

# FACILITIES CRITERIA (FC)

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## NAVY AND MARINE CORPS DESIGN PROCEDURES



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**FACILITIES CRITERIA (FC)****NAVY AND MARINE CORPS  
DESIGN PROCEDURES**

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U.S. ARMY CORPS OF ENGINEERS

NAVAL FACILITIES ENGINEERING COMMAND (Preparing Activity)

AIR FORCE CIVIL ENGINEER CENTER

Record of Changes (changes are indicated by \1\ ... /1/)

<b>Change No.</b>	<b>Date</b>	<b>Location</b>

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**This FC supersedes UFC 1-300-09N, dated 25 May 2005, with Changes 1-9.**

## FOREWORD

Facilities Criteria (FC) provide functional requirements (i.e., defined by users and operational needs of a particular facility type) for specific DoD Component(s), and are intended for use with unified technical requirements published in DoD Unified Facilities Criteria (UFC). FC are applicable only to the DoD Component(s) indicated in the title, and do not represent unified DoD requirements. Differences in functional requirements between DoD Components may exist due to differences in policies and operational needs.

All construction outside of the United States is also governed by Status of Forces Agreements (SOFA), Host Nation Funded Construction Agreements (HNFA), and in some instances, Bilateral Infrastructure Agreements (BIA.) Therefore, the acquisition team must ensure compliance with the most stringent of the UFC (replace w/ FC), the SOFA, the HNFA, and the BIA, as applicable.

Because FC are coordinated with unified DoD technical requirements, they form an element of the DoD UFC system applicable to specific facility types. The UFC system is prescribed by MIL-STD 3007 and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applicable to the Military Departments, Defense Agencies, and the DoD Field Activities. The UFC System also includes technical requirements and functional requirements for specific facility types, both published as UFC documents and FC documents.

FC are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing criteria for military construction. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and the Air Force Civil Engineer Center (AFCEC) are responsible for administration of the UFC system. Defense agencies should contact the preparing service for document interpretation and improvements. Technical content is the responsibility of the cognizant DoD working group. Recommended changes with supporting rationale should be sent to the respective service proponent office by the following electronic form: [Criteria Change Request](#). The form is also accessible from the Internet site listed below.

FC are effective upon issuance and are distributed only in electronic media from the following source:

- Whole Building Design Guide web site <http://dod.wbdg.org/>.

Refer to UFC 1-200-01, *General Building Requirements*, for implementation of new issuances on projects.

### AUTHORIZED BY:



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## **FACILITIES CRITERIA (FC) REVISION SUMMARY SHEET**

**Document:** FC 1-300-09N, Navy and Marine Corps Design Procedures

**Superseding:** UFC 1-300-09N, Design Procedures, 25 May 2005, with Changes 1-9

**Description:** This FC provides specific guidance on how and when to provide a project design deliverable for NAVFAC. This document is organized into design deliverables and design phases. Requirements for design deliverables, beyond or in more detail of what is already required by a Core UFC, are provided for NAVFAC-only. The requirements for when or to what extent these deliverables are provided are in the Phase chapters.

### **Reasons for Document:**

- Update procedures to coordinate with current commercial and government standards, procedures, and governing UFC's.
- Update sustainable documents and requirements to coordinate with UFC 1-200-02.

### **Impact:**

- Improve efficiency and consistency of design procedures across NAVFAC.

### **Unification Issues**

Design and Submittal procedures contained herein are pertinent to standards, software, and templates used, required, and unified within NAVFAC, and centered around the NAVFAC organization and operation. Procedures for NAVFAC may not work for USACE and Air Force operations due to organizational and operational differences. Similar uniform standardization and procedures are not available from the other Services.

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## **CHAPTER 1 INTRODUCTION**

### **1-1 PURPOSE AND SCOPE.**

This FC provides policy and standards for the design, development, and revision of project documents, including drawings, specifications, and Requests for Proposal, for facilities under the cognizance of NAVFAC. This FC has been developed to ensure consistency and clarity of project documents that form the basis of contracts for the design and construction of facilities.

#### **1-1.1 Organization of Document.**

This document is organized into design policy, roles and responsibilities, design deliverables, and design phases. The design deliverables chapters contain general requirements that apply throughout the design process. For the disciplines, additional information is provided only if it is not already in another UFC; thus a discipline paragraph may not be provided if the Core UFC already provides the requirements for that deliverable, or the level of completion of that deliverable. Core UFCs are defined and listed in UFC 1-200-01.

Detailed level of completion for each type of submittal, and for each discipline, only beyond what is specified in other UFCs, are included in each design phase.

### **1-2 APPLICABILITY.**

This FC applies to projects where NAVFAC is the construction agent, as defined in DoDD 4270.5, for preparation of construction contract drawings, specifications, and Request for Proposals for shore facilities, and is applicable to both Design-Bid-Build (DBB) and Design-Build (DB) projects.

### **1-3 GENERAL BUILDING REQUIREMENTS.**

Comply with UFC 1-200-01 and UFC 1-200-02. UFC 1-200-02 must be used in conjunction with UFC 1-200-01 and the UFCs and government criteria referenced therein. UFC 1-200-01 provides applicability of model building codes and government-unique criteria for typical design disciplines and building systems, as well as for accessibility, antiterrorism, security, sustainability, and safety. UFC 1-200-02 provides minimum unified requirements and coordinating guidance for planning, designing, constructing, renovating, and maintaining high performance and sustainable facilities that will enhance DOD mission capability by reducing total ownership costs. Use this FC in addition to UFC 1-200-01, UFC 1-200-02, and the UFCs and government criteria referenced therein.

### **1-4 EXCEPTIONS.**

Austere Requirements may be invoked on a per-project basis, and only by formal letter from Commander, Naval Installations Command (CNIC). Austere requirement options are included in UFC 4-610-01 FC 4-721-10N, FC 4-722-01N, and FC 4-740-02N.

**1-5 REFERENCES.**

Appendix A contains a list of references used in this document. The publication date of the code or standard is not included in this document. In general, the latest available issuance of the reference is used.

**1-6 GLOSSARY.**

Appendix B contains abbreviations.

## CHAPTER 2 POLICY

### 2-1 CRITERIA.

Design Naval shore facilities in accordance with all Navy and Department of Defense (DoD) Criteria. DoD Design Criteria are available from the Whole Building Design Guide web site (<http://dod.wbdg.org/>) and from the Construction Criteria Base (CCB) web site (<http://www.wbdg.org/ccb>.) Design criteria include general criteria, as well as specific criteria on particular elements of the work (e.g., Geotechnical Engineering) and facility types (e.g., Bachelor Quarters). Design requirements are typically in the form of Unified Facilities Criteria (UFC). The contract will reference the specific requirements applicable to a particular project. Deviations from criteria must be approved by the NAVFAC Chief Engineer and in accordance with MIL-STD-3007.

### 2-2 METRIC POLICY.

Comply with MIL-STD-3007 for the use of SI in projects and criteria documents. NAVFAC policy is to use the metric system of measurement (International System of Units, SI) in planning and design criteria, Unified Facilities Guide Specifications (UFGS), and construction contract documents for all MCON/MILCON, BRACON, and family housing, regardless of acquisition method. See exception under the paragraph in this chapter entitled, "General Policy".

#### 2-2.1 SI Definitions.

A Hard Metric measurement indicates a non-interchangeable SI value and is based on SI values that change in size and properties from Inch-Pound (IP) values.

A Soft Metric measurement is a mathematical approximation or equal unit conversion of an IP product.

#### 2-2.2 General Policy.

In accordance with Public Law 94-168, design and construction of new or renovated facilities must use the metric system of measurement, unless its use is impractical or is likely to cause significant inefficiencies or loss of markets to United States firms. Specify hard metric products unless such products are unavailable or uneconomical. Do not use dual units on drawings on any type of project. The design agent project manager is responsible for making the determination on whether or not to use the metric system of measurement on a project-by-project basis. Decisions to not use the metric system must be justifiable and documented in permanent project files. Comply with Facilities Engineering Command (FEC) process for determination of exception for the metric system.

### 2-3 OWNERSHIP OF PROJECT DOCUMENTS AND DATA.

The clauses set forth in DFAR 252.227-7023, *Drawings and Other Data to Become Property of Government*, DFAR 227.71, *Rights in Technical Data*, and DFAR 227.72

*Rights in Computer Software and Computer Software Documentation*, apply to all project design documents and data.

## **2-4 REGISTRATION.**

Develop stateside project documents under the direction of a Registered Architect or a Professional Engineer currently licensed in accordance with FAR 52.236-25 *Requirements for Registration of Designers*. Develop foreign project documents under the direction of a Registered Architect or a Professional Engineer currently licensed by a United States state, commonwealth, or territory, the District of Columbia, or as permitted otherwise by the contract.

Each drawing must only be signed, sealed, and dated by the Registered Architect or the Professional Engineer who is registered to practice in the particular field involved for work depicted on that drawing, serves as the Designer of Record for that work, and complies with requirements of FAR 52.236-25. Sign Record Documents in accordance with Chapter 12, *Electronic Design Deliverables (EDD) Format*.

### **2-4.1 Certification.**

Where special certifications are required for the design, certify in accordance with the contract and local requirements.

## **2-5 PROHIBITION OF POSTING DESIGN DELIVERABLES ON UNSECURED SERVERS.**

Design deliverables may contain sensitive but unclassified information that may compromise the facility's Anti-Terrorism Force Protection (ATFP) measures or be detrimental to the security of the facility's systems if released into the public domain. Design deliverables, such as drawings, specifications, cost estimates, calculations, and data provided to and received from the Contractor is to be designated FOUO (For Official Use Only). The use of non-secure data systems to transmit FOUO data is not allowed. FTP (File Transfer Protocol), HTTP (Hypertext Transfer Protocol) and other methods of transmitting data without embedded approved security are considered non-secure. FTPS and HTTPS system are allowed with the use of PKI (Public Key Infrastructure) certificates and biometrics for positive authentication. All FTPS and HTTPS systems used for FOUO information must be registered and approved for use by USCYBERCOM (United States Cyber Command) (see DoD 5200.2R) and registered with DISA (Defense Information Systems Agency). In addition, all systems used to store and transfer DoN data must be registered in DIPR-DON (Defense Information Technology Portfolio Repository - Department of Navy) and DADMS (DoN Application and Database Management System).

