintenance strategies for the new site development to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow. The Designer of Record (DOR) shall analyze the predevelopment and post-development impervious areas and will design BMP's and the Stormwater

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Management as required by the North Carolina Department of Environment and Natural Resources (NCDENR), Division of Water Quality. In addition, the erosion and sediment control plans shall also be provided as required by the NCDENR, Division of Land Resources, Land Quality Section (see Para 1.3 for additional information).

1.4.2.4 The D/Build Team shall analyze the existing and proposed storm sewer system to ensure that flooding will not occur at or in any new or existing structures that may be affected by or connected to the new project construction. As the new ESD building will house mission critical electronic and data equipment, for the 10-year storm event, no more than 6-inches of ponding shall be allowed above storm sewer inlets or manholes within 25 meters of the building. For the 100-year storm event, no more than 12-inches of ponding shall be allowed above any storm sewer inlets or manholes within 25 meters of the building. The water surface elevation and hydraulic grade line (HGL) shall not exceed the FFE in any storm event. DOR shall include and submit hydraulic grade line (HGL) and ponding computations as part of Civil/Site calculations in accordance with Section 1160.

1.4.2.5 Contractor shall grade the area and provide the required permanent stormwater collection and delivery system between buildings and facilities such that storm runoff is not allowed to create any standing water within the limits of new construction. Best management practices must be utilized to prevent storm water runoff contamination from outdoor construction sites. Use sheet flow to divert runoff at the pre-developed flowrate onto the adjoining swales and/or wetlands.

1.4.2.6 All existing utility boxes, storm inlets, manhole covers within the project limits shall be adjusted to the new finished grade elevations.

### 1.4.3 Water System

The Base has both a river water fire protection system and a potable/fire hydrant supply system (label FW and PW on the RFP plans). The Contractor shall connect the new water system to the nearest existing PW line. The new water system shall be designed to be monitored from one meter.

Provide all materials, equipment, labor, testing, and miscellaneous related items to provide water distribution mains and service lines to the building. Provide water distribution system materials, methods, and testing as specified.

1.4.3.1 The results of a recently run (Oct 2011) PW hydrant flow test are provided in Section 00102 – Para 1.3.8. Contractor shall be responsible for confirming that adequate pressures and flows are available for the new project's water supply and fire protection needs.

The Contractor shall determine the domestic demands for the new facility and shall confirm the adequacy of the design of all components of the supply system. Designer-of-Record (DOR) shall provide water model analysis and results as supporting calculations of any new water mains to ensure all proposed fire hydrants, fire suppression system and domestic service lines will provide adequate pressures and flows.

Contractor shall verify adequate flows and pressures with the COR and FE. Following State, County, and City requirements, the Contractor shall design the connections to the existing PW water system including the meter assembly and necessary pressure reducing and backflow-preventing devices.

### 1.4.3.2 Water Distribution System

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.

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(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.

1.4.3.3 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.

1.4.3.4 Water meter as approved by the local Water Authority.

1.4.3.5 Fire Hydrants shall be dry-barrel type, AWWA C502 or UL 246. The Contractor shall provide the minimum number of fire hydrants and at locations in order to provide adequate fire coverage for the TEW Building per NFPA 1 and NFPA 1 Annex I.

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

1.4.3.7 Field Quality Control for Water Distribution

1.4.3.7.1 Field Tests and Inspection

The Contracting Officer will conduct field inspections and witness field tests specified. The Contractor shall perform field tests, and provide labor, equipment, and incidentals required for testing, except that water needed for field tests will be furnished as set forth in Section 01500, "Temporary Facilities". Do not begin testing on any section of a pipeline where concrete thrust blocks have been provided until at least 5 days after placing of the concrete.

1.4.3.7.2 Testing Procedure.

Test water mains and water service lines in accordance with the applicable specified standard. Test ductile-iron water mains in accordance with the requirements of AWWA C600 for hydrostatic testing. The amount of leakage on ductile-iron piping with mechanical joints shall not exceed the amounts given in AWWA C600. No leakage will be allowed at joints made by any other method. Test water service lines in accordance with applicable requirements of AWWA C600 for hydrostatic testing. No leakage will be allowed at copper pipe joints, copper tubing joints (soldered, compression type, brazed), plastic pipe joints.

1.4.3.8 Gate valves for the water main systems should be designed according to NFPA 24. Determination of the number and location of valves and design of the system shall also incorporate the following:

- a. Valves shall be installed at appropriate points in all pipes to permit interruption of flow to segments of the system, as needed to facilitate operation, maintenance, and repair.

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- b. Valves shall be provided on new water mains so that no more than one building will be served from a segmented water main.
- c. Locate new valves within paved areas when possible. Locate valves with other appurtenances and/or with fittings to the greatest practical degree. Valves must be placed where they are practical for maintenance staff to access and operate and where they will not be subject to obstruction by parked vehicles.
- d. Provide a minimum of:
  - 1) Four (4) valves at all new water main crosses, one valve for each branch line
  - 2) Two (2) valves at all new water main tees – at least one (1) valve on the main line and one (1) valve on the branch line
  - 3) One (1) valve for all fire hydrants

### 1.4.4 Sanitary Sewer

1.4.4.1 The Contractor shall provide sewer service for the new ESD building. The new sanitary sewage collection system shall connect to the nearest existing sanitary line.

1.4.4.2 The existing Thrun Hall Barracks Building #61 utilizes a lift station and force main to the base's main lift station located in Building 29. Contractor shall determine whether to rehab the existing lift station or install a new lift station.

1.4.4.3 Rehabbing the existing Thrun Hall lift station for the new ESD building will require a licensed PE to perform an analysis of the existing lift station. The analysis shall be in the form of a report that includes an assessment of the existing condition of the existing well structure, linings and recommendation for adequacy for re-use, improvements or upgrades, and overall service life expectancy. At a minimum, all mechanical, piping, electrical equipment and appurtenances (all pumps, motors, pipes, control panels, valves, etc.) of the existing Thrun Hall lift station shall be replaced. Only the well structure and force main pipes will be considered for reused. The Contractor shall submit shop drawings for approval of any new pumps. Contractor shall ensure that the new controls system is compatible with the Base wide Siemens Energy Management Control System (see Paragraph 1.14 for additional information).

1.4.4.4 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.

1.4.4.5 All work shall be constructed in accordance with all applicable federal, state, county, and city requirements. Final plans and specifications for the sanitary sewer collection, treatment and disposal systems shall be designed and sealed by a registered engineer.

1.4.4.6 Contractor shall provide a minimum 15-foot wide paved access to the lift station for maintenance purposes with a turn around and maneuvering area. The Contractor shall also provide adequate lighting and access for routine inspections and maintenance activities of the lift station.

### 1.4.7 Pavement

Materials and methods shall be in accordance with the North Carolina Department of Transportation and coordinated with the geotechnical report design suggestions. Contractor shall base pavement design for roadways and parking areas on the lowest CBR value taken from two separate proposed on site test locations. Design shall reflect an equivalent pavement section as stated below. All on-site pavement may be either reinforced concrete (rigid) or asphalt pavement (flexible), unless stated otherwise. All asphalt pavement proposed shall be designed to have a cross slope of a minimum of 1/4-inch per foot slope and all asphalt parking areas shall have minimum 1/4-inch per foot slope either longitudinally or cross slope. All

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concrete pavements shall have a minimum design slope of 0.50% longitudinally. An AASHTO pavement design analysis shall be performed by a geotechnical engineer licensed in the state of North Carolina. The pavement shall be the greater of the geotechnical engineer's pavement design recommendation or a pavement section designed via the UFC 3-250-01FA (Pavement Design for Roads, Streets, Walks, and Open Storage Areas).

### 1.4.7.1 Turn Lane

A right turn lane shall be constructed into the project site off of Moukawsher Drive. The turn lane's width, taper, and storage distances shall be designed according to NC DOT secondary roadway standards and AASHTO's "A Policy on Geometric Design of Highways and Streets" (2004).

### 1.4.7.2 Dumpster Pads

A dumpster pad shall be provided for solid waste and recycling material dumpsters. Dumpster pads shall be constructed of reinforced concrete pavement. Dumpster locations must be outside of the 82-foot AFTP stand-off area from the building. A clear area shall be provided in front of the dumpster location, a minimum of 12' X 12' deep by width of enclosure to allow for dumpster truck access.

### 1.4.7.3 Parking Lots

Multiple new parking areas shall be constructed. The parking lots shall provide a minimum of 205 automobile parking spaces and a minimum of 10 motorcycle parking spaces. Contractor shall maximize the number of parking spaces along the west side of the site and the proposed ESD building for Air Station personnel working in Building 55 and shall not provide all of the parking spaces on the east side of the site only. The pavement and parking along the west side of Building 63 shall be removed and replaced. The new parking layout and concept shall incorporate connectivity to the existing drive lane on the south side of Building 63. The suggested guidelines from Chapter 5 Parking of TM 5-803-5 (Installation Design) shall be used for the layout of the parking areas. The parking lots shall provide parking stalls and sidewalks designed to accommodate the physically handicapped, in accordance with the latest edition of the Uniform Federal Accessibility Standards (UFAS). Parking lots shall be striped and signed per the MUTCD. Parking lots shall also be provided with adequate lighting as specified in Specification 01158 Section 1.13.

### 1.4.7.4 Electric Vehicle Charging Stations

Provide a minimum of three (3) electric vehicle charging stations built to base standard (120 V mechanical interlock switch mounted on yellow steel bollard) in designated spaces adjacent to the entrance. See Specification 01158 Section 1.13 for additional requirements.

### 1.4.7.5 Sidewalks

The D/B Team shall provide sidewalks from either extreme end of the parking lot(s) to Building 55 along the most direct path. The minimum concrete pavement section for sidewalks shall be 4-inches thick and 5 foot wide. Contractor shall provide a 5-foot wide sidewalk parallel to the Moukawsher Drive the entire length of the new proposed parking lot to continue the pedestrian and jogging path throughout the Base.

1.4.8 Treat soil below the building, and to a point no less than one foot beyond the exterior wall, for subterranean termites. Use products approved by EPA, and apply in accordance with manufacturer's recommendations. Provide a five year warranty by the applicator.

### 1.4.9 Site Physical Security

Passive vehicle control gates shall be provided for the access to the rear of ESD building. Gate shall be single or double swing gates intended to limit traffic access to the rear of the ESD building in the event of a

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high security threat on base. The gate shall have a latch and locking mechanism for a keyed lock. Individual gate lock and multiple keys shall be provided. The gate bars should be painted safety yellow.

1.4.10 Construction Laydown Areas

See Section 01500 Temporary Facilities for field office trailers, materials, and equipment storage and lay down areas.

## **1.5 GEOTECHNICAL DESIGN**

### **1.5.1 Geotechnical Site Data**

The Government has not conducted any subsurface investigations for this project. The Contractor shall retain the services of a geotechnical consultant registered as a Professional Engineer and obtain subsurface explorations and test data as necessary for final design. The geotechnical consultant shall be experienced with soil conditions in the local region. Geotechnical investigations shall be coordinated with the Contracting Officer and shall not interfere with normal Coast Guard operations. The cost of the required geotechnical work shall be included in the Contract Sum.

A report of the geo-technical investigation (McCallum Testing Laboratories, Inc) performed for the Proposed Parking Apron for C130J's project dated 1/28/03 will be provided. This apron site is adjacent to the new ESD site. Additionally, the drawings of existing Thrun Hall Barracks Building # 61 are provided, and Drawing Number 109529 (Sheet 29/95) of this set shows soil boring data for the existing building. This data is provided for general information only.

### **1.5.2 Assumed Foundation Type**

For bidding purposes, assume the following regarding foundation design:

This building will be supported utilizing shallow foundations. The Contractor's geo-technical consultant shall provide further advice required for the pricing of foundations for proposal.

### **1.5.4 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".

## 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.

### 1.6.2 Trees and Shrubs

Provide a minimum of 60 trees, 200 shrubs, and 500 ground cover plants. Provide planting beds for accent trees, shrubs, and ground covers at building entrances, front elevation foundation planting, walkways from all entrances, and grouped trees. Use drought resistant low maintenance native plantings. No irrigation system is allowed. Provide mulch and weed matting in all planting beds.

### 1.6.3 Lawn

Provide drought resistant low maintenance Zoysiagrass. Install Zoysiagrass sod within the first 40 feet around the perimeter of the building. Establish a lawn in all other areas from a combination of 3" square Zoysiagrass plugs and seed from another variety of grass that will establish quickly until Zoysiagrass takes over. At the Contractor's option Zoysiagrass sod may be used on all lawn areas. Provide steel edging around all planting beds to prevent migration of grass.

## 1.7 ARCHITECTURAL DESIGN

### 1.7.1 Facilities Description

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

### 1.7.2 Exterior Building Shell

1.7.2.1 Exterior walls shall consist of insulated masonry cavity walls. Exterior face veneers may be a combination of brick veneer, ground face CMU and precast architectural concrete panels or cast stone. EIFS (Exterior Insulation Finish System) may be used, but only limited to accent treatment as opposed to large areas of the exterior walls. Split or textured face CMU veneers are not acceptable. Brick veneer shall be a compatible color to the Ground faced CMU and shall be a through-the-body color brick as opposed to sand faced. Interior faces of all exterior walls shall be furred and finished with gypsum wallboard, except Spaces 10, 15, 16 and 17 shall be painted exposed CMU.

A sample wall shall be constructed on site prior to ordering and installing any exterior masonry exterior materials. The purpose of the wall is to allow the Government an opportunity to review the materials proposed by the Contractor and to establish acceptable level of workmanship.

1.7.2.2 All roofing should be sloped roofing with a pitch no less than 4/12, and be metal standing seam panels, galvanized per ASTM A653 and be painted with a fluoropolymer coating with a manufacturer's warranty against blistering, peeling, cracking, chipping or experience material rust through for a period of 20 years. Colors shall be as selected from manufacturer's standard colors.

### 1.7.3 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.

#### 1.7.4 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. R-values for building insulation shall be determined by the coordination of code requirements, building/base energy management plan, ASHRAE 90.1 and LEED/sustainable requirements.

#### 1.7.5 Sound Control

Provide sound attenuation batts in all interior walls. Insulation shall be light-density unfaced fiberglass batts, classified as non-combustible by the building code. Provide an STC rating of 45 minimum between all spaces.

#### 1.7.6 Interior Walls

Interior non-load bearing partitions shall be types indicated on the drawings of consisting of metal studs (not less than 20 gauge, 3-5/8-inches wide) with field painted 5/8-inch gypsum wallboard, unless indicated otherwise. Provide materials and assemblies as required to provide fire ratings required by codes or identified on the drawings. Provide water resistant board in toilet, shower, locker and other spaces subject to moisture.

##### Telecommunications Equipment Room Requirements

This room is an "Information Technology Equipment Room and shall be design in accordance with NEC 645.4(5). The room is separated from other occupancies by fire-resistant-rated walls, floors and ceilings with protected openings. See other portions of this section for other trade work requirements.

#### 1.7.7 Interior Ceilings

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

1.7.7.2 Gypsum board (GWB) 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.

#### 1.7.8 Interior Design

See Finish Schedule on RFP Drawings for additional information.

##### 1.7.8.1 Wall Finishes (see Finish Schedule on Drawings for locations):

Paint (PNT) - Interior surfaces, except factory pre-finished materials, shall be painted a minimum of one prime coat and two finish coats of latex semi-gloss enamel (eggshell finish may be used for painted ceilings). No flat sheen paint is allowed. Select neutral colors for more permanent surfaces to facilitate future finish material changes. Provide color selection board for review by the Government (FDCC and Base FED).

Ceramic Tile (CT) - Provide full height 12"x12" porcelain tile on three walls of shower stall.

##### 1.7.8.2 Floor Finishes (see Finish Schedule on Drawings for locations):

Vinyl Composition Tile (VCT) - 1/8" vinyl composition tile

Resilient Base - 4" vinyl tile base

Porcelain Tile (POR T) - slip-resistant 6" x 6" porcelain floor tiles on shower and toilet floors with maximum 1/8" grout joint. Provide full height 12"x12" porcelain tile on three walls of shower stall. Porcelain tile used in wet areas shall have a surface that has a minimal glaze, meets or exceeds .60 COF wet, has a textured surface, and is not polished or semi-polished. Test Method for slip resistance shall be ASTM C1028. Provide bull nose and cove tiles for all transitions between floor and wall and at shower curbs.

Sealed concrete - floors in all other areas.

Carpet - Modular 24" x 24", tufted, level loop, 1/10 gauge, 11.1 per inch pitch, 0.187" average pile height, yarned dyed, thermoplastic composite tile backing, 26 oz/sy face weight, 3.0 kv static at 20% RH, passing DOC-FF-1-70 Pill Test, Class 1 NFPA rating under ASTM E-648 and less than 450 smoke density rating. A minimum of four different colors may be selected.

Terrazzo - thin-set cast in place epoxy terrazzo flooring meeting NTMA Standards, in color selected from manufacturer's standard. Terrazzo base shall be 6" high precast in color to match floor. Provide stainless steel "L" angle divider strips. Provide terrazzo graphics in three locations as indicated on the Drawings. Graphics shall be produced by cutting complex forms in zinc for poured in place terrazzo. These forms are single piece complex shapes. Each graphic shall be made from a multicolored epoxy terrazzo mix with glass and marble chips poured in forms and field ground and polished.