Contractors may transmit data via registered FTPS or HTTPS (as defined above), encrypted or digitally signed email or physical media (compact disc (CD) or Digital Video Disc (DVD)). The use of SAFE (Safe File Exchange) is a DoD managed and registered file transfer system. The use of, restrictions and link to SAFE for DoN classified FOUO information is posted on the DoN CIO web page located at:

<http://www.doncio.navy.mil/contentview.aspx?id=4098>. SAFE does not require the sender to have a PKI certificate but is only allowed to transmit 2GB of data at a time. The regulations for handling, storing, or transmitting classified, unclassified and public information is subject to change; verify data security requirements prior to transmitting any data.

## **2-6 DESIGN DELIVERABLES FOR NAVAL CONSTRUCTION FORCES - MARINE LOGISTICS GROUPS AND NAVY CONSTRUCTION BATTALIONS (SEABEES).**

Due to the nature of the work performed by the Marine Logistics Groups and the Seabees, the design deliverables for their use must be tailored for expedient construction. Deployed battalions may be in remote locations under austere conditions. Researching materials and transmitting submittals can be difficult, if not impossible. All materials and performance requirements should be specified on the drawings to the most practical extent. Specify materials available on the Federal schedule supply lists, the battalion's supply schedules, or by product name. Avoid referencing codes or standards where possible, as reference materials may be difficult for the Battalion to obtain in the field.

## **2-7 OVERSEAS LOCATIONS TRANSLATIONS.**

Construction drawings are required to be prepared in dual language at a majority of the overseas locations. Unless the contract scope indicates otherwise, translation of specifications is not required. Where dual language is required, the Host Nation A&E must accurately translate all required documents such that they are clear and comprehensible to the local construction community. The Host Nation A&E may also be contracted to translate Government furnished studies, surveys, geotechnical reports, product specifications, host country requirements or other technical documents prepared in a foreign language and serve as an interpreter when meeting with local officials and contractors.

Translations must be included with the Pre-Final (100%) submittal, and through project completion.

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## CHAPTER 3 ROLES AND RESPONSIBILITIES

### 3-1 DESIGNER OF RECORD.

#### 3-1.1 Coordination with Command, Major Claimant, Region, and Activity.

Engage in and provide liaison with the Activity, and appropriate Activity personnel, as required by the contract, and during early design-development or RFP development.

The Designer of Record (DOR) is responsible for architectural and engineering aspects of the project to ensure reasonable facility cost appropriate for the functions to be performed through design and RFP development.

#### 3-1.2 Coordination with Other Government Organizations.

Coordinate design input and reviews with other Government organizations described in the paragraph in this chapter entitled, "Other Government Organizations" and as required by the contract.

#### 3-1.3 Document Review and Checking System.

The Document Review and Checking System (DrChecks) facilitates the formal review of complex project documents. DrChecks automatically tracks, collates, and measures technical discussions. Project documents can be uploaded into the project folders for download and review. Provide design reviews in DrChecks as required by the Contract. Contact the Government Project Manager to obtain registration information. DrChecks can be accessed at <https://www.projnet.org>.

#### 3-1.4 Response to Review Comments.

Respond to comments in Dr. Checks or in accordance with Contract requirements. The DOR or Contractor is responsible for the resolution and incorporation of government comments into the project design. At each submittal, return and address previous review comments. Provide responses to review comments that clearly indicate what action is being taken to resolve the comment. If the comment was incorporated into the design, a response must so indicate; otherwise, provide acceptable technical justification for comments not being incorporated. If the comment was not incorporated, provide an explanation for not doing so. Prior to the next submittal, contact the Government reviewer to discuss and resolve any comment that will not be incorporated.

The Designer of Record is responsible for using professional judgment and technically evaluating user comments that suggest technical changes to design.

#### 3-1.5 Final Approval.

The Designer of Record reviews and gives final approval for contract project documents prepared under their direction. The Designers of Record must be registered in the discipline for the documents they approve as described in the paragraph in Chapter 2 entitled, "Registration".

## **3-2 OTHER GOVERNMENT ORGANIZATIONS.**

### **3-2.1 Commander, 1st Naval Construction Division.**

Projects scheduled for accomplishment by Naval Construction Forces are reviewed at an early Design Development stage by Commander, 1<sup>st</sup> Naval Construction Division, for construction methods and procedures.

### **3-2.2 Reviews for Health Hazards During Facilities Design Process.**

For facilities projects that require industrial hygiene technical assistance and that involve potential health hazards such as toxic materials, non-ionizing radiation, noise, or other health hazards, consult the appropriate Naval Environmental Health Center (NEHC) for the activity. The NEHC activity is required to participate in design and RFP development reviews and reviews of plans, specifications, or RFP for these projects. The NEHC activity will ensure that engineering designs properly consider and provide for adequate environmental controls for the elimination of health hazards. Also use this review process for medical facility designs in excess of \$1 million.

### **3-2.3 Space and Naval Warfare Systems Command (SPAWAR).**

SPAWAR provides reviews and design input for projects where SPAWAR is providing and installing equipment as identified in the 1391. The drawings of cable and equipment layout are often provided by SPAWAR to the Designer of Record, for incorporation into the design. Coordinate closely with Project Manager and their SPAWAR representative to receive timely input and to reduce impact to design and construction schedules and project costs.

Projects, even if prepared by SPAWAR, must bear the standard NAVFAC title blocks and drawing numbers. On drawings that require SPAWAR approval, SPAWAR signature can be applied in the NAVFAC Signature Block in the supplemental location and the SPAWAR drawing cross reference number can be provided on the border sheet. SPAWAR may also need to review where project impacts an adjacent facility, such as electro-magnetic radiation from police stations or hospitals affecting antennae, transmitters, and receivers.

### **3-2.4 Civil Works.**

NAVFAC approves drawings and specifications prepared for civil works subcontracts. Assign NAVFAC drawing numbers to civil works contract drawings, and approve and sign the drawings as "Satisfactory to" the prime contractor of the particular Navy industrial plant for whose use the facility is provided.

### **3-2.5 Historic Preservation Compliance.**

Section 106 of the National Historic Preservation Act requires Federal agencies to take into account the effects of their undertakings on historic properties that are eligible for listing in the National Register of Historic Places (NRHP). Historic properties may include archaeological sites, individual buildings, historic districts, landscapes,



structures, objects, and traditional cultural properties. In accordance with established procedures at each installation, an action proponent files a National Environmental Policy Act (NEPA) Compliance Checklist plus a copy of the Work Request or Project Description with the Installation Cultural Resource Manager (CRM). The CRM then reviews the Project Description and determines whether the project has the potential to affect historic properties or whether it is exempt from Section 106 compliance. The CRM will then either record that the undertaking is exempt, or engage in consultation for Section 106 Compliance as required by 36 CFR 800.

### **3-2.6 Overseas Cultural Resources.**

At Installations outside of the United States, coordinate with the applicable host nation regarding possible adverse effects to cultural resources.

### **3-2.7 National Capitol Planning Commission (NCPC) and Commission of Fine Arts (CFA).**

Prepare and submit the presentation materials required for submitting the project to the National Capitol Planning Commission (NCPC) and the Commission of Fine Arts (CFA). NCPC review is required for projects located in the National Capitol Region (NCR) consisting of the District of Columbia, Montgomery and Prince Georges counties in Maryland; Arlington, Fairfax, Loudon, and Prince William counties and all the independent cities contained therein (Alexandria, Fairfax, Manassas, Manassas Park) in Virginia.

#### **3-2.7.1 Coordination with NAVFAC Washington.**

Submission to NCPC is a requirement for Federal building projects located in the NCR, as is submission to CFA, for projects located in the District of Columbia. These submittals are often linked with a prior requirement to submit projects affecting historic buildings and sites to the cognizant State Historic Preservation Office (SHPO). The coordination and official submittal of the project to the relevant agencies will be coordinated through the NAVFAC Washington Environmental Office. The Government's Project Manager will refer the Contractor to this person at an early stage. The NAVFAC Environmental point of contact will advise the Contractor on the specific requirements and prospective timetable for the project review(s). Prepare all materials needed for the submission of the project to NCPC and CFA and any subsequent changes necessary for the approval of the project. For submission to CFA, present the project, if called upon by NAVFAC. Work directly through NAVFAC Washington as Point of Contact (POC) to any regulatory agency.

As a rule, Federal agencies including NAVFAC Washington, attempt to comply with these agencies' comments, although the legal obligation to do so varies with a number of circumstances. The Government's Project Manager, in consultation with the NAVFAC Washington Environmental POC, can advise the Contractor on the resolution of comments.

### **3-2.7.1.1 Contents of a Typical Submission Package.**

The submission package consists of a Vicinity Map, Schematic, Site Plan, Landscape and Grading Plan, Floor Plans, Elevations, Sections, Roof Plan, Rendered Plans and Perspectives, and Storm Water Management Plan represented in:

- a. Six sets of architectural drawings (half size)
- b. Three sets of 8 ½ x 11 inch (216 x 279 mm) (page size) color drawings
- c. Photographs of the existing site conditions annotated to identify and locate the contents
- d. Project Data Report in electronic editable medium. The NAVFAC Environmental point of contact will supply the outline for this item, typically one to three pages in length.

### **3-2.7.1.2 Schedule.**

The Designer of Record must anticipate a two to three month period for these reviews as well as the need to present larger projects at up to four public meetings. The NAVFAC Washington Environmental point of contact will, however, have the lead role in coordinating all reviews/presentations.

### **3-2.8 NAVFAC Medical Facilities Design Office (MFDO).**

Special coordination is required for coordination of medical facilities. Coordinate in accordance with NAVFAC Instruction 11012.119 series, and UFC 4-510-01, *Design: Medical Military Facilities*.

### **3-2.9 Sensitive Compartmented Information Facilities (SCIF).**

Special coordination is required for the accreditation of SCIF. Coordinate in accordance with UFC 4-010-05, *Sensitive Compartmented Information Facilities Planning, Design, and Construction*.

### **3-3 COMMANDER, NAVFAC.**

Authority and responsibility for formal approval of drawings and specifications and RFPs by, or for, the Commander, NAVFAC, is vested in the Facility Engineering Command, Chief Engineer and their delegated signatory representative(s).

The level of approval and responsibility for Design-Build drawings and documents, submitted by the Contractor and signed by the Government, are defined in the RFP contract.

## CHAPTER 4 DELIVERABLE: FIELD INVESTIGATION

### 4-1 PURPOSE AND SCOPE.

The site approval process includes field investigation and verification. This early effort provides more defined project scope and cost, and can rule out a site. Many of the functions identified under this heading are also essential during the DD1391 validation process to assure the project has the appropriate funding based on the scope of work. This section is not applicable for post-award design services of design-build contracts unless specifically addressed in the RFP.

### 4-2 RESPONSIBILITIES.

The Government installation planners are responsible for obtaining information required for project site approval prior to design. The Designer of Record must obtain all site and building data and investigate existing site conditions, utilities, and facilities as necessary to properly integrate the design of the project with existing conditions. Except as otherwise contracted, field investigations must include complete and accurate site investigation, topographic/hydrographic survey, and verification of location and availability of utility and drainage systems. When available, research existing as-built record drawings for information. Field verify as-built drawings information and other site features that may influence project design.

In a Design-Build contract, the Designer of Record is responsible to verify all site information given by the Government issued RFP. In addition, the DOR must provide additional field investigations and verification of existing site conditions as may be required to support the development of the design and construction of the project.

### 4-3 COORDINATION.

Coordinate all site work, including topographic/hydrographic and soil surveys, with representatives of the Public Works, Utilities and Energy team, and other NAVFAC design personnel. During execution of field investigation work, the Designer of Record is responsible for obtaining necessary permits, and complying with applicable laws, codes, and regulations, including OSHA regulations. The exact location of the geotechnical excavation, whether by drilling or digging, must be approved by the appropriate authorities, be it the local utility service or by a company hired by the geotechnical engineering firm to "scope" utilities. The DOR is responsible for all damages to persons and property that occur as a result of their fault or negligence. The DOR must take proper safety precautions to protect the public, the property of the public and the Government from physical hazards and unsafe conditions. Upon completion of field investigation, return the property to its original condition except as released in writing by the client activity.

### 4-4 TOPOGRAPHIC SURVEY.

Provide a topographic survey of the project site in accordance with the National Society of Professional Surveyors (NSPS) *Model Standards for Topographic Surveys* with the following modifications:

- Project drawing by the Government must be in English or Metric as directed for each specific project.
- Ensure that adequate adjacent areas are included within the survey limits to clearly indicate and accommodate setbacks required by antiterrorism criteria, offsite drainage and offsite utility connections impacting the project.
- Provide a boundary survey and location of easements and security clear zones within the limits of the scope of work.
- Show horizontal control used during field survey. Indicate the reference coordinate plane and provide two permanent control points for reference. Include description of points (i.e. PK nail in cap). Provide a minimum of three reference distances to existing permanent structures (reference points) so that control can be re-established.
- Elevations on paved or impervious surfaces (including rims of utility structures) must be shown to the nearest 0.01 feet (0.005 meters for metric designs). Show elevations on unpaved or pervious surfaces to the nearest 0.1 feet (0.05 meters for metric designs).
- Indicate the name of the surveying firm and date of survey.
- If match lines are used involving more than three sheets, provide a key map with current sheet highlighted. Remove any extraneous lines and text from key map.
- North must be oriented toward the top (or left edge) of the plotted sheet. Coordinate north direction with other disciplines so that all plans are oriented the same.
- Accurately locate (by means of structures visible from the surface and through research of Activity utility maps, as-built drawings, data from local utility companies) the following list of utilities (both above and below ground), structures and features. Provide notes indicating the sources and any limitations or assumptions of the data and that the Contractor must field verify the location of all utilities prior to construction. The survey must include the following specific items and their related appurtenant above-ground features, but is not limited to:
  - Buildings: Describe building material and number of stories.
  - Pavements: Include type of material. In areas where pavement demolition is to occur, note all pavement thicknesses, including layer thicknesses and joint patterns for replacement. Pavement layer thicknesses may be obtained by reviewing as-built information, digging at the edge of the pavement, core drilling, and consulting with Activity personnel. Where proposed pavements are expected to abut existing pavements, provide pavement markings, joint pattern and indicate joint types of the existing pavements.

- Surface Drainage Features: Indicate normal water level for permanent standing water.
- Utilities: Include rim elevations for utility structures; location and identification of lines as underground or aboveground; pipe sizes and materials. Identify water system as potable, nonpotable, high pressure or saltwater as applicable.
- Fences: Note height, type of fabric, barbed wire, direction of outrigger, top or bottom rails, tension wires, gate locations and types.
- Foundations: Indicate visible foundations of demolished buildings.
- Fuel Pipes and Storage Tanks: Include information such as fill ports, vent lines, and tank drains.
- Pump Stations: Include invert of influent pipe and elevation of force main. Locate all aboveground elements including controls.
- Railroads and Crane Rails: Include turnouts, rail sizes, compromise joint locations, and curve information, such as P.C., P.T., and P.I. as they may be applicable to the design requirements of the proposed project.
- Tidal Shoreline: Note water elevation, time of day, date, and tidal condition at time of survey. Indicate normal high/low water elevations referenced to the datum used.
- Trees/Woods: In wooded areas, locate outside drip line of wooded area, include general density and type of trees. Where selective clearing will be accomplished, locate individual trees and tree size over a 6-inch (152.4 mm) diameter.
- Wetland Areas: Wetland and marsh areas must be flagged and numbered by the Government prior to the survey. Locate flags and label in the same manner as marked in the field. If unanticipated wetlands are found during the survey, advise the Government's Civil Reviewer to establish any additional survey requirements.

## **4-5 GEOTECHNICAL INVESTIGATIONS AND REPORT.**

### **4-5.1 Existing Information.**

Each Facility Engineering Command maintains record files pertaining to the geotechnical aspects of previously constructed projects. Architecture and engineering firms preparing, planning or designing documents are encouraged to use this resource to research existing conditions or past design approaches for facilities, structures, or pavements. Viewing or discussion of the files' contents is possible by contacting the Government. For Design-Build contracts, any relevant geotechnical or pavement information that is available will be furnished in the Design-Build RFP.

## **4-5.2 Foundation and Soils Investigation.**

Perform foundation and soils investigations, including sampling, testing, and evaluation, with requirements and guidance set forth in the IBC, UFC 3-250-01FA, UFC 3-260-02, and UFC 3-220-01. In using the IBC, the terms “owner,” “applicant,” and “building official” are synonymous with the “Government.” In addition, the following requirements apply:

### **4-5.2.1 General.**

Investigations and evaluations (including soil borings, test pits, ground penetrating radar surveys, seismic refraction surveys, and electrical resistivity testing, laboratory testing) must be in accordance with ASTM standards to the fullest practical extent. The classification and investigation of the soil must be supervised by a registered professional engineer. Where ASTM methods are not applicable, procedures and apparatus used must be in accordance with generally accepted engineering practice.

### **4-5.2.2 Qualifications of the Testing Firm.**

The qualifications of the geotechnical testing laboratory and personnel must meet ASTM D3740.

### **4-5.2.3 Use of Global Positioning System with Soil Investigation.**

Global Positioning System (GPS) coordinates, with an accuracy of at least 3 feet (1 meter), must be taken at each soil boring, coring, or test pit location and stated on the boring/coring/test pit logs. The coordinates must reference WGS84 and be stated in degrees of latitude and longitude.

### **4-5.2.4 Field Testing.**

Field testing for geotechnical investigation typically consists of soil borings and standard penetration tests (SPT) or cone penetration tests (CPT). Conduct and provide the soil borings, SPT, and CPT in accordance with ASTM D1452, ASTM D1586, and ASTM D5778, respectively. For standard penetration testing, modify the ASTM D1586 procedure to make continuous standard penetration and sampling tests for the initial 13 feet (4 meters) of the boring. If the proposed facility will have a basement level, the ASTM D1586 procedure must be modified to make continuous standard penetration and sampling tests for the initial 13 feet (4 meters) of the boring below the proposed basement floor elevation. During drilling, visually classify all soils in accordance with ASTM D2488. If evidence is discovered indicating soil or groundwater contamination, report it immediately to the Government. If soft cohesive materials are discovered within 20 feet (6 meters) below the ground surface, take undisturbed samples for laboratory testing. Undisturbed sampling and testing must be performed at the discretion of the Geotechnical Engineer responsible for performing the investigation. Perform other testing, such as percolation testing, seismic refraction surveys, and soil resistivity testing, as required by the contract or by the Contractor's Geotechnical Engineer or DOR in a Design-Build contract.

**4-5.2.5 Use of Piezometers.**

If drilling techniques are used that prevent the measurement of the water table levels, provide at least two piezometers per drilling site to more accurately measure the depth to the water table. Piezometers are required for storm water pond investigations. Piezometers are not required if the ground water levels can be accurately measured during drilling operations or there is good evidence that the water table is not within the depth of the borings or zone of influence for the foundation or structure.

**4-5.2.6 Seismic Site Class Determination.**

Seismic site class must be based on field testing for all projects.

For Design-Build projects, state in the RFP the seismic site class to be used for design. This can be determined by the cognizant NAVFAC Geotechnical engineer. NAVFAC is the ultimate authority on site class determination for design.