#### 1.7.9 Interior Specialties

1.7.9.1 Toilet accessories shall be constructed of stainless steel. Provide the following accessories in each toilet:

Mirrors: 24"x 36" stainless steel tilt framed glass mirrors

Soap Dispensers: Liquid type (Government Furnish and Installed).

Toilet Paper dispenser: Type II, double roll, vertical mount (Government Furnish and Installed).

Wall Waste Receptacle: Semi-recessed 12 gallon capacity, stainless steel.

Towel Bar: Provide two 24" long commercial grade satin chrome towel bars, at each shower stall.

Robe Hook: Provide one stainless steel robe hook, at each shower stall.

Shower curtains and rods: Provide heavy-duty stainless steel rods. Curtain shall be 70" x 70" heavy duty quick-dry polyester with a Teflon coating.

Fold-Down Seat: Provide two phenolic resin wall mounted fold-up seats for each shower stall.

Grab Bars: Provide 1-1/2" O.D. Type 304 Stainless steel grab bars with safety grip finish. Provide one 42" grab bar on the side wall of each accessible stall and one 36" grab bar on the rear wall of each accessible stall. Provide a 24" grab bar on the end walls of each shower stall and a 42" grab bar on side.

Mop and Broom Holder: Provide surface mounted type 304, 22 gauge, satin finish stainless steel with 4 mop/broom holders and 3 rag hooks in the janitor's closet.

Soap Dish: Surface mounted bar type holder; one per shower stall.

Electric hand Dryers shall consist of the following: Cover shall be one of die-cast zinc alloy - One-piece, heavy-duty, rib-reinforced, lightweight, unbreakable, rustproof and all exposed surfaces shall be bright chrome plated or finished with chip-proof, electrostatically applied epoxy paint. All covers will be fastened to a wall plate by two chrome plated tamper-proof bolts. Vacuum motor/blower (5/8 hp / 20,000 rpm) which provides air velocity of up to 19,000 lfm (linear feet per minute) at the air outlet and 16,000 lfm at the hands (4 inches below air outlet). Heating element (970 w) is constructed of chrome wire and mounted inside the blower housing. It shall be protected by an automatic resetting thermostat, which shall open whenever air flow is cut off and shall close when flow of air is resumed. It shall produce an air temperature of up to 135°F (57°C) at a 72°F (22°C) ambient room temperature at the hands (4 inches below air outlet). Control assembly is activated by an infrared optical sensor located next to the air outlet. The dryer shall operate as long as hands are under the air outlet. There is a 35-second lockout feature if hands are not removed.

#### 1.7. 9.2 Signage:

1.7.9.2.1 Provide building mounted sign with the building number. The building number sign shall match those used throughout the base. Also provide handicapped parking identification signs, one at each parking space.

1.7.9.2.2 Provide individual interior room name and number signage consisting of plastic laminate engraved plaques for all spaces. Signs shall be provided and installed on all interior doors or walls adjacent to doors (coordinate with building users). Name signs shall be provided for all mechanical, electrical and telecommunications doors on the exterior as well. Exterior door name markers shall be industry standard for exterior installation. Coordinate color and design with other interior finishes. Provide screen printed department signs for five suites located adjacent to the suite entry door in the corridor. Department signs shall be approximately 18" wide and 10" high. The building user (Government) shall provide sign text and numbers during design development.

1.7.9.2.3 Provide a cast bronze dedication plaque approximately 42 inches x 30 inches. Text and other information shall be coordinated and approved through the COTR. Location will be determined during design development.

#### 1.7.10 Doors and Frames:

1.7.10.1 Exterior doors, frames, and hardware shall meet functional and security requirements unique to this type of facility.

1.7.10.1.1 Exterior main entrances doors and frames shall be comprised of aluminum storefront system with either anodized or fluoropolymer coating. Doors shall be 1-3/4" thick medium stile with reinforced frame perimeters, locksets and closers. Glazing shall meet the requirements of the Large Missile Test of ASTM E 1996. Doors and frames may be specified with the hardware and accessories suggested and supplied by the door manufacturer or they may be specified for field installed hardware. All doors shall be fully weather stripped and include a heavy-duty fiberglass or metal threshold that prevents drafts, dirt, water, and insect entry.

1.7.10.1.2 All other exterior doors and frames shall be Fiberglass Reinforced Plastic (**FRP**) with a seamless, minimum 15 mil thick gel coat color finish that is applied at the time of manufacturing. Doors shall be 1-3/4" inches thick with reinforced frame perimeters, hinge pockets, lockset and closer locations and polyurethane core construction between the FRP face panels. Any vision light openings or louvers required shall be installed by the door manufacturer at the time of manufacture. Provide vision lights where noted or specified. Glazing shall be wire glass and meet the requirements of the Large Missile Test of ASTM E 1996. All doors shall be fully weather stripped and include a heavy-duty fiberglass or metal threshold that prevents drafts, dirt, water, and insect entry.

#### 1.7.10.1.3 Overhead Insulated Rolling or Coiling (Service) Doors:

Provide electrically motor operated with emergency chain hoist. Unless more stringent design requirements are determined by Designer of Record, the doors shall be designed to withstand a basic wind speed required by the Structural portion of the Specifications, without evidencing permanent deformation or disengagement of door components and to remain operable under uniform pressure (velocity pressure) of 20 lbs/sq. ft. (960 Pa) wind load, acting inward and outward. Curtain material shall be an insulated galvanized steel slat with the exterior slat face being minimum 20 gauge and inside slat face being minimum 24 gauge. Insulation shall be foamed-in-place, closed cell urethane. Bottom bar shall be reinforced extruded aluminum face with full depth insulation and exterior skin slat to match curtain material and gauge. Fabricate interlocking sections with cast iron end locks. Provide end locks as required to meet specified wind load. Finish on outside and inside slat surfaces shall be the manufacturer's factory or shop applied coating system consisting of a phosphate

treatment followed by baked-on polyester powder coat with a minimum 2.5 mils cured film thickness. Colors shall be as selected from the manufacturer's standard color range of a minimum of 30 colors.

Provide counter balance shaft assembly, brackets, hood (with same finish as door slats), full weatherstripping of door and hood and including a bottom bar with weather/sensing edge (automatic reversing control by an automatic sensing switch) with neoprene or rubber astragal extending full width of door bottom bar. Provide a lockable slide bolt on coils side of bottom bar at each jamb extending into slots in guides.

Motor Operator: Industrial duty – rated for maximum of 20 cycles per hour UL listed, totally enclosed gear head operator(s) of size and capacity recommended by door manufacturer for size and type of door; complete with electric motor and factory pre-wired motor control terminals, maintenance free solenoid actuated brake, emergency manual chain hoist and 3-button OPEN/CLOSE/STOP control station(s). Motor shall be high starting torque, industrial type, protected against overload with an auto-reset thermal sensing device. Primary speed reduction shall be heavy-duty, lubricated gears with mechanical braking to hold the door in any position. Operator shall be equipped with an emergency manual chain hoist assembly that safely cuts operator power when engaged. A disconnect chain shall not be required to engage or release the manual chain hoist. Provide an integral motor-mounted interlock system to prevent damage to door and operator when mechanical door locking devices (padlocks) are provided. The motor shall be removable without affecting the limit switch settings.

1.7.10.2 Interior doors, frames, and hardware shall meet sound separation, fire separation, and security requirements unique to this type of facility.

1.7.10.2.1 Wood Doors: All interior doors, except those noted below, shall be flush, solid wood staved lumber core (NAUF SLC-5) doors with plain sliced (flat sliced) stained white birch veneer faces, Custom (Grade A) faces, book matched between paired leaves, running match assembly on door of 5-ply construction and factory applied transparent finish. Any window light openings or louvers required shall be installed by the door manufacturer at the time of manufacture. Provide vision lights where noted or specified. Doors shall have no added urea formaldehyde resin (NAUF).

1.7.10.2.2 Fire/Smoke Rated Doors (over 20 minute fire rating): Where indicated or required for fire protection, provide solid mineral cores with face veneers matching non-rated and 20 minute rated doors specified above. Hollow metal door frames shall be fabricated from cold-rolled steel sheet, comply with ANSI/SDI A250.8. Hollow metal frames shall be phosphatized, primed, and field finished.

1.7.10.2.3 Access Doors (maintenance): Provide access doors and frames where required. Assemblies shall be either painted aluminum or stainless steel.

1.7.10.3 Provide hardware in compliance with the Builders Hardware Manufacturers Association (BHMA):

1.7.10.3.1 Cylinders and Keying: Compatible with "Best Locking System" to match existing base grand master keying system; 7-pin with "A" keyway (removable cores).

1.7.10.3.2 Hinges: Stainless Steel (630) for exterior doors, and dull chrome (626) for interior doors.

1.7.10.3.3 Lock/Latch Sets: Series 4000 Grade 1, with lever handles, 626 finish. Provide locksets for all doors except for spaces 18 and 19 (Toilets).

1.7.10.3.4 Closers: Grade 1, modern covers.

1.7.10.3.5 Exit Devices (if required): Touch bar type, Grade 1.

1.7.10.3.6 Padlocks: Provide master keyed padlocks for each overhead door and access panel.

In addition to the items listed above, provide all necessary hardware for a complete installation including, but not limited to: lock trim, overhead holders, overhead stops, wall or floor mounted stops, pulls, pushes, door protection kick plates, thresholds, and weatherstripping. Entrances, storage rooms, and utility rooms shall have locking hardware. All exterior doors, toilet room doors, suite corridor entry doors and fire rated doors shall have closers.

#### 1.7. 11 Windows

1.7. 11.1 Provide heavy commercial grade aluminum windows. Windows shall be AAMA/WDMA 101/I.S.2/NAFS Performance Class HC-60 or greater.

1.7. 11.2 Windows shall be fixed. Window configuration (arrangement of additional mullions) shall be coordinated and compatible with the Contractor's exterior design proposal.

1.7. 11.3 All windows, storefront and curtainwall frames shall be thermally broken extruded aluminum. Finish shall either be heavy anodized Architectural Class I (0.7mil or thicker AA-M10-C22-A41) or a 20 year "Kynar" color finish. The window shall have successfully passed the impact and cycle requirements of South Florida protocols, TAS-201, TAS-202 and TAS-203, and have NOA's and Florida Product Approval for large missile impact. The windows may be installed as independent units or adapted to fit into other impact resistant thermally broken storefront and curtainwall systems. Windows shall meet AAMA/NWDDW 101/I.S. 2-97 Structural Performance testing for Heavy Commercial class windows. Window and other exterior glass shall be low "E" meet the requirements of the Large Missile Test of ASTM E 1996. Laminated glass used to make up the insulating glass units (and spandrel glass that might be used) shall consist of not less than two 1/8" thick panes of glass bonded together with a minimum 0.09 inch thick polyvinyl-butylal (PVB) interlayer. Insulating glass units shall be installed in fixed frames using structural silicone sealant.

1.7. 11.4 Interior glazing shall be 1/4" minimum thickness float glass, or tempered safety glass where required by code. Interior glazing in fire-rated applications shall be transparent fire-rated ceramic glazing material.

1.7. 11.5 Interior window sills shall consist of a durable material such as 3/4" thick synthetic solid surface material, 3/4" marble, or anodized aluminum to match the window frames (min. 0.040" thick).

1.7. 12 Window Treatments: All exterior windows shall receive blinds. Provide interior between jamb mount, 3" wide vinyl curved vane room darkening vertical blinds. Blinds shall feature a steel channel top rail and braded slat support "ladder". Any steel features shall be treated for corrosion resistance. All blinds shall be capable of nominally 180 degree partial rotating operation by cordless wand and shall stack to one side. Finish: blind blade color shall be integral color. Colors shall be selected from manufacturers standard color pallets.

1.7.13 Casework: Plastic-Laminate-Faced Manufactured Casework: Provide casework in accordance with AWI standards for "Premium Grade". Contractor shall provide casework in as many as three different color schemes.

#### 1.7.14 Interior Equipment / Furnishings

1.7.14.1 Refer to Outfitting Drawings O101 and O102.

1.7.14.2 The Contractor shall provide all new furniture and equipment as indicated in the Outfitting Drawings. The Contractor shall provide design services, and provide structural support, utilities and utility connections for all equipment.

1.7.14.3 The Contractor shall relocate existing furniture and equipment that is identified on the Outfitting Drawings. Existing furniture and equipment is located on-base. The Contractor shall provide utilities and utility connections for all relocated equipment.

1.7.14.4 Metal Cabinets, Shelving and Work Surfaces for ESD Build/Storage Room

Provide the following as indicated on the Drawings. Model numbers are for Stanley Vidmar. Manufacturer's name & model numbers are given to establish a level of performance, quality & construction characteristics. Any substitution for a brand name item shall be equal in performance, quality and construction.

ITEM	MODEL	DESCRIPTION
1	SGWS60301	SG WORK SUR W/LGS 60X30 R FRT
2	101-11-097-2	
	1 SG0175	SG HOUSING - ST, 0175
	1 SG20SG58	SG20 DRAWER WITH LD SG58
	1 SG25SG68	SG25 DRAWER WITH LD SG68
	1 SG30SG68	SG30 DRAWER WITH LD SG68
	1 SG40SG88	SG40 DRAWER WITH LD SG88
	1 SG60SG108	SG60 DRAWER WITH LD SG108
	1 SL10	LOCKING DEVICE
3	101-11-097-3	
	1 SGWSS601820ABA	SGWSS-60X18X20, STL, PWR, 15A
	1 SGBPWSS6020A	SG BACK PANEL-60X20 WSS W/SHEL
4	LWPCC	LW PERSONAL COMPUTER CAB-MIL \$1,325.73 * \$1,325.73
5	101-11-097-5	
	1 XWS0340	SHELF CABINET - XW, 0340 (45"W X 27 3/4"D X 59"H)
	3 XWCS80	SHELF - XW
	1 STFXW	STACK TOP FEATURE - XW
	1 XWOS0155	OVERHEAD STORAGE CAB-XW, 0155 (45"W X 27 3/4"D X 27 7/8"H)
	1 XWCS80	SHELF - XW
6	101-11-097-6	
	1 SEP3110AL 0340	HOUSING WITH 10 DRAWERS, DRAWER ACCESS. & LOCKING DEVICE
	1 STFST	STACK TOP FEATURE - STD
7	101-11-097-7	
	1 SEP3163AL0340	HOUSING WITH 8 DRAWERS, DRAWER ACCESS. & LOCKING DEVICE
	1 STFST	STACK TOP FEATURE - STD
8	101-11-097-8	
	1 DWOS0155	OVERHEAD STORAGE CAB-DW, 0155 (60"W X 27 3/4"D X 27 7/8"H)
	1 DWCS80	SHELF - DW
9	101-11-097-9	
	1 SEP3110AL	0340 HOUSING WITH 10 DRAWERS, DRAWER ACCESS. & LOCKING DEVICE
	1 STFST	STACK TOP FEATURE - STD

<b>10</b>	101-11-097-10		
	1	SCU3126AL	0340 HOUSING WITH 10 DRAWERS, DRAWER ACCESS. & LOCKING DEVICE
	1	STFST	STACK TOP FEATURE - STD
<b>11</b>	101-11-097-11		
	1	SCU3189AL	0340 HOUSING WITH 7 DRAWERS, DRAWER ACCESSORIES & LOCKING DEVICE
	1	STFST	STACK TOP FEATURE - STD
<b>12</b>	101-11-097-12		
	1	DWS0340	SHELF CABINET - DW,0340 (60"W X 27 3/4"D X 59"H)
	3	DWCS80	SHELF - DW
	1	STFDW	STACK TOP FEATURE - DW
<b>13</b>	101-11-097-12		
	1	DWOS0175	OVERHEAD STORAGE CAB-DW, 0175 (60"W X 27 3/4"D X 31"H)
	2	DWCS80	SHELF - DW
<b>14</b>	101-11-097-13		
	1	OS0175	OVERHEAD STORAGE CAB-ST, 0175 (30"W X 27 3/4"D X 31"H)
	1	CS80	SHELF - ST
<b>15</b>	101-11-097-15		
	1	XWS0340	SHELF CABINET - XW,0340 (45"W X 27 3/4"D X 59"H)
	1	SFXW4	SPOOL FEATURE - XW,4 BARS
	1	STFXW	STACK TOP FEATURE - XW
	1	XWOS0175	OVERHEAD STORAGE CAB-XW, 0175 (45"W X 27 3/4"D X 31"H)
	1	XWCS80	SHELF - XW
<b>16</b>	101-11-097-16		
	1	XWS0340	SHELF CABINET - XW,0340 (45"W X 27 3/4"D X 59"H)
	3	XWCS80	SHELF - XW
	1	STFXW	STACK TOP FEATURE - XW
<b>17</b>	101-11-097-17		
	1	XWOS0175	OVERHEAD STORAGE CAB-XW, 0175 (45"W X 27 3/4"D X 31"H)
	2	XWCS80	SHELF - XW

1.7.15 Telecommunications Equipment Shelter

The Telecommunications Equipment Shelter (TES - Building #67) shall consist of a precast concrete structure with an exposed aggregate façade. The building shall be 12ft wide x 15ft long x 8 feet high (clear inside minimum dimensions) with a sloping roof. The shelter may be provided as one unit or be assembled on site utilizing precast wall, floor and roof panels. Finished building shall be weather tight. Provide double 3ft wide x 7ft high painted galvanized door and frame with grandmaster keyed lock. Doors shall have weather resistant louvers sized as required to accommodate the roof mounted exhaust fan (see Mechanical paragraphs of 01158). See other portions of this section for other trade work requirements. The TES shall be provided with a foundation as determined by the Contractor's geotechnical engineer.

## **1.8 STRUCTURAL DESIGN**

### **1.8.1 Design Load Criteria**

The design loads shall be determined in accordance with the ASCE Standard 7-05 entitled "Minimum Design Loads for Buildings and Other Structures." In the event of a conflict between the requirements of ASCE 7-05 and the requirements of any other specified or referenced codes, standards, or design manuals, the more stringent case shall govern. Consider all loads including but not limited to dead loads, live loads, snow Loads, wind Loads, and seismic Loads. Include all mechanical and electrical equipment loads. All Code required load combinations shall be investigated and design based on worst case for each element of the structure.

A minimum live load of 150 PSF shall be used for the mechanical room/mezzanine in the attic. Use higher loading if required by the selected equipment.

Wind Loading Criteria: Basic Wind Speed = 120 MPH, Exposure Category C, Importance Factor 1.15  
The facility shall be considered to be located in hurricane-prone region and wind borne debris region.

Seismic Loading Criteria: Spectral response accelerations per ASCE-7, Importance Factor =1.5  
Site Class shall be determined based on recommendations of the Contractor's own geotechnical consultant.

The facility shall be classified as Occupancy Category IV in accordance with IBC for purposes of load calculations.

### **1.8.2 Building Construction**

The facility will be a single story structure.

Exterior wall construction shall be as specified in 1.7 ARCHITECTURAL DESIGN. The CMU inner wythe of exterior cavity walls may be utilized as load bearing for structural design. See pertinent sections of paragraph 1.7 ARCHITECTURAL DESIGN for related wall and roof requirements such as insulation, exterior finish, veneer façade, etc. Cold formed metal trusses may be used for supporting the roof system. Provide complete gravity load and lateral load support framing. The exterior masonry shall be utilized as shear walls for resisting lateral loads wherever appropriate and possible.

Structures shall be designed in accordance with the International Building Code.

Deformations including horizontal drift, deflections, etc shall be considered in the structural design and be limited to acceptable industry standards. The anticipated foundation settlements shall be considered in design and detail of the structure to control cracking, distortion, etc. Construction and control joints shall be provided as required to limit cracking in walls, slabs, and masonry.

### **1.8.3 Building Foundation and Ground Floor Slab.**

Refer to 1.5 GEOTECHNICAL DESIGN for general related information.

Foundation and slab design shall be based on the recommendations of the Contractor's geotechnical consultant.

Ground floor is anticipated to be a floating slab on grade. Provide capillary and vapor barrier as recommended by the Contractor's geotechnical consultant

Provide slope and or depressions where required such as at locations of floor drains, rest rooms, etc.

## **Construct New ESD/CIVPERS Building #62**

US Coast Guard Base Support Unit Elizabeth City, NC

SFRL No. 32-3648867

### **1.9 DEMOLITION**

#### **1.9.1 Demolition**

1.9.2.1 Prepare a Demolition Plan and submit proposed salvage, demolition, and removal procedures for approval before work is started. Include in the plan 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. Identify components and materials to be salvaged for reuse or recycling.

1.9.1.2 Demolish existing Barracks building #61 and all related structures indicated to be removed down to a minimum of two (2) feet below top of finished grade. All walls, interior and exterior, other than retaining walls and partitions, shall be removed to a minimum of two (2) feet below grade or to top of concrete slab on ground. Break up and completely remove all building, equipment, and above ground slabs. All pavement within the demolition area shall be removed. All piles and pilecaps shall be removed down to six (6) feet below finished grade. Remove all sidewalks, curbs, gutters and light bases within the proposed demolition area unless noted otherwise.

1.9.1.3 Demolish structures in a systematic manner from the top of the structure to the ground. Complete demolition work above each tier or floor before the supporting members on the lower level are disturbed. Demolish concrete and masonry walls in small sections. Remove structural framing members and lower to ground by means of derricks, platforms hoists, or other suitable methods as approved by the Contracting Officer. Building, or the remaining portions thereof, not exceeding 80 feet in height may be demolished by the mechanical method of demolition. The use of explosives or blasting of any kind is not permitted.

1.9.1.4 Locate demolition equipment throughout the structure and remove materials so as to not impose excessive loads to supporting walls, floors, or framing.

1.9.1.5 Contractor shall sawcut pavement at the limits of any existing pavement to remain.

1.9.1.6 All existing active utilities providing service to other buildings and facilities shall remain in place or shall be relocated at the Contractor's expense. All service line utilities to the existing Thrun Barracks shall be removed back to the main line or the Contractor shall install a junction box or manhole at the point of termination.

#### **1.9.2 Existing Conditions**

Before beginning any demolition or deconstruction work, survey the site and examine the drawings and specifications to determine the extent of the work. Record existing conditions in the presence of the COTR showing the condition of structures and other facilities adjacent to areas of alteration or removal. Photographs sized 100 mm (4 inch) will be acceptable as a record of existing conditions. Include in the record the elevation of the top of foundation walls, finish floor elevations, possible conflicting electrical conduits, plumbing lines, alarms systems, the location and extent of existing cracks and other damage and description of surface conditions that exist prior to before starting work. It is the Contractor's responsibility to verify and document all required outages which will be required during the course of work, and to note these outages on the record document. Submit survey results.

#### **1.9.3 Items to Remain In Place**

Take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Government. Repair or replace damaged items to the original condition. Coordinate the work of this section with all other work indicated. Construct and maintain shoring, bracing, and supports as required. Ensure that structural elements are not overloaded. Increase structural supports or add new supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract. Do not overload pavements to remain. Provide new supports and reinforcement for

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existing construction weakened by demolition, deconstruction, or removal work. Repairs, reinforcement, or structural replacement require approval by the COTR prior to performing such work.

### 1.9.3.1 Salvage Requirements

The following items shall be removed and relocated on base where directed by the Base Facilities Engineering Department:

- a. Jersey and other large security planter barricades.
- b. Existing Generator in Mechanical Room with following plate information:  
Olympian, Model D200P4\_1, Serial # OLY00000JNNS00941, 250 KVA, 200 KW,  
480V/277V/3ph.

### 1.9.4 Existing Construction Limits and Protection

Do not disturb existing construction beyond the extent indicated or necessary for installation of new construction. Provide temporary shoring and bracing for support of building components to prevent settlement or other movement. Provide protective measures to control accumulation and migration of dust and dirt in all work areas. Remove dust, dirt, and debris from work areas daily.

### 1.9.5 Utility Services

Maintain existing utilities indicated to stay in service and protect against damage during demolition and deconstruction operations. Prior to start of work, utilities serving the existing Barracks building #61 will be shut off by the Government and the Contractor shall disconnect and seal the utilities. All other existing utilities serving other facilities on the Base shall remain in service at all times.

### 1.9.6 Dust and Debris Control

Prevent the spread of dust and debris onto airfield pavements and 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. Due to the close proximity to the airfield, Contractor shall sweep the airfield pavement daily during demolition activities and as often as necessary throughout construction to control the spread of debris that may result in foreign object damage potential to aircraft.

### 1.9.7 Traffic Control

Where pedestrian, driver, and aircraft safety is endangered in the area of removal work, use traffic barricades with flashing lights. Anchor barricades in a manner to prevent displacement by wind, jet or prop blast. Notify the COTR prior to beginning such work.

Provide a minimum of 2 aviation red or high intensity white obstruction lights on temporary structures (including cranes) over 30 m (100 feet) above ground level. Light construction and installation shall comply with FAA AC 70/7460-1. Lights shall be operational during periods of reduced visibility, darkness, and as directed by the COTR. Maintain the temporary services during the period of construction and remove only after permanent services have been installed and tested and are in operation.

### 1.9.8 Foreign Object Damage

Aircraft and aircraft engines are subject to FOD from debris and waste material lying on airfield pavements. Remove all such materials that may appear on operational aircraft pavements due to the Contractor's operations. The Contractor shall install a temporary barricade to control the spread of FOD potential debris. The barricade shall include a fence covered with a fabric designed to stop the spread of debris. Anchor the fence and fabric to prevent displacement by winds or jet/prop blasts. Remove barricade when no longer required.

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1.9.9 Disposition of Materials

Except for salvaged items specified in related Sections, and for materials or equipment scheduled for salvage, all materials and equipment removed and not reused or salvaged, shall become the property of the Contractor and shall be removed from Government property. Title to materials resulting from demolition and deconstruction, and materials and equipment to be removed, is vested in the Contractor upon approval by the Contracting Officer of the Contractor's demolition, deconstruction, and removal procedures, and authorization by the Contracting Officer to begin demolition and deconstruction. The Government will not be responsible for the condition or loss of, or damage to, such property after contract award. Showing for sale or selling materials and equipment on site is prohibited.

Dispose of debris, rubbish, scrap, and other non-salvageable materials resulting from removal operations with all applicable federal, state and local regulations as contractually specified. Storage of removed materials on the project site is prohibited.

Burning of materials removed from demolished and deconstructed structures will not be permitted on Government property.

1.9.10 Hazardous Materials

Remove and dispose of hazardous materials. Hazardous materials consist of:

- a. Fuel tanks
- b. Propane tanks
- c. Asbestos
- d. Lead
- e. Ozone depleting substances (ODS)
- f. PCB's, (Light Ballast, transformers)

1.9.10.1 Asbestos and Lead Demolition/Abatement Work

1.9.10.1.1 Thrun Hall is known to contain Asbestos and Lead Based Paint. The following reports indicate the known locations of these hazardous materials within the facility at the time of the reports. Friable asbestos shall be removed and disposed as required per state and federal regulations. The following HAZMAT Survey Reports shall be provided to the Contractor in electronic format on compact disk:

- a. A HAZMAT survey report entitled "LEAD, ASBESTOS, AND RADON ASSESSMENT REPORT #40 U.S. COAST GUARD SUPPORT CENTER ELIZABETH CITY HOUSING & UPH AND STATION HOBUCKEN" dated October 1998 as prepared by Woodward-Clyde Federal Services for Thrun Hall will be separately made available as part of these RFP documents. In summary, this report identified asbestos containing materials (ACMs) found during 1998 surveys. The electronic copy is abbreviated to eliminate housing and Station Hobucken.
- b. Additional recent HAZMAT testing / report specific to both suspected and verified ACMs in Annex B, dated October 2008 as prepared by URS will also be separately made available as part of these RFP documents.
- c. Another HAZMAT survey report entitled "Asbestos Survey of Thrun Hall" dated 1990 was prepared by AAA-Asbestos Analytical Association, Inc will be separately made available as part of these RFP documents.

1.9.10.1.2 If desired, the Contractor may utilize the information contained in above-noted HAZMAT survey reports as direction related to his work, or the Contractor may alternatively provide his own independent HAZMAT assessments, at his expense, as deemed necessary to properly scope and address all abatement, demolition, and new construction work related to this RFP.

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1.9.10.2 All encountered ODS and PCB's shall be properly handled and disposed per state and federal regulations.

1.9.10.3 Hazardous wastes may only be accumulated and shall be removed from the site within 90 days from the date of generation. The date of generation is the day that a waste is first placed in a container (drum or roll-off box), tank, or stockpile. Non-hazardous wastes shall be removed from the site as soon as possible.

1.9.10.4 Prior to offsite disposal of a regulated waste (hazardous waste, PCB wastes, asbestos waste), a waste approval package for each waste stream shall be prepared. This package shall include a waste profile naming Base Elizabeth City as the generator of the waste, analytical summary table(s) applicable to the waste, land disposal restriction (LDR) notification for any hazardous wastes, a completed waste manifest, and any other applicable information necessary for Base Elizabeth City to complete its review of the disposal package and signature as the generator.

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### **1.10 FIRE PROTECTION**

The fire protection design and construction work shall meet the applicable NFPA codes, and the occupancy type(s) shall be as determined by the latest edition of the International Building Code, unless specified otherwise. Provide fire extinguishers and cabinets in accordance with NFPA 10.

#### **1.10.1 Fire Detection and Alarm Systems and Mass Notification Systems**

1.10.1.1 Fire Detection and alarm systems: Provide complete, supervised automatic, microprocessor based addressable fire detection and alarm systems for coverage of the new ESD/CIVPERS Building. Provide detectors in all spaces; provide smoke detectors where not subject to false alarm by operations. Provide battery backup with a minimum of 24 hours standby and 15 minutes alarm. Provide power to the system control panel from an emergency power panelboard circuit breaker. Fire detection and alarm systems equipment shall be manufactured by Monaco Enterprises and shall be fully compatible for use with a Monaco Enterprises BT-XF Fire Communicator and Controller.

1.10.1.1.1 The pathway class designation for Initiating device circuits, signal line circuits, and notification circuits shall be Class A in accordance with NFPA 72. All wiring shall be run in dedicated conduit; loop wiring shall return to the control panel via separate conduit run. Provide line isolators at a minimum at each floor.

1.10.1.1.1 Provide a Monaco Enterprises BT-XF Fire Communicator and Controller and antenna for radio communication with the existing Monaco D-21G Fire management system located in the existing Fire House. Locate the antenna on the building as required for clear signal path transmission to the existing Fire House. Provide manufacturer's recommended cabling from the BT-XF unit to the antenna. Provide connections of the fire detection and alarm system to the BT-XF controller for monitoring of system status by the existing Monaco D-21G Fire Management System. Coordinate transmission frequencies as required with the COR and the BSU Elizabeth City Fire Department. Provide relay board, audio card and other features with the BT-XF as required for capability of receiving mass notification signals from the existing Monaco D-21G Fire Management system.

1.10.1.1.2 Provide clear strobes marked with the word "ALERT" with use by the building mass notification and fire alarm systems. Provide combination speaker/strobes to provide fire alarm tones and mass notification system voice messages.

1.10.1.1.3 Locate the Barracks Building fire alarm system control panel in the in the electrical room and provide a remote annunciator panel in the entry lobby area.

1.10.1.2 Mass Notification Systems: Provide a mass notification system in the new ESD/CIVPERS Building. The system shall have stand-alone capability operating with the building fire detection and alarm system. Control panel shall broadcast pre-recorded messages over the fire alarm speakers and on LED text signs with Local Operating Controls (LOC) for local control of the mass notification system. Provide text signs over the doors to each egress stairwell and over (or adjacent to) the substantial means of egress from the level of discharge. Provide exterior rated speakers that have a low profile appearance mounted on the outside of the building for mass notification use only. Provide proper overrides so that the Fire Alarm system takes precedence over the PA system and the Mass Notification systems takes precedence over the Fire Alarm and PA systems. Mass notification systems shall be compatible for use with the Monaco Enterprises fire alarm systems and equipment.

#### **1.10.1.3 Testing and Documentation**

Systems shall be subjected to complete functional and operational performance tests as required to verify proper operation. Fire detection and alarm system tests shall include testing of each installed initiating and notification appliance; the recommended tests in NFPA 72 shall be considered mandatory. Wiring shall be tested by 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. System

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tests shall include verification that signals are properly communicated between BT-XF Fire Communicator and Controller and the D-21G Fire Management System. The mass notification system tests shall include verification that messages are clearly audible throughout the buildings. Testing shall be coordinated with and witnessed by the COR and designated representatives of the BSU Elizabeth City Fire Department. After completion of successful testing, the Contractor shall submit required NFPA 72 documentation to the Contracting Officer and include a copy of the documents in the O&M Manual.

### 1.10.1.4 Operations and Maintenance (O&M) Manual

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

### 1.10.1.5 Training

Provide a minimum of 2 hours training for fire detection and alarm system and mass notification system operation. A video recording of the training shall be provided to the COR within 5 working days of completion of the training.

### 1.10.2 Fire Sprinkler Systems

1.10.2.1 Provide fire sprinkler systems that meet OSHA regulations, and NFPA codes. Design of the automatic sprinkler system shall be in accordance with NFPA 13, 75, 76 and 2001. Ensure that adequate water and pressure are available for the various types of fire suppression systems utilized within the building. Design of the wet pipe sprinkler systems and the clean agent fire suppression systems shall be by hydraulic calculations for uniform distribution over the design area and shall conform with all applicable NFPA standards. Calculations shall be provided/approved by a licensed professional engineer. Detail drawings shall conform to the requirements established for working plans as prescribed in NFPA 13. All contract requirements that exceed the minimum requirements of NFPA 13 shall be incorporated into the design. The Contractor's submittal shall be prepared by a NICET Level III or IV technician and sealed by a licensed professional engineer.

1.10.2.2 The entire facility, except Telecom Equipment Room 11, shall be protected by an automatic wet pipe sprinkler system in accordance with NFPA 13. Telecomm Equipment Room 11 shall be protected by an automatic clean agent fire protection system only in accordance with NFPA 2001. Sprinkler heads in Room 10 & 11 shall be protected with a wire cage. All piping located above the boundary of Rooms 10 & 11 shall be provided with drain troughs below the piping to prevent accidental leakage onto the equipment in these rooms. Each system shall be supervised and shall provide a signal to the fire department compatible with the present alarm equipment of the fire department in accordance with all applicable NFPA codes. The extinguishing systems shall be interconnected with the fire alarm system so as to provide indication of its activation to the fire alarm system. All Post Indicator Valves (PIVs) shall be electrically supervised. Provide switch with SPDT contacts to automatically transmit alarms upon flow of water. Alarm actuating device shall have mechanical diaphragm controlled retard device adjustable from 10 to 60 seconds and shall instantly recycle.