**4-5.2.7 Laboratory.**

The minimum laboratory testing must include grouping like samples, conducting a sieve analysis and Atterberg Limits tests, and performing natural moisture content determinations to effectively depict in-situ conditions. The field logs must be updated in accordance with ASTM D2487. Other testing, such as California Bearing Ratio, unconfined compressive strength, consolidation testing, triaxial testing, and potential volume change in suspected expansive clay areas, must be performed as required by the contract or by the Contractor's Geotechnical Engineer or DOR in a Design-Build contract.

**4-5.3 Geotechnical Report.**

Provide a geotechnical report on all contracts unless waived by the Government's Contract Technical Representative or as stated otherwise in the contract. The report must describe the regional geology, topography, and any other physiographic information that may influence the geotechnical design. Describe and discuss the investigation program, exploration and testing techniques/procedures used to characterize the site. The report must depict the soil stratigraphy, materials, and groundwater conditions at the site. The report must specifically address the groundwater levels expected to be encountered in construction under normal conditions, and any site specific factors (such as tidal action, climate, seasonal flooding or droughts) that may influence the groundwater levels. Include copies of pertinent U.S. Geological Survey Maps used. Provide the boring logs and laboratory testing results on compact disc (CD) or Digital Video Disc (DVD) in an AUTOCAD compatible format (either .DXF or .DWG) conforming to the paragraph in Chapter 12 entitled, "Drawings". Provide a CD or DVD with an Adobe Acrobat PDF copy of geotechnical report and two (2) print copies of the report. The PDF copy of the report must be produced directly from the report's authoring software. All Geotechnical Reports must be signed by a registered Professional Engineer. For archiving purposes, directly mail a PDF copy of the geotechnical report on CD or DVD to one of the respective Echelon III command below for projects residing in their area of responsibility.

NAVFAC Atlantic  
Capital Improvements  
Civil/Geotechnical Section  
6506 Hampton Blvd.  
Norfolk, VA 23508-1278

NAVFAC Pacific  
Capital Improvements  
Civil/Geotechnical Section  
258 Makalapa Dr.  
Pearl Harbor, HI 96860

#### **4-5.4 Boring Logs.**

Provide a scaled location plan, boring logs, ground water observations, laboratory data, and boring log description notes on NAVFAC drawforms as indicated in Chapter 12. Summarize the laboratory data in tables. No scanned boring logs will be accepted.

#### **4-5.5 Foundation and Site Preparation.**

Discuss the facility under design and make recommendations for the foundation type. Describe and specify the improvements that are required for shallow foundations, such as compaction, removal and replacement, surcharging, and wick drains. Describe the soil bearing capacity, anticipated settlements, seismic aspects, pile capacity, pile length, pile type and special instructions such as jetting, pre-drilling and testing required. Discuss earthwork associated with foundation design and construction or site improvements, including settlement, liquefiable soils, expansive soils, slope instabilities or near surface groundwater. The discussion must address existing conditions, studies, or analysis performed, and recommendations for mitigation of the effects of these conditions. Address dewatering, and sheeting/shoring considerations, in design and construction, as applicable. If required by the Designer of Record, state the pavement design parameters and the pavement design. If the pavement design is to be completed by others, provide design parameters determined from the subsurface investigation. If multiple structures are being designed, address structures on an individual basis. Discuss the site preparation and susceptibility to rain and construction equipment. Discuss any soil conditions relating to potential concrete or piping corrosion and recommendations to mitigate effects thereof.

#### **4-5.6 Airfield Pavement Evaluations.**

Provide Airfield Pavement Evaluations in accordance with UFC 3-260-03.

### **4-6 UTILITIES AND INFRASTRUCTURE.**

#### **4-6.1 Water Flow Testing.**

Water flow testing of the existing water supply system(s) is required to determine the capability of the available water supply to support the expected demands. Perform testing in accordance with FM Global Property Loss Prevention Data Sheet 3-0. Provide a fire protection water flow test report in the Basis of Design. Comply with UFC 3-600-10N (DRAFT).



**4-6.2 Base-wide Fire Reporting Mass Notification Systems.**

Obtain information regarding the exterior fire alarm reporting system and the base mass notification systems.

**4-7 BUILDING CODE AND LIFE SAFETY CODE SURVEYS.**

Provide Building Code and Life Safety Code Surveys in accordance with UFC 3-600-10N (DRAFT).

**4-8 ENVIRONMENTAL REQUIREMENTS.**

Conduct surveys, information gathering and analytical testing required by the contract. Provide in accordance with UFC 3-800-10N (DRAFT), which is a requirement, as invoked by this FC.

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## CHAPTER 5 DELIVERABLE: BASIS OF DESIGN

### 5-1 GENERAL REQUIREMENTS.

The Basis of Design is a narrative presentation of facts, sufficiently complete, to demonstrate that the project concept is fully understood, and that subsequent design details, and their ultimate presentation in the final drawings and specifications, will be based on sound architectural and engineering decisions. For Design-Build RFP Development, the Basis of Design requirements are typically provided in the Project Program.

Submit the Basis of Design required at each design stage in accordance with the contract, the Core UFC's, and the additional Discipline requirements herein. If another UFC adequately describes the requirement for a Discipline's deliverable, a paragraph for that Discipline is not provided below. For each Discipline in the Core UFC and contract, provide a discussion and description of the design.

### 5-2 FORMAT.

Format the Basis of Design as an 8 ½ x 11 inch (216 x 279 mm) document, organized by Discipline. Provide a cover sheet identifying the document as the Basis of Design, and include the submittal stage, the project title, the location, the A-E Contract or Construction Contract number (Post-Award DB Contracts only); the eProjects Work Order Number or Maximo number; the Firm's name, the Command, or the Contractor name; and the date.

### 5-3 SUSTAINABILITY.

Provide a Sustainability section in the Basis of Design that summarizes how the design will achieve the requirements for Guiding Principles, and Third Party Certification (TPC) (where applicable) in accordance with UFC 1-200-02. The summary must state the level of Guiding Principle compliance, and elaborate on the various requirements from UFC 1-200-02. Provide narrative, the NAVFAC Sustainable Energy Data Record Card/High Performance Sustainable Building (NSERDC/HPSB) Checklist, Third Party Commissioning (TPC) Checklist (where applicable), and justification (where applicable). For the Navy, the HPSB Checklist is the NAVFAC Sustainable Data Record Card (NSERDC). Update at each phase of design. No variations or substitutions to the Checklist are allowed without Government approval.

#### 5-3.1 Guiding Principles Validation.

Provide for all projects in accordance with UFC 1-200-02. It is the responsibility of the DOR to verify Guiding Principles Validation requirements, by including design requirements in the contract documents and verifying construction submittals when required by the contract. For each of the Guiding Principles Requirements that is not attempted or achieved, provide narrative explaining how effects on the project for each Guiding Principle precludes achieving specific sustainability requirement or goal. Provide analysis of particular requirement and level to which project is able to comply.

**5-3.2 Pre-award Commissioning Services.**

When the project requires pre-award Commissioning services, incorporate all comments, reports, Owner Project Requirements (OPR), and any other documentation related to commissioning effort.

**5-3.3 Third-Party Certification (TPC).**

For projects requiring TPC Certification, project must also achieve all Guiding Principles Validation (GPV) in accordance with UFC 1-200-02.

**5-4 ANTITERRORISM (AT).**

Provide an Antiterrorism (AT) section in the Basis of Design that summarizes how the design complies with the DoD minimum AT standards in UFC 4-010-01 and the applicable Geographic Combatant Commander's AT Construction Standards. As a minimum, include the following in the summary:

- Facility description including occupancy (low occupancy, inhabited, primary gathering, or billeting)
- Level of Protection
- Narratives of how each applicable standard is met.
- Applicable explosive weights (I, II, or III) and levels of protection.
- Site plan dimensioning standoff distances
- Protective measures above the minimum

Note – Identify explosive weights as explosive weight I, II, or III as described in UFC 4-010-01, to avoid disclosure of sensitive information.

**5-5 GEOTECHNICAL.**

The Basis of Design (BOD) must include a paragraph briefly describing the geotechnical investigation program, the recommendations for the site preparation, and the recommendations for the building foundation and pavement design.

It is preferred that the geotechnical report be included in the BOD as an appendix. However, the schedule may preclude the completion of the field investigation prior to the submittal of the BOD. If this is the case, describe the assumed basis of design for the foundations and pavement, and submit the geotechnical report as soon as possible, and as acceptable to the Government.

**5-6 CIVIL.**

Identify the governing codes and criteria including federal and military handbooks being used for the design. References may be noted in the related sections listed below. Include reference titles and date of publications. Provide BOD with adequate narrative to describe design logic and assumptions. Show adherence to scope of work.

**5-6.1 Existing Conditions.**

Include the following:

- a) Describe general site topography and vegetation type (grass, lightly wooded, brush). Describe existing site features.
- b) Identify whether existing underground features, such as footings, foundations, or steam pits, exist, and describe.
- c) Describe existing soil conditions.
- d) Describe existing utilities, including size, type, and general location. Discuss impact that this, and future projects, will have on utility systems.
- e) Identify predominant drainage features, including any required downstream improvements. State whether field survey has been coordinated with delineation. Indicate the parties that have been notified of the presence of wetlands and are actively involved in this issue.
- f) Identify and describe if endangered species inhabit area.
- g) Identify and describe existing traffic patterns on and around site.
- h) Provide horizontal and vertical datum and other pertinent survey information.

**5-6.2 Demolition.**

Discuss demolition relating to Civil issues only, typically 5 feet (1.5 m) outside of building line. Identify all buildings slated to be demolished by building number. Generally describe structure types (i.e. 1-story frame, 2-story block); include building specifics under the Architectural BOD. Describe pavement to be demolished, including existing pavement section. Describe underground and overhead utility demolition, relocation, and abandonment. Describe other features to be removed (i.e. play equipment or fencing).

**5-6.3 New Site Work.**

Describe new building and its function with respect to civil issues, such as vehicle ingress/egress and pedestrian movement. Address internal functions under Architectural BOD. Describe pedestrian access. Identify number of parking spaces; include stall and aisle widths. Describe handicap access in and around site, number and size of handicap parking spaces. Identify physical security requirements, such as intrusion detection provisions, fencing type and height, and lighting requirements. Also identify antiterrorism standoff distance requirements for the specific site conditions. Identify vehicle type expected on project site; note non-standard vehicle sizes and

weights. Identify design wheel loading. Define projected traffic volume. Define new pavement types and sections. For airfield pavement, discuss design parameters, including pavement use, loadings, design life adopted in design, design methodology to be used, and availability of materials anticipated for construction, and possible impacts construction may have on airfield operations, such as haul routes and closures. For railroads and crane rail, state type of service for which rail track will be provided; anticipated volume and type of traffic; the ruling grade and the maximum curvature. Describe proposed type, source and thickness of ballast, weight of rail and source, treatment and dimensions of ties. For small arms ranges, list expected weapons and ammunition including the most powerful weapons/ammunition combination that the design is based on. Discuss critical features such as impact berms (including height and slope), side berms, firing lines, firing directions, target locations, bravo flag poles, road gates, fencing, access roads, supporting facilities, and any other prominent feature. Do not include the SDZ since this has nothing to do with the construction project.

#### **5-6.4 Water Supply.**

State design parameters; include domestic and fire flow, residual pressure, and recent flow test data. State anticipated demand. Fire flow requirements must be established by the Designer of Record's fire protection engineer. Describe water main and supply line sizes and capacities. Identify connection points. Identify connection methods. Identify whether existing infrastructure has capacity to support project. Identify requirements for backflow protection and freeze protection. Identify needs for metering. Identify need for booster pumps or pressure reducing valves. State number of new fire hydrants. Coordinate with the Designer of Record's fire protection engineer. Provide number of wells and proposed pump rates.

#### **5-6.5 Sanitary Sewer.**

Describe waste stream and whether it is from domestic or industrial source. Include sources of any hazardous substances. Identify design population, peak and average flows. State whether sewer will be gravity or force main. Identify pre-treatment requirements and solutions. State minimum pipe slopes and velocities. Identify special installation requirements. State new pipe sizes and capacities. Identify pump station type, wet/dry well, types of pumps, pump capacity and total dynamic head, horsepower, telemetry requirements and compatibility with existing on-base systems, backup power requirements, and assumed response time by Activity personnel. Consult Activity as to whether existing system is operating at or near capacity. Discuss adequacy of existing system to handle current and future flows.

#### **5-6.6 Wastewater Treatment.**

Identify completed treatability studies. Briefly describe recommended process noting deviations from the treatability study. Define impact of stream condensation and cooling water discharges on sewer piping and treatment plants and the estimated cost of distribution and treatment of this additional loading.

**5-6.7 Storm Drainage System.**

Identify factors such as receiving waters, classification (if applicable), storm frequency, and C factors. Discuss adequacy of existing storm system and its effects on downstream facilities and systems. Discuss whether existing system will require upgrades. Identify use of collection system versus sheet flow. Describe materials and pipe sizes. Describe how upstream flows that impact site will be handled.

**5-6.8 Stormwater Management.**

Identify Integrated Management Practices (IMP's) and approach to stormwater management. Discuss compliance with UFC 3-210-10, Navy LID Policy, Activity, State, and local requirements.

**5-6.9 Erosion & Sediment Control.**

Identify total disturbed area acreage. Discuss erodibility of soil, devices or methods to be used to control erosion and sediment losses, and protection devices at outfalls. Discuss compliance with Activity, State, and local requirements.

**5-6.10 Permits.**

Identify the permits necessary for both construction and operation of facilities. Identify fees associated with each permit. Submit PROD form with BOD.

**5-7 STRUCTURAL.**

Provide a narrative report on how the design concept satisfies the customer's requirements, meets criteria and is cost effective. Include statements on the following:

- List a summary of the criteria upon which the structural design is based. Including a statement of all loads: dead, live, wind, snow, earthquake and any other significant load.
- List all assumptions required for the structural design where the design criteria is undefined, unclear, conflicting or unknown. State the basis of the assumption made.
- Describe the structural floor and roof systems. Include a discussion of both the gravity and lateral force resisting systems. Clearly describe the gravity and lateral load paths providing all pertinent information such as, capacity, size, dimensions, materials and design strengths. Define how foundations and slabs on grade are used to distribute lateral forces between the structure and the ground.
- Provide a narrative summary of the foundation system, including method for determination of the bearing capacity, maximum allowable bearing capacity, and lateral force capacity of the foundation, as well as other soil parameters used in the design. Provide all pertinent information, such as capacity, size, dimensions and a list of materials with design strengths.

- When appropriate, provide a statement of any special considerations that affect the design (e.g. “superflat floors” for high stack warehouses, special corrosion resistance requirements, fire-resistive requirements, or crane or monorails).
- Describe applicable special inspections, testing, and observations required per IBC Chapter 17.
- When using U.S. Geological Survey seismic information, provide a map showing the Latitude and Longitude of the project site.
- Provide a narrative summary of the Serviceability limits for the structure. Include the lateral drift limit for the primary lateral load resisting system for wind or seismic, roof framing deflection limit for DL + LL and LL only, floor framing deflection limit for DL + LL and LL only, and composite floor framing deflection limit for DL + LL and LL only.

**5-8 FIRE PROTECTION.**

Provide fire protection design in accordance with the contract and UFC 3-600-10N (DRAFT).



## **CHAPTER 6 DELIVERABLE: CALCULATIONS**

### **6-1 GENERAL REQUIREMENTS.**

Submit design calculations required at each design stage in accordance with the contract, the Core UFC's, and the additional Discipline requirements listed herein. If another UFC adequately describes the requirement for a Discipline's deliverable, a paragraph for that Discipline is not provided below.

Prepare calculations in metric units when metric design is required. Provide reference to the source (Navy and non-Navy criteria used) to produce the calculations.

### **6-2 COMPUTER GENERATED CALCULATIONS.**

Provide the software program name, version and source used to produce each computer output or report.

### **6-3 FORMAT.**

Format calculations as an 8 1/2 by 11 inch (216 by 279 mm) document. Provide a cover sheet with the title "Calculations;" the stage of the submittal; the project title and location; the A-E Contract or Construction Contract number; the eProjects Work Order Number or Maximo Number; the Firm's name, Command, or Contractor's name; and the date. Organize calculations by Discipline, in the same order as the drawings, and in a manner appropriate for the number of sheets provided. Number all sheets. Provide an index, following the title sheet, with sub-indexes for disciplines having a very large number of sheets, and include Discipline name and page numbers.

### **6-4 SUSTAINABILITY AND ENERGY.**

Provide calculations in accordance with UFC 1-200-02 for life cycle cost analysis and others.

### **6-5 GEOTECHNICAL REQUIREMENTS.**

The geotechnical calculations normally appear in the geotechnical report; however, they may be in a separate package if another consultant other than the geotechnical consultant prepares the calculations for foundations or pavement. The calculations must indicate the loadings, capacities, the safety factors, and the text from which the calculations were based for the foundation and pavements. Graphs and formulae must be clearly indicated along with the derivation of curve slopes and data derived from the laboratory testing.

### **6-6 CIVIL.**

Provide design calculations for erosion and sediment control, stormwater drainage system, stormwater management, pavement and utility systems. Calculations must be legible, orderly and easily understood and checked by a registered practicing civil engineer.

**6-6.1 Low Impact Development (LID).**

Comply with UFC 3-210-10. If the project footprint exceeds 5000 SF (464.5 SM) the project must be documented on the NAVFAC Sustainable Energy Data Record Card (NSEDRC), approved by the Government's civil reviewer who will document on the eProjects LID tab. In-house design projects must be reviewed and approved by either the civil engineer's supervisor or the Civil Technical Discipline Coordinator (TDC). The NSEDRC can be found at:

[http://www.wbdg.org/pdfs/navfac\\_sustainable\\_energy\\_data\\_record\\_card.pdf](http://www.wbdg.org/pdfs/navfac_sustainable_energy_data_record_card.pdf)

For Navy and Marine Corps projects, comply with Navy LID Policy (commonly referred to as the Penn Memo). The Navy LID policy sets a goal of no net increase in stormwater and sediment or nutrient loading from major renovation projects and construction projects. Major renovation projects are defined as having a storm water component and exceeding \$5 million and major construction projects are defined as exceeding \$750,000. If LID is not implemented to the METF as defined in UFC 3-210-10, a waiver must be obtained from the Regional Engineer. Projects exceeding the dollar values above must be documented on the NSEDRC and approved by the Government's civil reviewer, who will then document in the eProjects LID tab. In-house design projects must be reviewed and approved by either the civil engineering supervisor or the Civil Technical Discipline Coordinator (TDC). The LID waiver form is included as an attachment to the NSEDRC. Coordinate waiver review and approval with Civil Technical Discipline Coordinator (TDC).

**6-7 STRUCTURAL REQUIREMENTS.**

Provide calculations to support all items and details outlined on the drawings and specifications. Include calculations for the main framing systems and all beams, columns, walls, foundations, bracing, diaphragms, equipment supports, and component inter-connections to provide a safe, stable efficient and cost-effective structural system, considering all design loads and criteria. They must be legible, orderly and easily understood and checked by a registered practicing structural engineer.

Also include the following:

- A cover sheet indicating the project title, location, construction contract number and names of the persons originating and checking the calculations.
- Table of contents.
- A brief statement describing the structural system, significant design parameters and any restrictions that may affect the design.
- Applicable design criteria.
- Loads: Include all loadings, forces, temperature changes, induced settlements, and other internal and external actions that may affect the design of the structure. The list must include the orientation and location, magnitude and units of measure for each load.