1.10.2.3 Formal Inspection and Tests (Acceptance Tests) Inspection and testing of the wet pipe sprinkler system is to be done in accordance with NFPA 25. The system shall be considered ready for such testing only after all necessary preliminary tests have been made and all deficiencies found have been corrected to the satisfaction of the equipment manufacturer's technical representative and written certification to this effect is received by the Contracting Officer. Submit the request for formal inspection at least 15 working days prior to the date the inspection is to take place. The control panel(s) and detection system(s) shall be in continuous service for a "break-in" period of at least 15 consecutive days prior to the formal inspection. Experienced technicians regularly employed by the Contractor in the installation of both the mechanical and electrical portions of such systems shall be present during the inspection and shall conduct the testing. All necessary tests encompassing all aspects of system operation shall be made and any deficiency found shall be corrected and the system retested at no cost to the Government.

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1.10.2.4 Full hydrostatic testing shall be completed prior to government request for acceptance testing. The contractor shall conduct full flow testing in conjunction with testing fire alarm devices associated with the fire alarm system. As a minimum, fire department personnel shall be present for final acceptance testing.

1.10.3 Manufacturer's Representative

1.10.3.1 Provide the services of representatives or technicians from the manufacturers of the clean agent system, the control panel, and detectors, experienced in the installation and operation of the type of system being provided, to supervise installation, adjustment, preliminary testing, and final testing of the system and to provide instruction to Government personnel.

1.10.4 Operations and Maintenance Manuals:

1.10.4.1 Provide operations and maintenance manuals for appropriate components for the fire protection systems.

1.10.5 Training:

1.10.5.1 Provide instruction of Coast Guard personnel for all fire protection systems and equipment. Duration of training shall be a minimum of four hours for each system or discipline. Videotaped training shall be provided to the users for operation and maintenance of all systems.

1.10.6 Fire Extinguisher Cabinets

Provide fire extinguisher and cabinets in accordance with NFPA 10. Semi-recessed cabinets shall be used in all public spaces, and shall have a natural aluminum finish with acrylic doors, sized for a 10-pound multi-purpose type extinguisher.

1.10.7 Fire Protection Requirements

1.10.7.1 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.

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### **1.11 PLUMBING**

#### **1.11.1 Requirements**

1.11.1.1 The plumbing design and construction work shall conform to the applicable requirements of the International Plumbing Code (ICC). Complete plumbing piping systems will be provided for the building. The plumbing installation shall include water, and sanitary services including all pipes, fixtures and equipment. The plumbing system shall be supplied by potable water main system and shall drain by gravity to the sanitary sewer system. Plumbing fixtures shall be provided where indicated on the drawings and as noted.

1.11.1.2 Domestic Water Heating system shall be selected on energy efficiency and a 40 year life-cycle-cost comparison, life-cycle costs shall include maintenance and replacement costs. Life Cycle Cost Analysis (LCCA) shall be performed using the latest version of the Building Life Cycle Cost (BLCC) computer program developed by NIST, and downloadable at [http://www1.eere.energy.gov/femp/information/download\\_blcc.html](http://www1.eere.energy.gov/femp/information/download_blcc.html). Domestic water heating system shall incorporate the requirements of the 2007 Energy Independence and Security Act and EPACK-2005. As a minimum, solar, gas, fuel oil and electric shall be compared in the LCCA for the domestic water heating equipment.

#### **1.11.2 Piping**

1.11.2.1 Drain, Waste and Vent (DWV) pipe and fittings shall be as approved by the ICC and in conformance with contractor's standard practices. Waste piping below ground supported slabs shall be cast iron or PVC to a point five feet beyond face of building.

1.11.2.2 Water piping shall be as approved by ICC, and in conformance with the contractor's standard practices. Solder shall be lead free. Provide water hammer arresters as required. All distribution water piping shall be protected from freezing. Above ground water piping shall be Type K hard-drawn copper. Fittings for hard-drawn copper shall conform to ANSI B16.22, Wrought Copper and Copper Alloy Solder Joint Pressure Fittings. Under slab water supply piping shall be limited to building service entrance only. All water piping shall be insulated.

1.11.2.3 The domestic water supply lines to each item of equipment or fixtures, except faucets, flush valves, or other control valves which are supplied with integral stops, shall be equipped with an accessible shut off valve to enable isolation of the item for repair and maintenance without interfering with operation of other equipment or fixtures. A pressure reducing valve shall be provided on each of the incoming water systems if required. Plumbing piping shall be sized to accommodate flush valve plumbing fixtures. Reduced pressure backflow preventers shall also be installed on make-up water lines for hydronic systems and on any other water lines feeding potentially harmful items/systems.

#### **1.11.3 Fixtures**

1.11.3.1 Fixtures shall be provided complete with fittings, and chromium or nickel -plated brass (polished bright) trim. All shutoff valves shall be metal construction. Plastic valves are not acceptable. All fixtures, fittings, and trim in the project shall be by the same manufacturer and shall have the same finish. . Handicap water closets, urinals and lavatories shall conform to Uniform Federal Accessibility Standards (Fed. Std. 795) for fixture height and safety insulation. Handicap lavatory faucets shall be UFAS compliant.

1.11.3.2 Lavatories shall be standard oval bowl formed into one-piece with the synthetic solid surface counter top. Faucets shall be single lever, washerless type and shall have all brass and copper waterways and ceramic valving, maximum flowrate shall be 0.5 gpm, provide with vandal resistant spray head. Drain/Strainer shall be copper alloy or stainless steel.

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1.11.3.3 Urinals shall be wall hanging, with integral trap and extended shields, ASME A112.19.2M, siphon jet, top supply connection, and back outlet. Flushometer valves shall be fixed volume piston type to accept low and ultra low consumption pistons only, 0.5 gpf. Waterless urinals shall not be used.

1.11.3.4 Water Closets shall be vitreous china, Siphon-jet, elongated bowl, top supply spud, wall mounted with white plastic, elongated, open front seat. Flushometer valve shall be fixed volume, 1.28 gpf, piston type to accept low and ultra low consumption pistons only.

1.11.3.5 Service Sinks shall be constructed of 16-gauge, type 304 stainless steel with a satin finish. Sizes: 24"wide x 24"deep single compartment or 36" wide x 24"deep single compartment. Sink compartment shall be minimum 14"deep with rolled edges and with minimum 8" back-splash for faucets with 8" centers. Sinks shall be floor supported on galvanized or stainless steel legs with 1" adjustable feet. Provide back mounted combination faucets with vacuum breaker, wall supported pail-hook spout, and 0.75 inch external hose threads.

1.11.3.6 Break Room / Counter Sinks shall be 22" x 22" and shall be constructed of #18 gauge, type 304 (18-8) nickel bearing stainless steel, self rimming. Bowl depth shall be minimum 6" deep and the underside shall be fully undercoated. Faucets shall be same as the bath faucets in material but designed for kitchen sink application. Break Room sink shall have a two-handle, counter mount, hi-arch design faucet with blade handles and spray. Sinks in the ESD Open Office and the STOR PKG room shall be 19" L x 17" W, single bowl. Sink in the Break Room shall be 23" L x 17" W, double bowl.

1.11.3.7 Electric Water Coolers shall be stainless steel, wall mounted, air-cooled condensing unit type, with minimum of 4.75 gph capacity meeting ARI 1010 requirements. Install per UFAS requirements providing front/side bar operation.

1.11.3.8 Exterior Wall Hydrants shall be freeze proof wall hydrants, with an integral vacuum breaker/backflow preventer provided at convenient locations at roughly 100 foot intervals around the exterior wall of the building and adjacent to mechanical room. Hydrants shall have 3/4 inch hose connections.

1.11.3.9 Showers: Provide handicapped accessible porcelain tile shower surround. The control valves shall have front access for adjustment and maintenance. Shower heads shall be adjustable. The faucet/handles shall meet UFAS requirements for the handicapped.

1.11.3.10 Floor Drains: Provide floor drains, where required and as indicated on RFP drawings, with drainage flange and slotted or perforated bronze or polished stainless steel strainers. Provide trap primers to floor drains in mechanical rooms and in locations used infrequently or where conditions might permit water seal to evaporate, allowing sewer gas or objectionable and contaminating odors to escape through drain.

1.11.3.11 Provide cold water connection to each refrigerator ice maker.

1.11.4. Major Appliance Plumbing Connections. The Contractor shall provide appropriate connections for all appliances, vending machines, and any other items requiring water and/or drain connections.

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

1.11.6 Testing: Plumbing systems shall be cleaned and tested in accordance with ICC International Plumbing Code and NFPA 54 (if applicable).

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**1.11.7 GAS DISTRIBUTION SYSTEM (WHERE PROVIDED)**

Gas distribution system shall be complete with master meter, connected to the existing main distribution system. Ensure main distribution system is adequate for the new gas loads or provide new to suit. Ensure the gas distribution system is designed in accordance with NFPA 54, local codes, utility company requirements, and installation requirements. Connection to existing gas distribution system shall be made at the location as shown on the site plan unless directed otherwise by Contracting Officer. The Contractor shall bear the cost of installation of all utilities. When connecting to existing steel piping systems, provision shall be made to ensure that the integrity of the cathodic protection is not compromised. Shutoff valves shall be polyethylene (Rockwell) and shall be provided on the exterior of the building. A gas regulator shall be provided. The building service entrance shall be installed at a height sufficient to allow for installation of the gas meter. Installation of gas piping shall be in accordance with NFPA 54.

1.11.7.1 Dirt Legs: Dirt legs shall be installed at the low points, immediately following reduction from high pressure to medium pressure (at supply points) and at occasional low points throughout the system to provide for blowing out the lines.

1.11.7.2 Valves: Plug valves shall be installed so that interruptions to service can be confined to the building.

1.11.7.3 Testing: Prove that the entire system of gas mains and service lines is gas-tight by an air test, in accordance with NFPA 54. The test shall continue for at least 24 hours between initial and final readings of pressure and temperature.

**1.11.8 Installation**

1.11.8.1 All Plumbing equipment and systems shall be installed in accordance with manufacturer's recommendations.

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

#### **1.12.1 Requirements:**

1.12.1.1 The mechanical design work and construction shall conform to the latest ASHRAE manuals and standards, ICC International Mechanical Code (IMC), SMACNA, EPACT 2005, 2007 Energy Independence and Security Act (EISA 2007), Leadership in Energy and Environmental Design for New Construction (LEED-NC), and NFPA. Outside design condition shall be based on ASHRAE's 99% values or documented local historic condition, whichever is more stringent.

1.12.1.2 HVAC systems shall be selected on 40 year life-cycle-cost comparison. Life-cycle costs shall include maintenance and replacement costs. Life Cycle Cost Analysis (LCCA) shall be performed using the latest version of the Building Life Cycle Cost (BLCC) computer program developed by NIST and downloadable at [http://www1.eere.energy.gov/femp/information/download\\_blcc.html](http://www1.eere.energy.gov/femp/information/download_blcc.html). As a minimum, geo-thermal, solar, chilled water and –DX systems shall be compared for the cooling equipment, and geo-thermal, gas, solar and electric shall be compared for the heating equipment. EPAct-2005 and ASHRAE 90.1-2007 are to be utilized as the baseline when estimating energy savings. Rooftop mounted equipment shall not be used. Large mechanical HVAC equipment shall utilize the mechanical mezzanine shown on the RFP drawings.

1.12.1.3 All areas of the building, with the exception of the Janitor's closet, Telecom Equipment Room 11, the mechanical fire protection room, electrical room, and emergency generator room shall be conditioned to meet ASHRAE 55 standards, to 72°F in the winter and 76°F in the summer in accordance with standard practices of the area. The HVAC systems selection shall be designed to accommodate all building operations and 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. 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.

1.12.1.4 If selected based on the LCCA, the geothermal system shall compose of a multitude of vertical wells with closed loop recirculating water piping, variable-speed pumping systems (with back-up), flat-plate heat exchanger(s), variable-speed recirculating water building loop system(s) for the heat pump systems, resilient-lined butterfly isolation and cut-off valves, and control valves, gauges, thermometers, DDC sensors, etc. Site-specific tests or information shall be attained, at contractor's expense, prior to geo-thermal system design to determine the number and depth of wells, K-factor, and other parameters required necessary for the system design.

1.12.1.5 Telecomm Equipment Room 11 shall have its own dedicated air conditioning system, configured for N+1 redundancy, connected to emergency power and conditioned to 64-75 degrees F, and 30%-50% humidity. The air conditioning system shall be located above the ceiling and shall have a ducted supply and return air distribution system sized to meet the room internal equipment loads. Any equipment located over this room shall have a drip pan installed under the equipment. NOTE: The approximate heat load in this space will be 85,000 BTU/hr.

1.12.1.6 HVAC system's for the ESD Build/Stor Room 10, ESD Offices, ESD Open Office and Male and Female toilets shall be connected to emergency power.

1.12.1.7 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. All outside air intakes/exhausts shall be located a minimum of 10 feet above grade.

1.12.1.8 Ventilation exhaust shall be continuous. Toilets/locker rooms and storage areas, when in A/C zones, may be treated by drawing conditioned air through these areas via exhaust systems if sufficient make up air is available. Provide thermostatically controlled ventilation for the Mechanical/Fire Protection Room, Generator Room, Electrical Room and Telecommunications Equipment Shelter. The ventilation fan shall have a two-speed motor, which is sized, at the high speed, to have adequate capacity to limit the room dry bulb

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temperature to a maximum of 10 degrees F above the outdoor dry bulb temperature when both equipment and ambient loads are at their maximum peaks. The high speed will be activated 10 degrees F below the maximum temperature at which the most sensitive item of equipment in the room can operate. The low speed will operate at 20 degrees F below that of the high speed.

1.12.1.9 Sea Salt Spray Resistance: Outdoor equipment coils and fan construction shall, as a minimum, be provided with metallurgy resistance to sea salt-laden air. Equipment furnished shall meet the requirements of ASTM B117 for 1,000 hours of salt spray exposure without exhibiting more than five percent No. 6 blisters in the field and no more than 1/8-inch (3.2 mm) creep corrosion and tape-off from area scribed to the base metal. Provide factory-applied protective coatings (such as Heresite TM or approved equal for coils and two-part epoxy for fans) for internal AHU non-stainless coil and fan components, and include all related heat transfer adjustment (de-rating) factors in coil capacity selections to assure net minimum loads are met in consideration of the coating(s).

1.12.1.10 Provide an emergency shutoff switch in the HVAC control system that can immediately shut down the air distribution system throughout the building except where interior pressure and airflow control would more efficiently prevent the spread of airborne contaminants and/or ensure the safety of egress pathways. Locate the switch (or switches) to be easily accessible by building occupants. Provide all outside air intakes, relief air, and exhaust openings with low leakage dampers that are automatically closed when the emergency air distribution shutoff switch is activated. The low leakage dampers shall have maximum leakage rates of 3 cfm/square foot with a differential pressure of one inch of water gage across the damper.

### 1.12.2 HVAC Controls:

1.12.2.1 Provide direct digital control (DDC) system for the building HVAC systems with complete interface/inter-operability with the existing basewide Siemens Energy Management Control (EMCS) Apogee System. Via Government telephone or data lines, the new DDC system shall be provided with remote monitoring access connected to the Facilities Engineering (FE) building or in a location directed by the COTR.

1.12.2.2 The system shall have stand alone digital controllers, a communication network, and control software. All 120-volt wiring shall comply with NFPA 70. All 24-volt wiring shall comply with the IMC and terminal device manufacturer's recommendations.

1.12.2.3 Controllers shall be stand alone with an internal clock and modem. Use controllers in a distributed control manner. The total number of I/O hardware points shall not exceed 48 in any controller. Provide sufficient memory for each controller to support required control, communication, trends, alarms, and messages. Provide communications ports for controller to controller, on-site interface, remote workstation interface, and telecommunications interface.

1.12.2.4 Provide separate I/O panels and all system inter-connecting digital communications bus cabling routed in metallic raceway as required. System shall operate with open-protocol communications compatibility (such as LonWorks or BACNet). Provide DDC control panels having any volatile memory with integral nickel-cadmium (or similar) battery backup.

1.12.2.5 Each air-conditioned space's temperature shall be monitored/controlled by the DDC System. Exact DDC control and monitoring point requirements for integration with the existing basewide Siemens EMCS Apogee System shall be coordinated with Facilities Engineering Department during the course of the design; however, as a minimum shall include (but shall not be limited to) the following. It is recognized that individual manufacturer equipment may have integral (on-board) operational and safety controls. Integral equipment safeties shall not be over-ridden by communications integration with the EMCS. Provide all necessary supplemental interfacing network communications hardware, software and communications signal bus to accomplish EMCS integration for remote status monitoring, control and alarm reporting. Provide, as a minimum, the following monitor and control points for each HVAC system components:

- (a) Supply Air, Return Air, Outdoor Air and Space Temperatures

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- (b) Hot/chilled Water Temperatures (If Applicable)
- (c) Chiller Low Flow, Low/High Pressure Alarms (If Applicable)
- (d) Humidity Levels
- (e) Fans status
- (f) Pumps status (If Applicable)
- (g) Dampers / Valves Positions
- (h) Boilers/Chillers On/Off and Start/Stop Status (If Applicable)

1.12.2.6 Thermostats shall have a user-adjustable +/- 2 degrees F temporary override with an adjustable timer and battery backup.

1.12.2.7 Software shall provide diagrams showing all control points, sensor locations, point names, actuators, controllers and where necessary, points of access, all superimposed on diagrams of the physical equipment with control system schematics, sequence of operations, and Controller, Motor Starter and Relay Wiring Diagrams.