- Restrictions: Include all limiting factors such as horizontal and vertical deflections limits, height restrictions, installation or operating tolerances for equipment or building components and any other limits to the structural system.
- Materials: Include all materials used and their allowable stress limits, yield strengths, type, grade, class or other applicable material properties.
- References: Include all criteria, accepted standards, manuals, codes, texts, papers, or other references used in the analysis and design that are accepted in a public domain. All references must be appropriately identified; abbreviations such as AISC, ASTM, and ACI are acceptable. Document the origin of all customer specific criteria in the calculations.
- Sketches with sufficient detail and clarity to communicate design intent. Note assumptions and references to codes, standards, criteria drawings and computer output.

#### **6-7.1 Calculations and Test Reports for Antiterrorism.**

Provide Calculations or test reports for the following systems demonstrating compliance with applicable Antiterrorism (AT) requirements:

- Blast resistant window systems
- Structural analysis of building elements where stand-off distances are less than the conventional stand-off distance
- Progressive collapse calculations

Note – Identify explosive weights as explosive weight I, II, or III as described in UFC 4-010-01, to avoid disclosure of sensitive information.

#### **6-7.2 Design for Lateral Forces.**

Design for lateral forces must include design calculations for wind, seismic, and other potential loadings. The construction drawings must depict the governing design elements base on both seismic and wind design requirements.

#### **6-7.3 Computer Generated Calculations.**

Provide input data, including loads, loading diagrams, node diagrams, and adequate documentation to illustrate the design. The schematic models used for input must show, as a minimum, nodes/joints, elements/members, materials/properties, and all loadings, induced settlements/deflections, and a list of load combinations. Results must include an output listing for maximum/minimum stresses/forces and deflections for each element, and the restrictions for each loading case and combination. If required, submit narratives. In addition, provide the following:

- Submit graphical plots of structural models which must include, but not be limited to, main structural elements, boundary conditions, loading diagrams, and deflected shapes. Submit graphical plots with each

deliverable at each submittal stage. Provide in both native, editable format and in PDF.

- If a modal analysis is performed, submit plots of mode shapes and a listing of the dominant natural frequencies.
- If blast or progressive collapse analysis is performed, submit comparison tables of computed rotations/residual strength ratios and response limits listed in UFC 3-340-01 and UFC 4-023-03.

If software not commonly commercially available, or widely accepted in the structural community, is used, submit validation documentation of the software (e.g. hand verification of the software solution of a significant, representative portion of the structure).

## **6-8 FIRE PROTECTION CALCULATIONS.**

Provide calculations at the earliest possible stage in design, but no later than the Design Development Submittal and as further required by Chapter 15 of this FC. Comply with UFC 3-600-10N (DRAFT).

## CHAPTER 7 DELIVERABLE: DRAWINGS

### 7-1 GENERAL REQUIREMENTS.

Provide drawings in accordance with the Core UFCs, the contract, Chapter 12, *Electronic Design Deliverable (EDD) Format*, and the additional Discipline requirements herein, for every stage of design. If another UFC adequately describes the requirement for a Discipline's deliverable, a paragraph for that Discipline is not provided below.

### 7-2 PRESENTATION.

Drawings must be consistent in presentation and format. If one discipline shows material selections directly on the details, other disciplines must conform to that format, and not use numbers to refer to a numerical legend elsewhere on the drawings.

### 7-3 DRAWING NUMBERS.

Request NAVFAC drawing numbers from the Government's Project Manager or the Design Manager. Provide them with the following information:

- 1) The amount of numbers required;
- 2) The eProjects or Maximo Work Order Number, and
- 3) The project title. Request enough numbers (usually 10% more) that additional sheets can be added if necessary.

### 7-4 PROPER USE OF NOTES ON DRAWINGS.

- Be consistent with grammar used in notes on drawings. Wherever possible use imperative statements to describe work to be accomplished by Contractor. For example, instead of using "Contractor must provide," use "provide." It is understood that the notes are written for the Contractor's action.
- Do not use "to be" for describing work that will be accomplished by the Contractor. "To be" implies that someone will accomplish the work other than the Contractor, such as the Government or another Contractor. If work is to be accomplished by Government, for example, say "Government will remove storage building prior to start of construction."
- Do not use "install" for work that is to be accomplished by the Contractor. "Install" means Government or others will furnish equipment or materials and Contractor will install. "Furnish" means Contractor must only furnish; Government or others will install. Use "provide" when the Contractor is to furnish and install equipment and materials.
- Do not use "proposed" for new construction. "Proposed" means future work by others or work not in this contract.

- Do not use “new” for work in the contract. All work shown on the drawings is considered new, unless indicated otherwise. Inconsistent use of “new” throughout the drawings could mean that only some of the work is required.
- Do not use ambiguous statements that cannot be enforced by the inspector during construction. For example: “grade to drain;” “hand excavate carefully;” “provide materials in good condition.”
- Be careful with statements like “remove and replace,” which means to remove old item or material and replace that item or material when work is completed. This statement would be appropriate for work in a pump station where pumps were removed prior to the work and those same pumps replaced after the work is completed. On the contrary, if a portion of a concrete walk is cracked and requires replacement, say “remove and provide concrete walk.”
- When referring to requirement for coordination between Contractor and Government agency, for example, use “coordinate utility connection with Contracting Officer;” do not use words such as “Navy,” “ROICC,” or “PWD” for Government Agency.
- Do not indicate “see specifications” on the drawings. The drawings and the specifications form a complete construction package.
- Do not use “all” or “any.”
- Do not use words that have multiple meanings, requiring opinions, or judgmental decisions, such as “timely,” “nearly,” “good-condition,” “suitable,” “well-balanced,” “suitable for intended use,” “reasonable,” “approximately,” “reliable,” “proper,” “usable,” “appropriate,” “adequate,” or “qualified.”
- Do not use terms that are not biddable by the Contractor nor enforceable by the Government, such as “recondition,” “as directed,” “equal to,” “as required,” “similar to,” “as necessary,” “as close as possible,” “repair,” “match existing,” or “refurbish.”
- Some terms are only enforceable if quantities are shown on the drawings or included in the specifications, such as “as indicated,” “as shown,” “specified herein,” and “as noted.”
- Be careful when using the word, “typical,” especially if there are exceptions to the detail.
- Use “must” rather than “shall.”

**7-5 CIVIL DRAWINGS.****7-5.1 Cover Sheet, Drawing Index, Vicinity Map, Location Plan, Abbreviations, Legend, and Notes, or First Civil Sheet.**

If project is not a Civil Engineering lead, assure that the following items are coordinated with the lead discipline responsible for creating cover sheet:

- a) If General Development Maps (GDM) are used for the Vicinity and Location Maps, edit for the specific project being designed. Ensure street names, main gates, and the Public Works office of the base are identified. Ensure that text is legible at the plotted scale and remove extraneous lines.
- b) The Vicinity Map must identify the Activity and have enough main highway names and street names to allow an out-of-town contractor to locate the work.
- c) The Location Plan must allow the contractor to find the project on the base. This is generally a good place to show laydown areas, haul routes, any construction traffic routing restrictions, and off-site benchmark locations. Provide an adequate amount of street names to allow coordination between the Vicinity Map and the construction plans.
- d) In general, it is desirable to show the Vicinity Map and the location Plan on the Cover Sheet along with the project title.
- e) Coordinate with FEAD or ROICC, and Activity for laydown area.
- f) Edit standard details, abbreviations, legends, and general notes for the specific project being designed.
- g) Provide a single Civil legend on one sheet (preferably sheet C-001).
- h) Datum must be securely tied between project datum and local datum.

For projects near tidal waters, show datum sketch indicating project vertical datum and relationship to range of tide and other important datum.

**7-5.2 Demolition Plan.**

Include the following:

- a) Clearly show what is to be demolished at an appropriate scale. Coordinate/edit the legend to match the demolition plans.

- b) Indicate the beginning and ending points of utility removals and methods of plugging pipes (e.g. cap, brick & mortar). Show locations of valves to be used for isolating work.
- c) Show limit of pavement removal and pavement thickness.
- d) Describe the existing items in detail with supplemental descriptions if necessary. Indicate depth of pavements/bases to allow uniform contractor bids.
- e) Provide a sequence of demolition if necessary. Include any known requirement for continuous operation and limited shutdown requirements. These must be identified in the special scheduling paragraphs of the specification.
- f) Do not show any items that are being demolished with the current project on subsequent Civil plan sheets.
- g) Show locations of all erosion and sediment (E&S) control items and add E&S notes. Show erosion control details on drawings or refer to applicable details in the State Erosion and Sediment Control Handbook or manual. Verify that the erosion control legend is edited, clear and coordinated with the drawings.
- h) Provide a Tree Protection Detail for existing trees, which are to be preserved during construction. All trees are not amenable to the same barrier fence application. Consult a Registered Landscape Architect or State Certified Arborist. As a minimum, show a 4 foot (1.2 m)- high safety-orange, plastic barrier fence with metal or 4 x 4 inch (101 x 101 mm) wood stakes at 8 foot (2.5 m) on center spacing, continuously located around the tree's drip-line, unless otherwise directed by a certified arborist. If trees are in a group or cluster, use only one fence to surround the entire cluster.

### **7-5.3 Site Plan.**

Include the following:

- a) Show all new aboveground features including all features required by the BOD (i.e., airfields, railroads, crane rail, small arms ranges) with adequate layout data and existing aboveground features, after demolition has occurred.
- b) Label baselines to be used for project layout as 'construction baseline' as opposed to survey baseline.
- c) Provide layout dimensions from the construction baseline, or another readily identified (and easily established) alignment in the field. Include horizontal control point locations and descriptions. Use of coordinates



for layout purposes is discouraged, however their use may be considered on a case-by-case basis. Contact Government's Civil Reviewer for approval of coordinate layout prior to project submittal.

- d) Show areas requiring pavement patching, repairs and new pavement. Provide pavement jointing plans for rigid pavements. Include separate pavement marking plans for airfield projects.
- e) Eliminate extraneous items that may congest the drawing (e.g. contours, elevations) and detract from the layout information.
- f) Show locations of any additional E&S control items not already included on the Demolition Plan. Coordinate with E&S notes, details, and legend.
- g) Indicate all trees and plant material to remain.
- h) Provide statement concerning location of soil borings and soil information.

#### **7-5.4 Water and Sanitary Sewer Plan.**

Include the following:

- a) Indicate whether new connections will be made by wet tap (tapping sleeve/valve) or by dry connection. Show nearest valve(s) for system isolation if the latter is the case. Indicate known scheduling issues in the special scheduling paragraphs of the specification.
- b) Indicate surface materials (i.e. grass, bituminous, or concrete).
- c) Provide numbers (or letters) for each sanitary structure and water fitting so that plans and profiles are easily coordinated. This labeling system must be clearly distinct from that used for the storm drainage system and preferably distinct from labels used by other utility systems, (i.e. electrical).
- d) Provide manhole rim and invert elevations, pipe slopes, pipe diameters and pipe materials. If profiles are provided, indicate slopes on the profile sheets and do not provide on the plan sheets.
- e) For water treatment plants, provide details process and instrumentation diagram (P&ID).

#### **7-5.5 Water, Storm, and Sanitary Sewer Profiles.**

- a) Show profiles where needed for clarity and to avoid potential conflicts. Discuss profile requirements with Government's Civil Reviewer.

- b) Indicate structure tops, pipe invert elevations, slopes, lengths, and diameters of all new gravity lines.
- c) Coordinate structure numbers with plan sheets.
- d) Reference the plan sheets where pipes/structures are shown.
- e) Show and label existing and new surface materials, such as concrete pads, curbs, and roads, traversed by the new lines. Accurately show depth of existing pavements.
- f) Show and label all crossing utility lines, both existing and new.
- g) If depths of existing utilities are unknown, indicate the horizontal location of the utility and indicate the vertical location with a line representing the anticipated range of elevations where the utility will be found in the field. Indicate the method of new utility installation routing above or below conflicts, (i.e. concrete encasement or pressure pipe).

#### **7-5.6 Grading and Drainage Plan.**

Include the following information:

- a) Provide existing spot elevations and existing contours at intervals to clearly indicate existing drainage patterns.
- b) Provide new spot elevations and new contours when appropriate to clearly indicate new grading and drainage patterns. New spot elevations/contours must be easily distinguished (bolder font) from existing.
- c) Indicate where new grading ties to existing grading (limits) and verify that new work will not block existing adjacent drainage.
- d) Show all benchmarks, temporary benchmarks (tbn's), other vertical control, and datum notes on this plan.
- e) Show finish floor elevations on grading plans. Do not show finish floor elevations on the architectural or structural plans in order to avoid conflicts. Coordinate adjacent exterior grading with the architectural/structural plans to ensure positive drainage patterns away from the building.
- f) Verify that the slopes indicated on the plans are suitable for the surface material involved, i.e. earth slopes, bituminous pavements, and concrete pavements. Consider if these slopes are maintainable for the service life of the facility.

- g) Coordinate with the Landscaping Plans (L sheets) to prevent new plantings from blocking site drainage.
- h) Provide numbers (or letters) for each drainage structure so that plans and profiles are easily coordinated.
- i) Provide erosion and sediment control details.

**7-5.7 Site / Utility Details.**

Incorporate details as follows:

- a) If applicable, edit and update standard details provided by the Government's Civil Reviewer to apply to the particular conditions and requirements of the project.
- b) Details of items shown in the construction standards of the Department of Transportation, or other agencies of the state in which the project will be constructed or other appropriate local/commercial standards are required on the plans.
- c) Pavement Sections.

**7-6 GEOTECHNICAL DRAWINGS.**

Include subsurface investigation results on the drawings for record-keeping purposes. As a minimum, the drawings must include the logs as they appear in the Geotechnical Report, a summary table of the laboratory testing, notes concerning the drilling, logs and testing, groundwater observations/conclusions, and any site preparation notes or details, such as undercutting and surcharging.

**7-7 STRUCTURAL DRAWINGS AND NOTES.**

Provide structural drawings that sufficiently detail all structural work. The drawings must contain a set of "Structural Notes" in accordance with UFC 1-200-01, and which provide critical reference information for future building modifications or evaluations. As a minimum, note Design Criteria, Design Standard References, General Construction requirements, and the following:

- Loads: Provide loading information and identify source for all listed loads.
- Foundation Conditions: Fully describe the foundation conditions and list the type of foundation system and method employed to determine allowable soil bearing values. Indicate the minimum allowable bearing capacity for shallow foundations, or the pile or pier capacity in both tension and compression for deep foundations. Indicate passive, active and at rest design pressures, the coefficient of friction and the sub-grade modulus. Indicate if a site specific design spectrum is to be used in the

design and give the site class in accordance with the seismic design criteria used.

- **Materials:** Clearly define the types, grades and properties of materials for each structural element and system.
- **Quality Assurance:** Provide a summary of the quality assurance requirements.
- **Ammunition and Explosive Facilities:** Drawings that include a standard approved for Ammunition and Explosive storage facilities must include a note clearly identifying the source, name and date of the standard design.

**Marine Structures:** List mooring berthing and deck loads for marine structures, including ship classes (e.g. DDG 51, CG 47, CVN) with associated displacements.

## **7-8 DRAWINGS PREPARED FOR OTHER GOVERNMENT ORGANIZATIONS.**

Approval of drawings for projects of other Government organizations or approval of modifications or revisions of drawings prepared by such organizations is required as follows:

- Indicate approval by other Government departments or agencies by appropriate signature in the supplemental locations provided on the NAVFAC Title Block (comply with Chapter 12).
- When NAVFAC drawings are prepared for construction projects for other Government departments or agencies, submit fully developed concept designs to the appropriate departments or agencies for formal approval.
- For drawings prepared under the direction of NAVFAC, the other Government organization provides approval solely for functional and operational sufficiency.
- When definitive, standard, or project drawings of other Government departments or agencies are used by NAVFAC for design of projects for those departments or agencies, make modifications or revisions to such drawings only with the approval of the department or agency concerned, unless NAVFAC has been authorized otherwise.

## CHAPTER 8 DELIVERABLE: SPECIFICATIONS

### 8-1 GENERAL REQUIREMENTS.

Provide specifications in accordance with UFC 1-200-01, the Core UFCs, UFC 1-300-02, and Chapter 12. Provide specifications that are as brief as possible, definitive, and free of ambiguities and omissions that may result in controversy and contractor claims for additional compensation.

### 8-2 GUIDE SPECIFICATIONS.

Specifications offer criteria for materials, equipment, and test methods. Guide specifications are documents that describe products and materials and the work necessary to incorporate them into a construction project. A guide specification facilitates the preparation of project specifications by standardizing products and processes, and their order of presentation. DoD uses the Unified Facilities Guide Specifications (UFGS) database, provided on the Whole Building Design Guide website (<http://www.wbdg.org>), which is updated quarterly. Edit guide specifications to specific project requirements for incorporation into the contract documents. Guide specification and project specification sections describe the following in detail:

- Product or system to be provided,
- Salient design features or performance requirements of the product or system,
- Quality of that product or system and methods used to ensure the quality, including on-site and off-site testing,
- Method to be used to incorporate the product or system into the project, and
- Other features and functions necessary.

Guide specification section numbers, up to 10 digits, in CSI MasterFormat 2004, are grouped in pairs. Each of these groupings is referred to as a “level,” from one to five. Refer to the CSI MasterFormat website at <http://www.csinet.org/mfnumber> for further explanation.

#### 8-2.1 Unified Facilities Guide Specifications (UFGS).

Use Unified Facilities Guide Specifications (UFGS) for all projects, including Design-Build. UFGS are available at the Whole Building Design Guide website at <http://dod.wbdg.org/>. Tailor and modify the UFGS as necessary to suit the work required by the specific project, including editing for metric or inch-pound. In addition, modify and edit to reflect the latest proven technology, materials, and methods, for the project.

There is only one current version of a guide specification at any time. The guide specification with the latest revision date and change number automatically cancels specifications of the same number with a previous date and change number.

## **8-2.2 Regional Guide Specifications.**

Some Supported Commands have modified some of the UFGS for their region; these are referred to as Regional Guide Specifications. Use Regional Guide Specifications when sections are available by the Region and Activity for the project location, and as required by the contract. Regional specifications are located on the Whole Building Design Guide website at [http://www.wbdg.org/ccb/browse\\_cat.php?o=3&c=43](http://www.wbdg.org/ccb/browse_cat.php?o=3&c=43) and where indicated in the contract.

Regional specifications are limited in number and scope to selected subjects particular to a location and contain a majority of local requirements. Regional specifications are used in the same way as the UFGS except that they are used only in the area of the specific facility engineering command jurisdiction. Regional specifications are numbered the same as the UFGS that has been used as a basis for the regional specification, with the exception of a regional designation at the fifth level for specifications in CSI MasterFormat 12; for example, in UFGS Section number, 01 13 30.00 22, "22" indicates the region. Assigned regional designations can be found with the Regional specifications at [http://www.wbdg.org/ccb/browse\\_cat.php?o=3&c=43](http://www.wbdg.org/ccb/browse_cat.php?o=3&c=43).

## **8-2.3 Other Guide Specifications.**

Other guide specifications are only allowed as a basis for information when not available in the UFGS. These developed specifications must be provided in UFGS format and modified to meet requirements of UFC 1-300-02. Do not use NASA UFGS specification sections (ends with "40" at the fifth level).

## **8-2.4 UFGS Selection Order of Precedence.**

Unless specified otherwise in the contract, the order of precedence for selecting which UFGS to start from, for CONUS jobs that require the use of the UFGS, is as follows:

- 1) Regional Guide Specifications (for the project location and where sections are available).
- 2) UFGS, Navy only (UFGS with a "20" at the fifth level in CSI MasterFormat 12).
- 3) UFGS (unified, no designator at the fifth level).
- 4) Other DoD UFGS (Army UFGS with .00 10 designation and modified for Navy job)
- 5) Other Guide Specifications.