1.12.2.8 Pneumatic controllers and components shall not be used.

1.12.3 HVAC ductwork:

1.12.3.1 All 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.

1.12.3.2 All HVAC equipment returns shall be ducted. Ceiling plenums are not allowed for return air usage.

1.12.4 HVAC System Testing:

1.12.4.1 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 Commissioning:

1.12.5.1 Commission all HVAC systems and equipment, including controls, and all systems requiring commissioning for LEED-NC Fundamental commissioning, in accordance with ASHRAE Guideline 1 and LEED-NC. The contractor shall hire the Commissioning Authority, certified as a Commissioning Authority by AABC or NEBB, as described in Guideline 1. The Contracting Officer's Representative will act as the Owner's representative in performance of duties spelled out under OWNER in Annex A2 of ASHRAE Guideline 1.

1.12.6 Operations and Maintenance Manual:

1.12.6.1 Provide Operations and Maintenance Manuals for all HVAC systems according to specification section 01781 "Operation and Maintenance Data".

1.12.7 Training:

1.12.7.1 Provide instruction of Coast Guard personnel for all HVAC systems and equipment according to specification section 01781 "Operation and Maintenance Data". Duration of training shall be a minimum of one hour for each system or discipline.

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1.12.8 Installation:

1.12.8.1 All HVAC equipment and systems shall be installed in accordance with manufacturer's recommendations.

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### **1.13 ELECTRICAL**

Electrical system design and construction shall comply with NFPA 70 and IEEE C2, as applicable. Install materials and equipment in compliance with applicable codes and manufacturers' printed instructions. In each code and standard referenced, consider advisory provisions to be mandatory as though the word "shall" had been substituted for "should" everywhere "should" appears.

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

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

1.13.1.1.1 Existing: Electrical power to Base Elizabeth City is provided by Dominion Electric Power; and is stepped down by Dominion Electric Power from 34.5 KV to 13.2 KV to serve Coast Guard owned 15 KV switchgear. Electrical power on the BSU is distributed from the switchgear via a ductbank and manhole system with two 13.2 KV feeders, identified as "13-1" and "13-2" with high voltage switches and pad mounted step-down transformers providing secondary voltage services to buildings and site facilities. Existing service to Thrun Hall barracks is provided from satellite substation "D" via Switch D2 adjacent to Building 63 which provides electrical service to transformers T61A and T61B (refer to reference drawing 32-C03124, sheet E201).

##### **1.13.1.1.2 New Work:**

1.13.1.1.2.1 Provide electrical service to the new ESD/CIVPERS Building from the existing 13.2 KV BSU electrical distribution system. Provide ductbank, manholes, conductors, medium voltage switch, high voltage transformer and other equipment as required to provide the new service. Provide connections to both feeders 13-1 and 13-2 so that service to the new ESD/CIPVERS Building can be provided from either feeder 13-1 or 13-2.

1.13.1.1.2.2 Provide electrical service to the new Telecommunications Equipment Shelter. Service may be provided from the new ESD/CIVPERS building electrical system or from the existing 13.2 KV BSU electrical distribution system. The service is not required to be on emergency power.

1.13.1.1.2.3 Remove the existing electrical service to the Thrun Hall Barracks building in conjunction with the building demolition. Remove existing transformers and 13.2 KV conductors serving the transformers back to their point of connection to the 13.2 KV distribution system; existing underground conduit extending above grade may be removed to one foot below grade and abandoned in place.

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

All conductors shall be installed in conduit; high voltage (>600 volts) conductors shall be run in a concrete encased ductbank with a minimum of one spare conduit. Underground conduit shall be rigid galvanized steel or PVC schedule 80, except conduit may be PVC schedule 40 where encased in concrete ductbanks, and may be PVC type EB where run in steel reinforced concrete ductbanks. Concrete ductbanks shall be steel reinforced where run under roadways and paved areas subject to vehicular traffic. Conduit in ductbanks shall be minimum size 4 inch and larger where specified. Provide duct spacer support for conduits in ductbanks. Provide a minimum three inches of concrete between encased conduit and the edges of the encasement; concrete shall have a minimum 3000 lb/in<sup>2</sup> compressive strength. Provide minimum 24 inch cover to the top of concrete ductbanks.

1.13.1.2.1 Provide detectable aluminum foil plastic-backed or detectable magnetic plastic warning tape a minimum of 12 inches above underground conduit and ductbank installations. Tape shall be a minimum of 3 inches wide and shall have continuous identification "CAUTION ELECTRIC CABLE BELOW" or similar imprinted on the tape.

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1.13.1.3 High voltage (>600 volt) cable shall be #350 kcmil, 15 KV, shielded 133% insulated copper type EPR with PVC jacket. Cable conductor shall be Class B stranded with conductor shielding. Insulation shielding may be metal tape or wire type.

1.13.1.3.1 Cable terminations shall be made by qualified personnel: submit medium voltage cable terminator certification of competency and experience to the Contracting Officer for approval 30 days before terminations or splices are made in medium voltage cables. Terminator experience during the immediate past 3 years shall include performance in terminating cables of the same type and classification as required.

### 1.13.1.4 Medium Voltage Switches

Medium voltage switches shall be pad mounted, front access, vault style, bottom entry, Sulfur Hexafluoride (SF6) gas vacuum interrupter type switch units with the characteristics listed below and complete with all accessories necessary for switch operation. All gauges shall be located on the front face of switches.

1.13.1.4.1 Maximum Design Voltage: 15.5 KV

1.13.1.4.2 Impulse Level (BIL): 110 KV

1.13.1.4.3 Continuous Current Rating: 630 Amp

1.13.1.4.4 Momentary Asym. Current: 40 KA

1.13.1.4.5 Dielectric: Nontoxic, nonflammable, SF6 gas.

1.13.1.4.6 Switch Contacts:

1.13.1.4.6.1 Source Switch: Switch contacts shall be of a linear, puffer style, tulip-bayonet design.

1.13.1.4.7 Operating Handles: Provide 2 position operating handles for each way. Handles shall provide quick-make, quick-break operation.

1.13.1.4.8 Construction Design: Switchgear shall be front access, dead front construction with vertically mounted, spread configuration bushings.

1.13.1.4.9 Bushings: Provide 15.5KV, 200A, deep well bushings.

1.13.1.4.10 Parking Stands: Provide one parking stand per bushing.

1.13.1.4.11 Fill Valve: Provide a fill valve to add SF6 gas.

1.13.1.4.12 Pressure Gauge: Provide gauge to continuously measure and display pressure of SF6 gas in tank.

1.13.1.4.13 Viewing Windows: Provide viewing windows for each way to visually verify the position of the switch contacts.

1.13.1.4.14 Grounding: Provide grounding connections for each switch way and one tank ground.

1.13.1.4.15 Mounting Frames: Provide galvanized steel mounting frames.

1.13.1.4.16 Tank & Enclosure:

1.13.1.4.16.1 The tank and enclosure shall be fabricated from Type 304 stainless steel.

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1.13.1.4.16.2 All hardware, hinges, etc. used in conjunction with the switchgear shall be stainless steel.

1.13.1.4.16.3 Welds and the immediate area around welds shall not show signs of corrosion when exposed to a moist salt air environment. Proper methods, such as the use of high chromium content weld rods, deburring, and chemical wash neutralizing shall be implemented during the manufacturing process.

1.13.1.4.16.4 The enclosure shall be capable of being padlocked. In addition to the regular locking provisions, the door shall be secured by a recessed, captive, pentahead bolt.

1.13.1.4.16.5 The switch enclosure shall be panted Munsell 7GY3.29/1.5 green. Paint coating system shall comply with ANSI C 57.12.28.

1.13.1.5 High Voltage (>600 volt primary) Transformers:

High voltage transformers providing power to the new buildings shall be pad mounted, dead front, 13.2 KV primary voltage, less flammable liquid insulated, two winding, 60 hertz, 65 degree C rise, self cooled, 95 KV BIL rated type. The high voltage compartment shall contain the incoming line, insulated high voltage load break connectors, bushing well inserts, load break switch handle(s), access to oil-immersed fuses, dead-front surge arresters, tap changer handle, connector parking stands and ground pad.

1.13.1.5.1 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.

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

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

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

1.13.1.5.5 Transformers 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.

1.13.1.6 Manholes shall be pre-cast or cast-in-place concrete with minimum six inch thick steel reinforced walls, top and bottom. Manholes shall have drain sumps approximately 12 inches in diameter and 4 inches deep. Manhole size shall be minimum 6' x 6' x 6'. Provide cable racks, pulling irons, ground rod and other accessories as required for cable installation. Manhole frames and covers shall be rated at H-20 truck load.

1.13.1.4 Provide electronic watt-hour demand metering for each building service. The meter shall be a "modbus" device compatible for use with AcquiSuite Firmware revision V01.05.0805b. Meters shall record KW, KVA, Power factor per Phase, Real-time load in kW, Amps per Phase and Volts per phase. A list of AcquiSuite supported devices is included in the reference documents.

1.13.2 Interior Electrical Systems:

1.13.2.1.1 ESD/CIVPERS Building: 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 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. Provide a manual transfer switch connected to the main service equipment and electrical service so that a portable generator

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could be connected to the switch to provide power to the main service equipment in the event of an extended power outage.

1.13.2.1.1 Telecommunications Equipment room: The electrical system in the telecommunications equipment room shall meet requirements of NFPA 75 and NEC Article 645 for Information Technology Equipment Rooms.

1.13.2.1.2 Telecommunications Equipment Shelter. Provide a service entrance panel with branch circuits to provide power to lighting and receptacles in the shelter; panel shall have a minimum of six 20 ampere branch circuit breakers. The shelter may be factory wired by the shelter manufacturer if a prefabricated unit.

1.13.2.1 Provide short circuit current analysis; coordination and protective device time-current study showing devices and settings; and flash-hazard analysis. Short circuit current rating and bracing of equipment shall exceed available fault current by at least 10 percent, based on calculated fault current values; use the infinite bus method for short circuit current calculations if actual system values are not available. Calibrate, adjust, set and test each new adjustable circuit protective device to ensure that they will function properly prior to the initial energizing of the new building electrical system. Arc flash hazard labels shall indicate specific values determined in the flash-hazard analysis.

### 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 with copper busses. Provide 10% spare circuit breakers and 10% space only for all panelboards. Do not use series rated circuit breakers. Do not use fuses unless required for short circuit coordination. 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, as practical.

### 1.13.2.4. Wiring methods:

All wiring, including wiring for fire alarm, public address, cable television, intrusion, CCTV and other systems, shall be installed in conduit, minimum size ½ inch except: 1) where larger sizes are recommended by equipment manufacturers or required for code compliance; 2) cable tray may be used to carry telecommunications cable; 3) Type MC cable may be used for branch circuit wiring run above suspended lay-in tile ceilings; and 4) where specified otherwise. 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 in offices and computer workstation areas.

1.13.2.4.1 Conduit shall be: rigid steel (zinc-coated); intermediate metal conduit, zinc-coated steel only; electrical metallic tubing (EMT); flexible metal conduit; liquid-tight flexible steel conduit; and other types as specified for special power systems.

1.13.2.4.1.1 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.

1.13.2.4.2 Cable tray may be aluminum ladder rack or welded steel wire basket type.

1.13.2.4.3 Conductors: All conductors shall be copper, manufactured within 12 months of date of delivery. Power and lighting conductors shall be minimum size #12 AWG, 600 volt, type THWN/THHN or XHHW.

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1.13.2.4.3.1 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); as a minimum in accordance with the following general criteria; and as otherwise specified. Receptacle outlets shall be specification grade, heavy duty, NEMA 5-20R duplex grounding type, wall mounted 15" above the finished floor unless specified otherwise. Receptacle outlets shall be connected to 20 ampere, 120 volt circuits 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 protected outlets per NFPA 70 and as specified. Receptacles connected to emergency power shall be red color.

1.13.2.5.1 General Criteria

a. Offices:

1) Private offices: Provide one duplex receptacle outlet for every 10 feet of wall space measured at the floor line with a minimum of one outlet on the three non-entry walls except that an outlet shall be provided on the entry wall when a CATV outlet is located on the wall.

2) Open offices:

Provide wall mounted duplex receptacle outlets at each workstation location shown on the RFP drawings. Provide additional duplex outlets so that no point in any wall space is more than six feet from a mounted receptacle outlet. Provide power connections to/for systems furniture in open office areas using wall, floor or ceiling outlet/distribution boxes as required for connection to pre-wired systems furniture wall panels or systems furniture receptacle outlets. Provide an overall minimum of one circuit for every three systems furniture workstations, with a maximum of four ungrounded conductors per homerun to the panelboard.

b. Conference rooms: Provide one outlet for every 10 feet of wall space measured at the floor line.

c. Countertops: Provide one general purpose outlet for every 3 feet of countertop, but not less than one per countertop, with outlets wall mounted 6 inches above the countertop surface. Provide general purpose outlets per specific space requirements where countertops are located, excluding counter top areas.

d. Lobbies/Vestibules/Corridors: Provide a minimum of one general-purpose hospital grade outlet for every 40 feet of lobby/vestibule/corridor length with a minimum of one outlet per space. Connect lobby, vestibule and corridor receptacles on circuits separate from those serving office areas.

e. Janitor's Closet: Provide a minimum of one GFCI type or GFCI protected outlet per space.

f. Toilet Rooms/Locker Rooms: Provide one GFCI type or GFCI protected outlet adjacent to each sink, wall mounted 6 inches above the counter top or top of the sink.

g. Telecommunications equipment room: Provide one general purpose wall outlet for every 12 feet of wall space measured at the floor line.

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Provide a dedicated 208/120 volt, three phase, four wire emergency power panelboard to provide power only to telecommunications equipment and not for general purpose receptacles and lighting fixtures. Provide panelboard disconnecting means in accordance with NFPA 75 and NEC Article 645. The panelboard shall have a minimum of three 30 ampere, 2 pole spare circuit breakers and thirty-two 20 ampere single pole spare circuit breakers. Provide disconnecting means for the panelboard in accordance with NFPA 75 and NEC Article 645 requirements. Contractor provided telecommunications equipment and equipment racks shall be connected to spare circuit breakers in the panelboard. Spare circuit breakers not utilized by the contractor will be utilized by the Government to provide power to Government provided equipment racks and equipment.

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

i. ESD Build/Storage Room: Provide a minimum of one GFCI type or GFCI protected duplex outlet every 24" of work bench length, mounted approximately six inches above the work bench surface at the work bench location shown on the south wall on RFP drawing 0101. Provide one general purpose duplex outlet for every 50 feet of wall length, with a minimum of one outlet per space in other locations.

j. Other spaces: Provide one outlet for every 50 feet of wall length, with minimum of one outlet per space.

k. Exterior: Provide GFCI or GFCI protected outlets near main building entrances and on the building perimeter so that there is at least one outlet in every 150 feet of exterior wall length. Outlets provided per NFPA 70 requirements for HVAC equipment maintenance may be counted as a required outlet.

l. Provide a duplex NEMA 5-20R receptacle outlet connected to a dedicated 20 ampere circuit for the following equipment:

Copiers

Drinking fountains

Vending Machines

m. Provide an outlet adjacent to CATV outlets where CATV outlets are located at 48 inches or higher above finished floors.

n. Provide a duplex outlet adjacent to overhead projector mounting locations. Provide empty conduit pathway from the projector location to a flush wall box for installation of audio/video cable by the Government.

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

p. 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.

q. Telecommunications Equipment Shelter: Provide a duplex receptacle outlet on each non-door wall; mount receptacles at 48 inches above the finished floor.

### 1.13.2.6 Lighting:

#### 1.13.2.6.1 Interior Lighting:

General Requirements: Interior illumination shall be provided by fluorescent and/or LED type lamps; incandescent lamps shall not be utilized unless they are only type of lamp available for a specific lighting application. Minimize the number of different lamp types utilized. Provide dimming for lighting of areas where tasking requires varying illumination levels (e.g. conference rooms).

Use the following target maintained illumination levels for the lighting design for the spaces listed; use IESNA recommendations for other spaces unless specified otherwise; calculations shall be based on the IESNA 36

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month LDD factor for the category of luminaire. Lighting levels in a given space shall not be less than 80% of target level; any reduction of illumination level below 80% of target illumination level for a space, such as in order to meet ASHRAE 90.1 lighting power density requirements or for obtaining LEED points for optimizing energy performance, shall be approved by the Contracting Officer.

<u>Space</u>	<u>Target Illumination</u>
Unoccupied spaces	10 FC
Storage, Corridors, Mech & Elec. Rooms	20 FC
Telecommunications Equipment Shelter	20 FC
Rest Rooms (toilets)	30 FC
Vestibules and lobby areas	20 FC
Conference Rooms	50 FC (dimnable)
Telecommunications Equipment room	50 FC
Offices	50 FC

1.13.2.6.1.1 Fluorescent fixtures shall have electronic ballasts. Maximize use of fixtures with T-5 and T-8 lamps. Fixtures in office and computer work areas shall be volumetric type; fixtures with minimum .156 inch thick prismatic acrylic lenses may be used in other finished areas. Industrial and strip fixtures with full solid steel end plates may be used in equipment rooms, shop spaces and other unfinished areas; fixtures shall have wire guards where subject to damage by operations in the space.

1.13.2.6.1.2 Provide wall mounted overmirror fixtures in toilet rooms in addition to ceiling mounted lighting fixtures.

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

1.13.2.6.1.4 Provide emergency battery lighting to illuminate paths of egress and in toilet rooms, mechanical electrical and telecommunications equipment 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.

1.13.2.6.1.5 Provide lighting controls as required by the International Energy Conservation Code with application of allowable exceptions for mechanical, electrical and telecommunications equipment rooms and other spaces where loss of light would endanger occupant safety.

1.13.2.6.1.6 Coordinate location of lighting fixtures in mechanical, electrical and telecommunications rooms with locations of equipment, duct, piping, cable trays and conduit runs to avoid blocking illumination from fixtures and to provide illumination of panelboards, equipment racks, controllers, equipment access locations, schematic diagrams, etc.

1.13.2.6.2 Exterior/Site Lighting

1.13.2.6.2.1 Provide exterior lighting for task illumination, physical security and personnel safety. Use IESNA recommendations for footcandle levels and average to minimum illuminance uniformity ratios except where higher illumination levels are required for physical security or special operations. Provide lighting utilizing pole mounted LED lighting fixtures. Parking area shall be illuminated using high cut off fixtures.

1.13.2.6.2.1.1 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.

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1.13.2.6.2.2 Provide LED type exterior building mounted wall pack lighting for illumination of all building entries and for illumination of adjacent approaches and sidewalks where exterior pole mounted lighting does not provide adequate illumination. Building mounted lighting shall be master or individual photocell controlled.

1.13.2.6.2.3 Provide LED lighting for walkways and sidewalks where building and parking lot lighting do not provide adequate illumination (per IESNA recommendations). Lighting may be provided by use of low (12 foot or less) pole mounted or bollard type lighting.

### 1.13.2.7 Emergency power:

1.13.2.7.1 Provide a standby diesel engine generator set with automatic transfer switch to serve a separate emergency power distribution system with distribution panelboards, wiring and raceway. 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. Locate generator and fuel storage 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 a 72 hour fuel supply for the generator based on fuel consumption at 100% rated load. A subbase fuel tank may be provided if there is least 4 feet clear space around the tank and the generator base is not more than 3 feet above the finished floor. Exterior diesel fuel tank, if utilized, shall be a factory fabricated, primary steel storage type with secondary containment, minimum 6 inch thick reinforced concrete encasement and spill overflow. Provide generator remote alarm panel in the ESD open office.

1.13.2.7.2 Provide emergency power for the following electrical loads, as applicable: all NFPA 101 required emergency and egress lighting; all lighting, power, telecommunications equipment loads and panelboards in the ESD open office(09), ESD private offices (07) and (08), ESD Build/Stor room (10), Telecommunications Equipment Room (11), Toilet rooms (18) and (19); the public address system; fire detection and alarm system; fire suppression system electrical equipment; all fixtures with battery power; lighting in areas with emergency power equipment; lighting sufficient for monitoring or operating equipment that will be operational during power outages such as in the electrical and mechanical rooms; refrigerator receptacles; building sewage lift stations; critical pumps such as fire water booster pumps; and HVAC equipment as specified in RFP specification section 01158, 12 "MECHANICAL". Emergency lighting other than egress or exit lighting shall be controlled by wall switches or occupancy sensors in the space where the fixtures are located.

### 1.13.2.8 Lightning Protection System:

Provide a lightning protection system for the new building. The system shall be master labeled by a testing laboratory or by a testing laboratory 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 maximum 20-foot intervals and with a minimum of one grounding well for ground rod access. All connections to the ground ring shall be exothermically welded.

### 1.13.2.9 Cable Television:

Provide conduit and wiring for provision of commercial CATV service. Provide service location in the Telecommunications Equipment Room with conduit and cabling run from the service location to: 1) the attic space for future connection of a roof or wall mounted satellite dish antenna; and 2) to a flush mounted type F wall outlet located in the ESD open office area. 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

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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. Contractor shall provide fuel required for testing and shall provide full fuel tank upon completion of testing.

1.13.4 Operations and Maintenance Manual

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

1.13.5 Training

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

## **1.14 TELECOMMUNICATIONS**

### **1.14.1 General Scope of Work**

1.14.1.1 Provide cabling pathway for local telephone company (TELCO) service to the facility. Make all arrangements with the TELCO and provide all materials and construction required by them for the TELCO demark location. The Government will make arrangements for parallel phone services until the new facility is fully operational.

1.14.1.2 Provide new telecommunications campus, backbone, and horizontal cabling infrastructure including cabling, work area outlets, equipment racks, patch panels, cable support tray, conduit paths, and miscellaneous support equipment. Installation shall comply with category 5e standards as annotated in the assignments and telecommunications terminations; and shall be designated in construction specifications, and on applicable shop prints. The Government will install all telecommunications cross-connections, and will provide patch cords for telephone and data circuits.

### **1.14.2 Contractor Requirements**

1.14.2.1 Contractor/subcontractor designing the campus backbone telecommunications cabling infrastructure shall be a certified BICSI RCDD or hold an industry equivalent certification.

1.14.2.2 Contractor/subcontractor performing campus/backbone telecommunications cabling installation shall be a certified BICSI ITS Installer 2, (Copper or Optical Fiber, as appropriate) or hold an industry equivalent certification or higher.

1.14.2.3 Contractor/subcontractor performing campus backbone telecommunications cabling testing shall be a certified BICSI ITS Technician or hold an industry equivalent certification or higher.

### **1.14.3 Existing Conditions:**

1.14.3.1 Electronics Support Detachment (ESD) Elizabeth City occupies approximately 1,100 SF of office and workshop space on the 2nd floor of Thrun Hall. The telephone exchange is housed in Thrun Hall's 860-SF Telephone Equipment Room located on the 1st floor. The Telephone Equipment room is critical to all Coast Guard operations as it houses the local telephone demarcation equipment and is the hub for all telecommunications services for the base.

1.14.3.2 There are no RF equipment or antenna requirements for this building.

### **1.14.4 General Requirements**

1.14.4.1 Design, provide, and test all campus, backbone, and horizontal cabling and terminations in accordance with (IAW) the TIA-568 standard.

1.14.4.2 Provide all cabling pathways and telecommunications spaces in accordance with the TIA-569 standard.

1.14.4.3 Conduit run design shall take into account cable diameter, necessary bend radius, maximum cable pulling tension and number of 90-degree bends. For instance, conduits used in a horizontal raceway system for telecommunications cabling shall have no more than two 90-degree bends (180 degrees total) and be no longer than 100 feet between pull points.

1.14.4.4 Provide additional pathway capacity for 100% growth, either by installing additional conduit or pathway, or by doubling the number of actual cables being installed and sizing the conduit or pathway to meet the increase in total cable count (both actual and potential growth).

1.14.4.5 Dust protection shall be provided for all active telecommunications equipment during construction periods, if applicable.

1.14.4.6 Provide plywood backboards in the Telco Entrance Facility, Equipment Room(s), and Telecommunications Room(s) IAW the TIA-569 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 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).

1.14.4.7 Administrative requirements of the telecommunications system shall be accomplished in accordance with the TIA/EIA-606 standard and shall include the layout of campus 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.

1.14.4.8 Grounding and bonding of the telecommunications infrastructure shall be designed and provided in accordance with the NFPA-70 and the TIA/EIA-J-STD-607 standard.

1.14.4.9 Provide equipment racks in the Telecommunications Room for terminating the horizontal telecommunications cabling. The racks shall be relay style with 19" mounting capability. The racks shall have at least 75 inches of vertical mounting space and shall comply with the TIA/EIA-310 standard. Provide a 3 feet minimum clearance space at the front, back, and on non-joined sides of telecommunications and electronic equipment racks. Placement of equipment racks in the ESD building Telecommunications Room shall be coordinated with the Contracting Officer's Representative due to additional equipment racks that will be provided and installed in this space by the Government.

1.14.5 Telecommunications Space Allocations and Usage

1.14.5.1 Entrance Facility/ Telecommunications Room:

1.14.5.1.1 Provide a minimum space of 23.5 feet by 29.5 feet (690 SF).

1.14.5.1.2 This room shall be dedicated only for telecommunications. It is the distribution point for the outside plan cabling on the base and this buildings backbone and horizontal data/voice cabling.

1.14.5.1.3 This room will house the base; telephone switch, public address system controller, TELCO-provided equipment and racks, computer server racks, and campus cabling. This room will also house the buildings; PA system, horizontal and backbone cross connects.

1.14.5.1.4 Location of the equipment racks provided by the Contractor within Telecommunications Room will be identified by the Government.

1.14.6 Grounding and Bonding

1.14.6.1 Provide a Telecommunications Main Grounding Bus-bar (TMGB) in the Entrance Facility/Telecommunications Room. The TMGB and TGBs shall be installed in accordance with the J-STD-607 standard.

1.14.6.2 The TMGB shall be a ¼" by 4" (nominal width) by 20" (minimum length) flat copper stock. The TMGB shall be drilled to accept two-hole bolt-on compression lugs. The TMGB shall be isolated from its mounting hardware and any building structural metal.

1.14.6.3 Bond all TGBs to TMGB using Telecommunications Bonding Backbone (TBB) sized according to J-STD-607 standard. Where a panelboard (electrical power panel) is located within the same space as a TGB, bond the alternating current equipment ground (ACEG) to the TGB. Grounding equalizers and bonding conductors shall be sized in accordance with the J-STD-607-A standard and no smaller than the Telecommunications Bonding Backbone (TBB) connecting the TMGB to the TGBs.

1.14.6.4 Bond all appropriate components (equipment racks, metal conduits, raceways, raceway segments, and ladder rack) to the ground system. Provide two-hole bolted type ground lugs for connection of each ground connector. Tie the TMGB/TGB grounding system to the building grounding electrode system in accordance with NFPA-70. Where a single electrode consisting of a rod, pipe, or plate does not have a resistance to ground of 25 ohms or less, an additional electrode shall be installed. Attachment to a cold water pipe is an unacceptable source of ground and shall never be used.

1.14.7 Outside Plant (OSP) or Campus Pathways and Cabling

1.14.7.1 OSP Pathways

1.14.7.1.1 All OSP conduits shall have a minimum diameter of four (4) inches. Provide OSP conduits as an underground conduit ductbank and manhole/handhole/pull box system in accordance with RFP specification section 01158, "1.13. ELECTRICAL", unless specified otherwise.

1.14.7.1.2 Provide conduit, manholes, handholes, and pull boxes IAW the TIA-758 standard. All conduit building penetrations shall be fire-stopped IAW the TIA-569 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. Provide conduits as follows:

1.14.7.1.2.1 Provide nine 4-inch conduits for telecommunications OSP copper and fiber optic cabling from the new building Entrance Facility to the new equipment shelter.

1.14.7.1.2.2 Provide three 6-inch conduits for telecommunications OSP copper and fiber optic cabling from the new building Entrance Facility to the new equipment shelter

1.14.7.1.2.3 Provide nine 4-inch conduits for telecommunications OSP copper and fiber optic cabling from the new equipment shelter to existing Manhole 12.

1.14.7.1.2.4 Provide three 6-inch conduits for telecommunications OSP copper and fiber optic cabling from the new equipment shelter to existing Manhole 12

1.14.7.1.2.5 Provide six 4-inch conduits for telecommunications OSP copper and fiber optic cabling from the new equipment shelter to existing Handhole 12.

1.14.7.1.2.6 Provide two 6-inch conduits for telecommunications OSP copper and fiber optic cabling from the new equipment shelter to existing Handhole 12.

1.14.7.1.2.7 Provide three temporary 6-inch conduits for telecommunications OSP copper and fiber optic cabling from the new concrete equipment shelter to the existing Thrun Hall telecommunications room. Note that this is a temporary run to be used by the Government for cabling runs during construction; the conduits shall be removed with the demolition of Thrun Hall. Concrete encasement is not required for the conduits as long as they are protected from damage from construction activities.

#### 1.14.7.2 OSP Plant Cable

1.14.7.2.1 Copper outside plant cable will be provided and installed by the Government.

1.14.7.2.2 Fiber outside plant cable will be provided and installed by the Government

#### 1.14.8 Horizontal Pathways and Cabling

##### 1.14.8.1 General Requirements

1.14.8.1.1 All horizontal cabling shall be CAT 5e and shall conform to the TIA-568 standard.

1.14.8.1.2 All work area outlets shall be terminated to Pin/Pair Assignment T568A IAW the TIA-568 standard, and shall be designated in construction specifications and on applicable shop prints.

1.14.8.1.3 Connections in the Telecommunications Equipment Room shall be terminated to Pin/Pair Assignment T568A IAW the TIA-568 standard and in rack-mounted, Category 5e patch panels using 110 style back planes. All patch panel ports shall be installed in a serial format at the patch panels to reflect the work area outlet numbering scheme.

1.14.8.1.4 Provide and terminate all CAT 5e cable IAW the TIA-568 standard. Provide Category 5e patch panels, equipment racks, and all other equipment and cabling required unless otherwise specified. Cross-connects will be provided and installed by the Government.

1.14.8.1.5 All horizontal cabling penetrations shall be fire-stopped IAW the TIA-569 standard.

1.14.8.1.6 All horizontal cabling and associated equipment and materials shall be built to conform to the requirements of the TIA-568, TIA-569, TIA/EIA-606, and TIA/EIA-607 standards and NFPA 70.

##### 1.14.8.2 Horizontal Pathways

1.14.8.2.1 Conduits from communications rough in locations to space overheads, under raised-floor spaces, cable trays, Equipment Room(s), and Telecommunications Room(s) shall be 1" minimum and shall be designated in construction specifications and on applicable shop prints.

1.14.8.2.2 Provide cable tray systems for the majority of the CAT 5e cabling runs. In local or low density areas, runs can either utilize J-hooks, or be run within conduit as home runs. Telecommunications raceway home runs shall be in a minimum 1" conduit. Home runs shall not be daisy chained.

1.14.8.2.3 Provide a cable tray system in the overhead of primary passageways, installed to be continuous with Telecommunications Equipment Room cabling points of entry, and installed to be continuous with the cable tray systems within each Telecommunications Equipment Room. The tray system shall be installed to ensure accessibility for future cabling runs. Provide additional cable tray system pathway capacity for 100% growth, either by installing additional pathway or by doubling the number of actual cables being installed and sizing pathway to meet the increase in total cable count (both actual and potential growth).

1.14.8.2.4 Cable tray sections shall be connected with electrically conductive clamps.

1.14.8.2.5 Provide a 24 inch ladder rack type cable management system in the Telecommunications Equipment Room.

1.14.2.8.5.1 The ladder rack tray system shall be mounted 8 feet above the finished floor or above door frames whichever is higher.

1.14.2.8.5.2 The ladder rack tray system shall surround the upper portion of all four walls, with a cross tray over the equipment racks.

1.14.2.8.5.3 The ladder rack shall be mounted in a way capable of supporting a minimum of five 600pr PE89 cables.

1.14.2.8.5.4 Ladder sections shall be connected with electrically conductive clamps.

1.14.8.2.6 CAT 5e cabling pathways shall not be used to run cabling for the Public Address, Closed Circuit Television, Cable Television, Intrusion Detection, or Fire Alarm systems; or for any Radio Frequency cabling.

#### 1.14.9 Telecommunications Work Area Outlet (WAO) Requirements

1.14.9.1 In general, each office work area shall have a minimum of one quadruplex outlet (drop) with four (4) 8P8C (RJ-45) style jacks. Do not color-code, or designate work area jacks as to intended usage. The choice of data or voice to a work area outlet jack will be determined in each Equipment Room/Telecommunications Room by cross-connects. All horizontal cabling shall be CAT 5e. CAT 5e runs shall not exceed 295' where 295' represents the total length of cable including horizontal, vertical, and bend distances. WAOs shall be provided in accordance with the following guidelines:

1.14.9.2 In office spaces, reception areas, and training rooms equal to or less than 100 SF, a minimum of one quadruplex outlet shall be installed.

1.14.9.3 In office spaces, reception areas, and training rooms greater than 100 SF, and equal to or less than 200 SF, a minimum of two quadruplex outlets shall be installed with each outlet on a separate wall.

1.14.9.4 In office spaces, reception areas, and training rooms greater than 200 SF, one quadruplex outlet shall be placed every 8 feet along each wall.

1.14.9.5 Modular (systems) furniture in open office spaces may require "power pole" drops from the ceiling in addition to wall outlets. Each modular work area shall have a minimum of one quadruplex outlet.

1.14.9.6 In conference rooms, one quadruplex outlet shall be placed every 10 feet along each wall.

1.14.9.7 Each shop area (excluding storage spaces) shall have a minimum of two duplex or quadruplex outlets installed with each outlet installed on a separate wall.

1.14.9.8 Where work areas are not clearly defined in open office spaces, a minimum of one quadruplex outlet per 100SF shall be provided. Outlet locations will be identified by the Government when the floor plan is developed during the design.

1.14.9.9 Central passageways, open bays, emergency generator spaces, break rooms, locker rooms (or locker room vestibules), and waiting areas shall have a minimum of one wall-mounted simplex outlet with one (1) 6-pin (RJ-11) style jack. Large open bays 1000SF or larger with access from opposite ends shall have a

wall-mounted telephone outlet installed at each end near the access door. These voice only single jack phone outlets are intended for direct mounting of wall mounted telephones on an outlet wall plate. Provide CAT 5e cable, jack, and outlet plate. The Government will provide and install the telephones.

1.14.9.10 Provide one quadruplex outlet at every designated printer, fax, and/or copier location.

1.14.9.11 Deep style (2.75" depth) or plaster ring style junction boxes shall be used for outlet jack installations at all quadruplex work area locations.

1.14.9.12 Telecommunications outlets shall be placed no closer than one foot from electrical outlets.

1.14.9.13 Partitioned outlet boxes designated for electrical and telecommunications terminations within the same outlet box shall not be used, unless circumscribed by modular furniture manufacturer.

1.14.10 Telecommunications Infrastructure Testing

1.14.10.1 Conduct tests on all copper cables in accordance with the TIA standards and contract specifications.

1.14.10.2 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.

1.14.10.3 Notify the Contracting Officer, in writing, and at least 10 working days prior to testing. 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.

1.14.10.4 Test all telecommunications grounds.

1.14.10.5 Category 5e testing shall be for Basic Link and not for Channel.

1.14.10.6 Submit hard and soft copies (Microsoft Office 2007 compatible) of test results to the Coast Guard.

1.14.11.1 General

1.14.11.1.1 Build and test the PA infrastructure in accordance with construction specifications and drawings.

1.14.11.1.2 Bogen 70-Volt PA system is used as the basis of design. The system shall provide zoned announcement throughout the new building. The system shall be provided with a loop-start trunk interface to allow dial-zone (DTMF) paging via the telephone system. The system shall be compatible with the existing Bogen PCM2000 base PA system controller.

1.14.11.1.3 The PA system shall have an All Call loudspeaker paging feature for critical announcements throughout the entire building. Local area loudspeaker paging zones shall be provided for paging and announcements in areas which share a common purpose or are similar in function. The system shall have a minimum of 4 zones. A detailed zone layout shall be coordinated with the Government and shown on shop prints.

1.14.11.1.4 The system shall be equipped with a minimum hardware configuration of mixer and preamp to control and balance signal inputs. Volume control shall be provided with an override relay to annunciate pages at full volume, regardless of volume control setting.

1.14.11.1.5 All required material for the PA system such as digital feedback eliminators, power supplies, cone speakers, horn-style loudspeakers, and mounting brackets, shall be of the same manufacturer.

#### 1.14.11.2 Requirements

1.14.11.2.1 Amplifiers with 70 VDC speaker outputs required for audio paging.

1.14.11.2.2 Phone line input to allow for telephone access to paging circuit.

1.14.11.2.3 Digital feedback elimination.

1.14.11.2.4 70 VDC 5-watt (maximum) interior speakers, with adjustable volume feature to cover the installation area being serviced. Ceiling type speakers shall be provided for office and hallway areas. Speakers are to be lay-in ceiling style where drop ceilings are installed. Lay-in speaker shall be installed with a ceiling bridge.

1.14.11.2.5 PA cabling shall be installed by using either a minimum of ½ inch conduit for each speaker run, a J-hook system, or a combination of both methods. All cabling shall be run in conduit or pathways separate from telecommunications (CAT 5e) conduit or pathway systems.

1.14.11.2.6 PA speaker cabling shall be stranded 2-conductor, PVC jacketed, shielded with drain wire, and 18AWG minimum (Belden 5300-FE cable is used as the basis of design).

#### 1.14.11.3 Public Address System Testing

1.14.11.3.1 Test the public address system in accordance with construction specifications and drawings. Testing shall include demonstration of receiving intelligible messages at each speaker location, at proper volume levels, without cross talk or noise.

1.14.11.3.2 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.

1.14.11.3.3 Submit hard and soft copies (Microsoft Office 2007 compatible) of test results to the Coast Guard.

End of Section

## **SECTION 01160**

### **CONSTRUCTION DESIGN DOCUMENTS**

#### **1.1 GENERAL DOCUMENTATION REQUIREMENTS**

The Contractor shall provide design documents for the demolition of the existing Thrun Hall Barracks and constructing the new ESD/CIVPERS 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 complies with the RFP Drawings and 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, RFP Drawings 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**

Contractor-produced Construction Design Documents shall be submitted 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**

1.5.1.1 Construction Design Drawings shall meet the applicable drawing standards contained in **Appendix L -Criteria for Computer Generated Drawings**. Electronic files ("dwg" and "pdf") shall meet the requirements of **Appendix M -Criteria for Electronic Deliverables**. Copies of those documents will be provided to the Contractor. Design drawings such as pre-engineered metal building systems, fire protection systems, special construction, etc. shall all comply with the above referenced standards (including the use of the USCG's titleblock).

1.5.1.2 USCG Civil Engineering Units and FDCC use AutoCAD 2009 software to develop 2D design and construction drawings. Contractor produced design and construction drawings may be prepared in ArchiCad 12 or Revit. If Building Information Modeling (BIM) software is used to produce design or construction drawings, interim progress submittals must include editable 2D DWG AutoCAD 2009 electronic files for site plans and floor plans. These site and floor plans may be used by FDCC for developing other plans for furnishings and equipment. At all submittals, drawings, specifications,

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calculations and data shall be supplied in Adobe "pdf" format. If BIM software is used for the design/construction drawings, the "model" file(s) shall be provided at each design submittal in addition to DWG files.

1.5.1.3 In the titleblock of each drawing, indicate the type (35%, 65%, Final, etc.) and the date of the design submittal. Edit the attributes in the 'ISSUE' fields for "MARK", "DATE" and "DESCRIPTION". These same fields shall be used to identify revisions to drawings after the "Corrected Final Design Submittal".

1.5.1.4 All As-built drawing files shall be 2D DWG files editable by AutoCAD 2009. Each As-built CAD drawing shall be a separate "dwg" file using the FDCC titleblock; multiple sheets may not be combined into one file.

1.5.1.5 A CD (compact disk) containing electronic files of the RFP Drawings, Appendix L –Criteria for Computer Generated Drawings, Appendix M -Criteria for Electronic Deliverables, RFP Specifications, Reference Drawings, Subsurface Data and other data as listed in Section 00102 List of Documents, Exhibits and Attachments will be provided to the Contractor for use in preparing the Contractor-produced Construction Design Documents.

### 1.5.2 Facilities Design and Construction Center Drawing Numbers

The Contractor-produced Construction Design Drawings shall be numbered in accordance with *FDCC's Adept File Naming Guide*, which will be provided to the Contractor prior to the Pre-design Meeting.

### 1.5.3 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. The Designers of Record shall also be responsible for validating design compliance of any and all design drawings prepared for construction of the project. This includes pre-engineered metal building systems, fire protection systems, special construction, etc.

### 1.5.4 Record Construction Drawings

Coordinate Record Drawing requirements with Section 01720 Record Drawings. The Contractor's Designer(s) of Record shall provide as-built CAD drawings. The modified as-built CAD 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 CAD files shall have all XREFs "bound" (inserted), so that there is only one electronic file required per drawing sheet. CAD as-built drawing sheets shall have the Description: "AS-BUILT" inserted in the "Issue" portion of each titleblock along with the date and mark.

### 1.5.5 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. Designated Coast Guard officials will include the Facilities Engineer at Base Support Unit (BSU), as well as FDCC'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

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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.

## **1.6 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.

### **1.6.1 Specifications Furnished with this RFP**

Even though a separate bound specification is not required, the requirements of Section 01158, "Design/Build Criteria", 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.

#### **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.

#### **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.

## **1.7 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.

## **1.8 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. Deviation requests shall clearly present the proposed change and how the change differs from the RFP, why the change needs to be made or why the change is in the Government's best interest. Any differences in cost (adds or deducts) shall be included in the request.

The Government's 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.

## **1.9 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 five working days in advance.

## **1.10 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 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 five site inspections for each designer of record (architect, civil, 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 Officers Representative 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. 35% Construction Design Documents Submittal  
(LEED Submittals & Mechanical Calculations Only. See paragraphs below under heading "LEED Submittal Efforts")
- b. 65% Construction Design Submittal
- c. Final Construction Design Documents Submittal
- d. Corrected Final Construction Design Documents Submittal

#### **2.1.2 Design Reviews by FDCC**

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

*Contracting Officer  
Facilities Design and Construction Center  
5505 Robin Hood Road Suite K  
Norfolk, VA 23513-2431*

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In addition to FDCC, distribute one set of the required submittals to other USCG units/persons. Other recipients are:

*Facility Engineer  
USCG Base Support Unit Elizabeth City  
1664 Weeksville Road  
Building 97  
Elizabeth City, NC, 27909*

2.1.2.1 Government Review and Contractor Responses

As part of the Government's reviews, there will be "critical" and "non-critical" comments identified. The Contractor shall provide responses to "critical" review comments within 7 calendar days of receipt of the Government's comments. Should the Contractor have "do not concur (DC)" responses or desire "further discussion (FD)" to "non-critical" comments, the Contractor shall provide those responses within the same 7 calendar days. The Government's desire is that consensus shall be reached between the Government and the Contractor on all "critical", DC and FD comments before proceeding with the design related to those comments/responses. Should the Contractor proceed with the design prior to reaching consensus, it is doing so at its own risk. Responses to other "non-critical" review comments may be returned with the next design submittal.

2.1.2.2 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 FDCC and ends when submittal leaves FDCC.

- |    |  |                  |
|----|--|------------------|
| a. | 35% Construction Design Submittals:<br>(LEED Submittals Only, See paragraph 2.1.5.1) | 14 calendar days |
| b. | 65% Construction Design Submittal:   | 21 calendar days |
| c. | Final Construction Design Submittal:   | 14 calendar days |
| d. | Corrected Final Design Submittal   | 14 calendar days |

2.1.2.3 Quantities of Construction Design Documents

- a. For the 35% Construction Design Submittal: Submit six copies of Drawings and four copies of all other documents.
- b. For the 65% Construction Design Submittals: Submit ten copies of half-size (11"x17") design drawings and specifications, and three copies of calculations, manufacturer's product catalog data, and supporting data. Return the comments from the 35% submittal with Contractor responses to each Government comment. Provide one CD with drawing, specifications, calculations and data files.
- c. Final Construction Design Submittal: Submit ten copies of half-size (11"x17") design drawings and specifications. Submit three copies any new (or revisions to 65%) calculations, manufacturer's product catalog data, and other supporting data. Return the comments from the 65% submittal with Contractor responses to each Government comment. Provide one CD with electronic drawing, specifications, calculations and data files.
- d. Corrected Final Construction Design Submittal: Submit one full-size set of sealed and signed original drawings, and ten copies of half-size drawings reproduced from the full-size originals.

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Submit two copies of any revisions to Final calculations and other supporting data. Return the comments from the Final submittal with Contractor responses to each Government comment. Provide one CD with electronic drawing, specifications, calculations and data files.

### 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 2 compact disks with electronic drawing, specifications, calculations and data files.

### 2.1.4 Revisions to Corrected Final Construction Design Drawings

Any Variations to Corrected Final Design documents must be brought to the attention of the Contracting Officer (as defined above). Deviations from the Corrected Final Design drawings must be submitted for approval by the Contracting Officer (as defined above). 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

#### 2.1.5.1 35%, 65%, Final, and Corrected Final Construction Design Submittals

Contractor shall submit an analysis of the anticipated LEED-NC prerequisites and credits planned to submit for certification as follows:

- a. A short narrative describing the design and construction the LEED-NC approach for attaining the required prerequisites and targeted credits
- b. Total Credit Scorecard
- c. A statement signed by a LEED-AP Project Administrator or a registered professional engineer or an architect that in their opinion the LEED-NC items listed in "a" and "b" above, will provide at least the minimum points required to meet the LEED-NC classification of "Silver."

#### 2.1.5.2 Final Certification Submittals

After the LEED Certification is approved by USGBCI, the Contractor shall submit 2 compact disks with electronic files to include the follow:

- a. Final Credit Scorecard
- b. LEED On-line templates
- c. Uploaded documentations
- d. Energy & Daylight Modeling/Calculations/Analysis
- e. Credit Interpretations Ruling (CIRs), if applicable

2.1.5.2.1 After the LEED Certification approval by USGBCI, the Contractor shall submit the USGBC LEED Plaque to FDCC. Submission is to include all necessary plaque mounting accessories from USGBCI.

2.1.5.2.2 Contractor shall submit two miniature free standing LEED Certification Plaques (glass finished type) to FDCC. Each miniature LEED Certification Plaque shall have project title, location, level and year of certification mounted on front.

## **2.2 SITEWORK AND CIVIL WORK DESIGN SUBMITTAL**

### 2.2.1 Sitework and Civil Work Design Drawings

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

### 2.2.2 Civil Construction Design Calculation Submittal

Provide design calculations at the first Construction Design submittal.

### 2.2.3 Civil Construction Design Specifications and 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] [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 the 65% 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:

- a. Material strengths, such as  $f'_c$  for concrete,  $F_y$  for steel, or  $F_b$  for timber.
- b. Codes and criteria used
- c. All waterfront design loads
- d. Pile data or allowable soil bearing capacity

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 Specifications and Documents:

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Specifications and documents shall be in sufficient detail to show compliance with the RFP contract requirements.

2.4.3 Structural Calculations: Provide at first Construction Design Submittal.

## **2.5 ARCHITECTURAL**

2.5.1 General

On the first sheet of the first submittal of Architectural Construction Design Drawings, provide building code information (i.e. 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.

Finish, door and other similar schedules shall be included in the drawings as opposed to locating them in specifications and manuals.

2.5.3 Architectural Rendering:

No later than the 65% Architectural Construction Design Submittal, submit two perspective sketches of the building and its surroundings for review for development of a rendering. Should neither of the sketches be acceptable, additional sketches shall be prepared at no additional cost to the Government.

After acceptance of a perspective sketch, develop the sketch into a professionally prepared two dimensional (2D) architectural rendered perspective in color, nominally 16" x 28" in size. Submit completed fully rendered color perspective using the sketch submitted at the first submittal with Government comments incorporated as part of the Final Construction Design Submittal.

After review of the rendered perspective, provide the following within 30 calendar days:

- a. Three full-size renderings, matted with a nominal 24" x 36" frame, covered with regular clear glass, and mounted in a black metal frame, complete with hanging hardware; include the Project Name, Location and Activity, and the Contractor/A/E firm's name centered in the lower matte area. Rendering shall be "dry mounted" to a stiff backer board to prevent wrinkling, and insure that the finish product remains flat.
- b. Five 8" x 14" unframed color photographs; and
- c. One electronic digital (jpeg) image (at 300 dpi minimum) of the rendering saved on a compact disc.

## **2.6 FIRE PROTECTION DESIGN**

2.6.1. Fire Detection and Alarm System Construction Design documents shall be in sufficient detail to show compliance with the RFP contract requirements. Fire Detection and Alarm system design drawings may be provided as a separate discipline or included with the electrical plans. Design work and shop drawings shall be prepared by a licensed engineer or a NICET (National Institute for Certification in Engineering Technologies) Level III or Level IV technician.

2.6.1.1 Floor Plans

Provide floor plan(s) showing locations of fire alarm system devices. Fire alarm plans shall be separate from plans for lighting, power and telecommunications plans.

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2.6.1.2 Riser Diagrams

Provide system riser diagram on design drawings as required to convey zoning and other required system characteristics for system installation. Provide riser diagram with shop drawings showing complete system installation.

2.6.2 Fire Protection System Construction Design Documents shall be in sufficient detail to show compliance with the RFP contract requirements and shall be in accordance with NFPA 13. Provide Construction Design Documents NLT than Final Construction Design Documents Submittal. Design work and shop drawings shall be prepared by a licensed engineer or a NICET (National Institute for Certification in Engineering Technologies) Level IV sprinkler technician.

**2.7 MECHANICAL DESIGN**

2.7.1 General

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

2.7.2 Mechanical Construction Design Documents:

2.7.2.1 Heating, Ventilating and Air Conditioning Plans:

2.7.2.1.1 Show a functional layout of mechanical features such as equipment location, ductwork, and all associated accessories.

2.7.2.1.2 Provide complete schedules for all equipment.

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

2.7.2.2 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.

2.7.2.3 HVAC Calculations: Provide HVAC Load Analysis, pressure calculations and life-cycle cost analysis NLT the 35% Construction Design Submittal prior to any acceptance of any specific systems selection. Ensure that LEED, sustainability, and EPACT 2005 requirements are incorporated. The load analysis shall be done utilizing one of the commercially available HVAC programs, such as those developed by Carrier, Trane, Elite, etc. 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. Life Cycle Cost Analysis (LCCA) shall be in report form and include an executive summary, quantitative comparison of the systems analyzed and a conclusion justifying the selection of the system based on the submitted data.

2.6.2.4 Plumbing Plans:

Showing fixture, equipment location, piping runs and all associated accessories; include the following:

- a. Legend and symbols for each item indicated on the drawings.
- b. Location of fixtures, associated equipment, and piping.

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- c. Show locations of all access panels required to service, replace or operate concealed plumbing fixtures (isolation valves, water hammer arrestors, shower control valves, etc.)
- d. Provide one-line isometric riser diagrams of major piping systems.

2.6.2.5 Plumbing Calculations: Provide plumbing calculations at 65% Construction Design Submittals, and with Pre-Final (if changed). Provide Life-Cycle Cost Analysis (LCCA) no later than the 65% Construction Design Submittal and prior to any acceptance of any specific systems selection. Ensure that LEED, sustainability, EISA 2007 and EPACT 2005 requirements are incorporated. Life Cycle Cost Analysis (LCCA) shall be in report form and include an executive summary, quantitative comparison of the systems analyzed and a conclusion justifying the selection of the system based on the submitted data.

## **2.7 ELECTRICAL DESIGN**

### **2.7.1 General**

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

Ensure that LEED and sustainable design documentation (including life-cycle-costing studies) is provided NLT the 35% submittal effort prior to any system acceptance.

### **2.7.2 Electrical Construction Design Documents:**

#### **2.7.2.1 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.

#### **2.7.2.2 Site Plan**

Provide site plan drawing(s) showing existing and new conditions including locations of new equipment shelters, manholes/handholes/pullboxes, ductbanks and underground conduit, light poles and other new electrical equipment. Electrical and telecommunications site work may be shown on common site plan drawings.

#### **2.7.2.3 Floor Plans**

Provide separate floor plan(s) for lighting and power. Note, telecommunications and public address system plans and details shall be maintained on separate plans.

#### **2.7.2.4 Riser Diagrams**

Power One-Line/Riser Diagrams: Provide a power and/or one-line diagram showing the service feeder, distribution transformer, 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.

#### **2.7.2.5 Schedules**

- a. Lighting Fixture Schedule
- b. Panelboard Schedules

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### 2.7.3 Electrical Design Calculations

Submit design calculations for the following requirements:

- a. Short Circuit Current Analysis: Provide calculations for the electrical distribution system based on the one line/riser diagram.
- b. 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.
- c. 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).
- d. Generator Sizing: Provide calculations based on connected emergency power load and starting KVA load.

## **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:

2.8.2.1 Floor Plans: Provide floor plans, separate from electrical plans, showing locations of telecommunications work area outlets and wall phones; space details including location of plywood backboard, grounding bars, conduit entries, and equipment rack locations; and cable tray systems both within the telecommunications room, and throughout the floor plan.

2.8.2.2 Riser Diagrams: Provide riser diagram(s) as required to show cabling backbone distribution.

2.8.2.3 Elevation Diagrams: Provide elevation diagram(s) as required to show equipment rack locations for horizontal patch panels, and locations for other required equipment within the telecommunications space(s).

2.8.2.4 Site Plans: Provide a Telecommunications Site Plan showing locations of exterior telecommunications equipment, conduit, and cable runs to the source of connection. Exterior electrical, telecommunications, and special systems may be shown on a common site plan.

2.8.2.5 Public Address System Plans: Provide a public address system block diagram showing system components and connectivity. Include floor plans showing speaker locations and style.

-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 SUBMITTALS**

SD-01 Preconstruction Submittals

Schedule of Prices for permits, design, LEED, and construction activities

##### **1.3 SUBMITTALS DURING DESIGN**

- a. Permit (application and submission)
- b. Initial Design Submittal (see section 01160 "Construction Design Documents")
- c. Initial Leadership in Energy and Environmental Design (LEED) documentation (see section 01160)
- d. Final Design Submittal (see section 01160)
- e. Construction Submittal Reviews
- f. Site Visit Reports During Construction (see section 01160)
- g. Final Inspection Reports (see section 01160)
- h. LEED certification
- i. As-Built Design Drawings (see section 01160)

##### **1.4 SUBMITTALS DURING CONSTRUCTION**

###### **1.4.1 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" that includes (form FDCC-4) and the required payment certification that are available from the Contracting Officer. Electronic copies are available.

###### **1.4.1.1 Documentation for Materials Delivered But Not Installed (During Construction)**

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.

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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.

Payment request for LEED certification may be made upon submission of necessary documentation to the Green Building council

### 1.4.1.2 Required Schedule Updates

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

## 1.5 TIMING FOR SUBMITTALS DURING CONSTRUCTION

### 1.5.1 Initial Submission

Submit an original schedule of prices with the progress documentation required by section 01320 "Design-Build Progress Documentation" for the Government's approval in accordance with section 01320.

### 1.5.2 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. The contractor may elect to separate the design activities from the construction activities. However, the items listed on the schedule of prices (construction portion) shall match the activities listed on the complete network 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 construction work, design phases, unit prices and extended prices therefore.

#### 3.1.1 Design Phase Schedule of Prices during Design

The following design and permit sub-categories shall be included and values provided on the schedule of prices:

- Draft Permit(s) for review
- Final Permit (ready for signatures)
- 65% Construction Design Submittal
- Final Construction Design Documents Submittal
- Corrected Final Construction Design Documents Submittal
- LEED Documentation
- Any Design Option

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See Section 01160, Design-Build Design Documents for definition of submittal requirements. Pre-final design percentage should not exceed 55% of the total design price. The entire section (3.1.1) should total not greater than eighty percent (80%) of the total design bid price.

### 3.1.2 Design Phase Schedule of Prices during Construction

The following design sub-categories shall be included and values provided on the schedule of prices:

- a. Construction Submittal Reviews
- b. Site Visits During Construction & Final Inspection\*
- c. As-Built Drawings
- d. LEED documentation (allow minimum of \$50,000 in schedule of prices for LEED documentation, which will be paid after successful submission of documents to the Green Building Council)

\* 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. The entire section (3.1.2) should not exceed twenty percent (20%) of the total design price

### 3.1.3 Construction Phase Schedule of prices

As noted in paragraph 3.1.1, the schedule of prices shall be prepared in conjunction with the development of the complete performance schedule. The items listed on the schedule of prices (construction portion) shall match the activities listed on the complete network schedule. Use unit prices for items when practical (provide quantities, units, labor and materials). When a lump sum price is used, a single payment will be made after the item is 100 percent complete. Allocate certain "overhead" expenses such as field superintendent, temporary facilities and general conditions across all line items, do not show as individual expenses in the schedule of values. Once approved, the values listed in the schedule of prices shall not be changed. The fields for the schedule of prices are defined below:

- a. ID # - The identification or activity number shall be obtained from the complete performance schedule. ID #'s shall not change after the schedule of prices is approved by the Government.
- b. Activity Description – The activity description shall be obtained from the complete performance schedule for the corresponding ID #.

### 3.1.4 Contract Modifications

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

## 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

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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 that is the sum of the activity cost field column values that 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 that 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 that 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 that 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.

**3.2.1.2 LEED Activities**

Separate the design portion of LEED preparation from the construction portion and include as two separate line items on the pay voucher.

End of Section

**SECTION 01320**

**DESIGN-BUILD PROGRESS DOCUMENTATION**

**1. GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 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 Critical Path Method (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.

**1.3 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

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completion of all physical and administrative requirements under this Contract and any authorized 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.

### 1.4 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.

### 1.5 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.

- 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.

## **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
  - 65% Design Submission (including Leadership in Energy and Environmental Design (LEED) documentation)
  - Government Review (21 days review)
  - Pre-final Design Submission (including Leadership in Energy and Environmental Design (LEED) documentation)
  - Permits requiring Government signature including stormwater discharge permit
  - Government Review (21 days review)
  - Final Design Submission (14 days)
  - Final Design (including LEED documentation)
- 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 using 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)
  - 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.
  - Commissioning Activities
    - Galley (Kitchen equipment)
    - LEED certification and documentation
    - Submission of LEED documentation to Green Building Council
    - Mechanical Testing & Balancing Report Submitted
    - Mechanical Testing & Balancing Approval (21 day duration)
    - Draft Operation and Maintenance (O&M) Manuals Preparation

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- 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
  - 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.
- LEED Documentation to Green Building Council
- Mechanical Testing & Balancing Report has been approved.
- Commission Reports are done
- 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.

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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.

### **3. EXECUTION**

#### **3.1 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.

#### **3.2 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

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following components of the Contract CPM Schedule:

1. A time-scaled plot of the schedule network in PDM format showing logic ties for all activities including submittals and procurement activities.
2. The narrative described in Subparagraph 3.02-A-6 above.

### **3.3 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.

### **3.5 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

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at weekly intervals.

### **3.6 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.

### **3.7 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.

### **3.8 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 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.

### 3.9 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.

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2. The schedule of anticipated adverse weather below will constitute the base line for monthly (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, using 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
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4. Contract No.	Project Title	Location	5. Date
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6. Weather:	A.M.	Temperature	P.M.	Temperature
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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

#### 1. GENERAL

##### 1.1 PERMIT, DESIGN, LEED 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. Leadership in Energy and Environmental Design (LEED) Submittals during design to Green Building Council (GBC). See requirements in Section 01160 for required LEED submittals, quantities of LEED submittals and other pertinent requirements
- D. 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.
- E. LEED Submittals During Construction. Submit data required by designer of record required to ensure project attains contracted LEED certification requirement to the GBC.
- F. 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.
- G. See section 01320 Design-Build 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:

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- 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.
- 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

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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.

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 meet 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.

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.

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

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### 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.
- 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."

## 2. PRODUCTS

Not used.

## 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:

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.
- 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

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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. (FDCC Project Manager)	Fax #: _____
<b>Project Title: Construct New ESD/CIVPERS Building #62, Base Support Unit Elizabeth City NC</b>	
<b>Contract #:</b> HSCG47 _____	<b>Contractor:</b> _____
<b>REQUEST FOR INFORMATION # _____</b>	
<b>Subject:</b> _____	<b>Date:</b> _____
DRAWING/SPEC REFERENCE: _____	
<b>REQUEST/CONDITIONS (Note: If this is a request to deviate/substitute from the contract requirements refer to paragraph 3.3 of specification section 01300):</b>	
_____ _____ _____	
<b>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.):</b>	
_____ _____	
SUBMITTED BY: _____	
RESPONSE REQUIRED BY DATE: _____	
<b>GOVERNMENT'S RESPONSE:</b>	
_____ _____	
<b>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.</b>	
RESPONSE PREPARED	
BY: _____	
DATE: _____	
Dist: Original to Contractor	
Copy to: KO _____, Project File _____, A-E _____, On-Site Inspector _____	

End of Section

**SECTION 01450**

**QUALITY CONTROL**

**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 "Design-Build 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.

**2. PRODUCTS**

Not used.

**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 and Designer of Record (DoR) 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 at 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, that 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, that 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**

#### **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, two file cabinets, 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.

#### 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, and 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 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. A sketch of the sign design will be provided after award. The sign shall be minimum 4feet x 8feet.

#### 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.

#### 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 inches.

#### 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 INTERRUPTION OF AVIATION TRAFFIC

The site is near an active Coast Guard runway. If during the performance of work, it becomes necessary to use tall cranes or similar equipment, notify the FAA and the Contracting Officer at least 15 days prior to the proposed use. Use of tall equipment may only be used after authorization of the FAA and the Coast Guard control tower.

#### 1.15 WARNING SIGNS

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

#### 1.16 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.

### 2. PRODUCTS

Not used.

### 3. EXECUTION

Not used.

-End of Section-



**SECTION 01575**

**TEMPORARY ENVIRONMENTAL CONTROLS**

**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 with 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. Waste Management
- e. 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.

### 2. PRODUCTS

Not used.

### 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 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. Establish 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.

### 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 01720**

### **RECORD DRAWINGS**

#### **1. GENERAL**

##### **1.1 GENERAL**

Maintain at the site, for the Government, one as-built record copy of full-size blue or black line prints of the drawings. Maintain the drawings in clean, dry, legible condition and in good order. Do not use record drawings for construction purposes.

##### **1.2 SUBMITTALS**

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

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

- a. Project Record Drawings
- b. Fire Protection Record Drawings
- c. Electronic Files of Record Drawings

##### **1.3 EXAMINATION BY THE CONTRACTING OFFICER**

Record drawings shall be available at all times for examination by the Contracting Officer's Representative. Requests for partial payments will be approved only if the record drawings are kept current.

Deliver the record drawings to the Designer of Record for preparation of the as-built CAD drawings required by Section 01160. Forward the record drawing hard copies and two CDs with electronic CAD files to the Contracting Officer after final inspection and before contract completion.

#### **2. PRODUCTS**

Not used.

#### **3. EXECUTION**

##### **3.1 PROJECT RECORD DRAWINGS**

Label each drawing "AS-BUILT" in neat large printed red letters. Annotate as-built information daily as work progresses. Do not conceal work until information is recorded. Legibly and accurately mark each drawing in red to record actual construction. Recorded information includes, but is not limited to:

- a. Depths of various elements of foundation in relation to finish first floor
- b. Horizontal and vertical locations of underground utilities and appurtenances; establish with dimensions to permanent surface improvements
- c. Location of utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure

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- d. Dimensions of equipment and equipment foundations
- e. The topography and gradients of drainage installed during or affected by construction
- f. Changes resulting from modification and field changes
- g. Changes resulting from instructions issued by the Contracting Officer
- h. Details not on original contract drawings

**3.2 FIELD ADJUSTMENTS AND CONTRACT MODIFICATIONS**

The following changes require a field changes or a contract modification:

- a. Location and dimensions of changes within the structure
- b. Changes in detail or dimensions resulting from approved fabrication drawings and equipment erection and installation details
- c. Changes to duct and pipe sizes and routing

**3.3 FIRE PROTECTION RECORD DRAWINGS**

In addition to the requirements of the above paragraph "PROJECT RECORD DRAWINGS", the Contractor shall provide as-built drawings developed from the working drawings of each fire suppression/extinguishing system for record purposes. Provide electronic AutoCAD files of these as-built drawings.

-End of Section-

**SECTION 01781**

**OPERATION AND MAINTENANCE DATA**

**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. Systems Maintenance Contract Scopes and Estimates
- f. 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

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and one copy of the manual will be returned by the Designer of Record to the contractor for final correction.

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 SD01 Systems Maintenance Contract Scopes and Estimates

- a. Submit draft copies of Maintenance scopes for review by the Designer of Record, one copy to the Contracting Officer (for information only) and correction by the contractor
- b. Final maintenance scopes of work: Provide two sets of final maintenance scope of work to Contracting Officer within 14 days after approval of the corrected scopes. Provide MS Word copy of scope of works on compact disk.

1.2.3 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.

**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 Flasch-Kincaid Grade Level of 7 to 8 with a Flasch 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 those 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:

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- a. Narrative: Describe the function and sequence of operation, and provide a troubleshooting 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.
- 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. Include 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.

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- (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 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.

### **2.3 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.

### **2.4 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.

### **2.5 Instruction of Coast Guard Of 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.

### **3. EXECUTION**

#### **3.1 General**

Contractor shall prepare separate scopes of work detailing the requirements necessary to provide periodic maintenance services for systems listed below. Scope shall be adequately detailed to allow for firm fixed price quotes for the services required. Level of detail should include as a minimum; nature of service to be performed, frequency of service, location of equipment and other information pertinent to accomplishing successful preventive maintenance program in accordance with the equipment manufacturer's recommendations and warranty requirements. These scopes of work shall be prepared for the purpose of contracting such services with commercial providers. Attached as enclosure 1, is a *Package (HVAC) Unit Maintenance Requirements* "sample" that demonstrates goal of this scope of work.

Commercial providers are defined as those companies authorized to provide such services by the by the equipment manufacturers. The purpose of these contracts is not to provide repair services unless specifically noted.

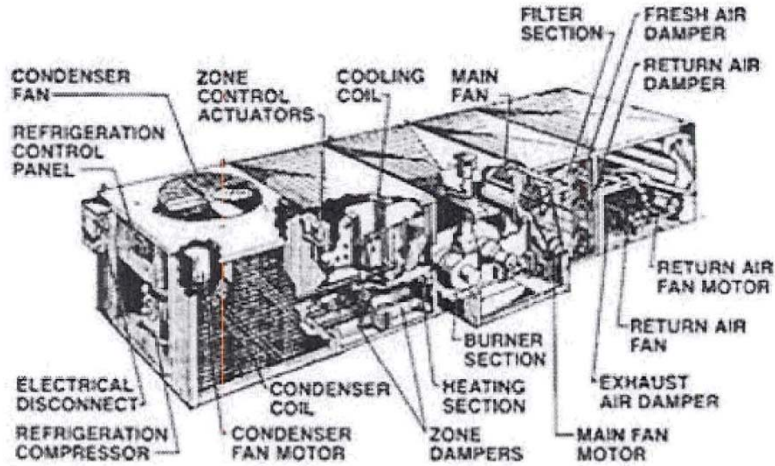
Estimates of service contract pricing shall be provided for each separate scope provided under this section. Estimates shall be based on the listed frequency of services.

#### TYPICAL SYSTEMS COVERED:

HVAC (units over 2 tons, boilers, hot water heaters, air handling units, fan coil units, chiller, cooling towers, DDC System, solar system)  
Fire Protection (Both sprinkler and fire alarm equipment)  
Security  
Roofing (inspection services only)  
Emergency Electrical Systems  
Generator  
Substation transformers  
Motors over 2 hp (if not already covered by HVAC work)  
Elevator (not applicable)

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“SAMPLE” ----Package Unit Maintenance Requirements -----“SAMPLE”



Part	Function	Tasks Required
Filter Section	Removes Particles from the air	Replace filters as needed
Fresh Air Damper (Economizer)	Provides source of outside air	Check for proper operation Adjust & Calibrate Lubricate Bearings
Return air damper	Provides means of re-circulating Air	Check for proper operation Adjust & Calibrate Lubricate Bearings
Exhaust Air damper	Provides outlet for exhaust air	Check for proper operation Adjust & Calibrate Lubricate Bearings
Return & Supply Fans	Circulates & returns air in the System Distributes air into space	Lubricate bearings Check for bearing wear Clean dirt accumulation Check drive couplings tighten Check belts – replace Check alignment of shaft Check fan blade tightness
Return & Supply Fan Motors	Provides energy source to rotate Fans	Inspect starter coils Inspect & clean contacts Tighten all electrical connections Check operating voltage & current Check for vibration Lubricate bearings Check motor insulation resistance Check motor mounts – tighten
Electrical Disconnect	Safety shutoff for primary power To unit	Inspect and clean contacts Check for proper operation

Enclosure 1

-End of Section-