## **8-2.5 Design-Build Performance Technical Specifications.**

Develop Performance Technical Specification (PTS) sections in accordance with requirements of Chapter 11.

**8-3 PROJECT PREPARATION POLICIES AND GUIDANCE.**

Prepare specifications in Format and Styles required by UFC 1-300-02.

**8-3.1 UFGS Version Date.**

Download, use, and edit the most current UFGS database available from the Whole Building Design Guide website, <http://dod.wbdg.org/>. Unless otherwise specified by the contract, the version that is current at the official start of the Pre-Final design phase must be used, and continue to be used, through Final design. Coordinate the version of the UFGS database used with the Government's project manager, and report this date to them.

**8-3.2 Editing of Specifications for Project.**

Modify the guide specification to fit the project. Delete portions of the guide specification that cover work not included in the project. When portions of the work involved are not covered in a guide specification, add requirements to the project specification, as necessary, using language and format in accordance with UFC 1-300-02.

Use guide specifications only as source documents, and do not reference them in project specifications. Do not combine work covered by various UFGSs into one section unless the project is small and work is of a minor nature, and the Government Project Manager concurs.

**8-3.3 Standard Plates, Sketches, and Details.**

Provide plates, sketches, boring logs, and details on the drawings, and not in the specifications.

**8-3.4 Unrestricted Bidding.**

Provide only the actual minimum needs of the Government in the specifications, and describe the salient characteristics of materials and installation so as to encourage maximum competition in bidding. Eliminate, insofar as possible, any restrictive features that might limit acceptable offers to one supplier's product, or to the products of a relatively few suppliers, and as required further by UFC 1-300-02. Do not list manufacturers unless Contracting Officer approval is received in accordance with NFAS 6.304. Master UFGSs that list manufacturers must have a class justification on file.

**8-3.5 Contract Parties.**

Do not designate part of the work to be performed by a particular subcontractor (e.g., the plumbing contractor) in constructing the project, except for some specific instances. The Government recognizes only one Contractor (the prime or general contractor), and it is the Contractor's responsibility to divide up the work.

## **8-4 COORDINATION OF SPECIFICATIONS AND DRAWINGS.**

FAR 52-236-21, *Specifications and Drawings for Construction* states: "Where 'as shown', 'as indicated', 'as detailed', or words of similar import are used, the reference is made to the drawings accompanying this contract unless stated otherwise."

### **8-4.1 DBB Contract Order of Precedence.**

For Design-Bid-Build contracts, the Contract Order of Precedence is defined in FAR 52-236-21. In general, treat anything mentioned in the specifications but not shown on the drawings or shown on the drawings but not included in the specifications, as if shown or mentioned in both. In the case of discrepancies between the drawings and specifications, the specifications take precedence.

### **8-4.2 DB Contract Order of Precedence.**

For Design-Build, the Order of Precedence for RFP contracts is described in NFAS Clause 5252.236-9312.

### **8-4.3 Coordination.**

Coordinate the drawings and the specifications to ensure that all items depicted in the drawings are covered by an appropriate specification section and that all specification sections relate to items in the drawings.

## **8-5 USE OF UFGS AND SPECSINTACT.**

Edit and provide UFGS sections in accordance with UFC 1-300-02, using SpecsIntact software and UFGS format. SpecsIntact is the word processing software used to edit the UFGS database. SpecsIntact software is available for download, free of charge, at the SpecsIntact web site (<http://specsintact.ksc.nasa.gov/>).

## **8-6 SPECIFICATIONS PACKAGE ORGANIZING STRUCTURE.**

### **8-6.1 Coversheet.**

Include an overall cover sheet, for signature, with project specification package. Type in the name and title of the principle Designer of Record, who must sign in the "Submitted By" location. The coversheet for electronic signature is available on the Whole Building Design Guide at [http://www.wbdg.org/ccb/browse\\_cat.php?c=226](http://www.wbdg.org/ccb/browse_cat.php?c=226).



## **8-6.2 Contract Documents.**

The DOR prepares and provides the following documents to the Government's Project Manager for the Contract Specialist. The Contract Specialist consolidates bidding and contract requirements, along with the drawings and specifications, into a single solicitation package.

### **8-6.2.1 Document 00 22 13.00 20.**

Provide UFGS Document 00 22 13.00 20, *Supplementary Instructions to Offerors* separately and as an attachment to the Project Information Form (PIF). Do not combine with the specifications package or include in the Table of Contents. Convert the final UFGS document to Word or PDF, and provide in that format for the Contract Specialist's use.

The Contract Specialist includes this document information, along with the information from the PIF, in the contract clauses portion of the solicitation. A sample of UFGS Document 00 22 13.00 20 is provided in Appendix C.

### **8-6.2.2 Project Synopsis.**

The scope in the project synopsis is taken from the Description of Work located in UFGS Section 01 11 00. This description of work must be concise, and summarize the location, facilities, and type of work involved. A sample synopsis is provided in Appendix C. Provide the scope of work for the Synopsis at Pre-Final and Final in accordance with contract requirements.

## **8-6.3 Format.**

Provide specifications in UFGS format in accordance with UFC 1-300-02. Print job headers with the job title, exactly as it appears on the drawings, justified to the left, and with the eProjects Work Order Number or Maximo Number justified to the right. For Prefinal submittals, follow the job title with "(Prefinal)."

## **8-6.4 General Requirements (Division 00 and 01) Specifications.**

Edit the UFGS Division 00 and 01, General Requirements Divisions to describe the general project requirements of the project. Provide any additional requirements, of a general nature, rather than of a technical nature, in General Requirements.

The UFGS sections in Table 8-1 are typically used in a Design-Bid-Build project. Use other Division One sections as required, depending on the scope of the project, or as required by the Contract. Omit UFGS Document 00 22 13.00 20 from the Table of Contents, and provide separately in the submittal package with the PIF. Provide UFGS Document 00 01 15 as part of the specifications package, or separately, in accordance with Contract requirements.

### **Table 8-1 Commonly Used DBB UFGS Division 00 and 01 Sections**

UFGS Number	TITLE
00 01 15	LIST OF DRAWINGS (sometimes not provided in TOC)
01 11 00	SUMMARY OF WORK
01 14 00	WORK RESTRICTIONS
01 20 00.00 20	PRICE AND PAYMENT PROCEDURES
01 30 00	ADMINISTRATIVE REQUIREMENTS
01 32 17.00 20	NETWORK ANALYSIS SCHEDULES (NAS)
01 33 00	SUBMITTAL PROCEDURES (attach Submittal Register)
01 33 29.00 20	SUSTAINABLE REQUIREMENTS
01 35 26	GOVERNMENTAL SAFETY REQUIREMENTS
01 45 00.00 20	QUALITY CONTROL
01 50 00	TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS
01 57 19.00 20	TEMPORARY ENVIRONMENTAL CONTROLS
01 57 19.01 20	SUPPLEMENTARY TEMPORARY ENVIRONMENTAL CONTROLS
01 58 00	PROJECT IDENTIFICATION (attach Project Signboards)
01 62 35	RECYCLED/RECOVERED/BIOBASED MATERIALS
01 78 00	CLOSEOUT SUBMITTALS
01 78 23	OPERATION AND MAINTENANCE DATA
01 78 24.00 20	FACILITY ELECTRONIC OPERATION MAINTENANCE AND SUPPORT INFORMATION (eOMSI) (attach Facility Data Workbook)

### 8-6.5 Design-Build RFP.

For Part 2, "General Requirements," of the six part Design-Build RFP, use the UFGS sections provided in Part Two of the Whole Building Design Guide, NAVFAC Design-Build master, as appropriate, available at the following location:

<http://www.wbdg.org/ndbm>. Table 8-2 shows commonly used Design-Build RFP Part Two UFGS section.

**Table 8-2 Commonly Used DB RFP PART Two UFGS Division 01 Sections**

<b>UFGS Number</b>	<b>TITLE</b>
01 14 00.05 20	WORK RESTRICTIONS FOR DESIGN-BUILD
01 20 00.05 20	PRICE AND PAYMENT PROCEDURES FOR DESIGN-BUILD
01 30 00.05 20	ADMINISTRATIVE REQUIREMENTS FOR DESIGN-BUILD
01 31 19.05 20	POST AWARD MEETINGS
01 32 16.05 20	DESIGN AND CONSTRUCTION PROGRESS DOCUMENTATION...or
01 32 17.05 20	NETWORK ANALYSIS SCHEDULES (NAS) FOR DESIGN-BUILD
01 33 00.05 20	CONSTRUCTION SUBMITTAL PROCEDURES
01 33 10.05 20	DESIGN SUBMITTAL PROCEDURES
01 33 29.05 20	SUSTAINABLE REQUIREMENTS FOR DESIGN-BUILD
01 35 13.05 20	SPECIAL PROJECT PROCEDURES FOR DESIGN-BUILD
01 35 26.05 20	GOVERNMENTAL SAFETY REQUIREMENTS FOR DESIGN- BUILD
01 45 00.05 20	DESIGN AND CONSTRUCTION QUALITY CONTROL
01 50 00.05 20	TEMPORARY FACILITIES AND CONTROLS FOR DESIGN- BUILD
01 57 19.00 20	TEMPORARY ENVIRONMENTAL CONTROLS
01 57 19.01 20	SUPPLEMENTAL TEMPORARY ENVIRONMENTAL CONTROLS
01 78 23	OPERATION AND MAINTENANCE DATA
01 78 24.00 20	FACILITY ELECTRONIC OPERATION MAINTENANCE AND SUPPORT INFORMATION (eOMSI)

Include within Division 01, a section instructing the project team and stakeholders to use an integrated design process throughout the planning, design and delivery stages. The MOU Technical Guidance for the integrated design process is available from the WBDG web site (<http://www.wbdg.org/references/mou.php>). Include applicable references to the MOU Technical Guidance throughout project documentation.

### **8-6.6 Project Reports.**

Many projects include special requirements due to the presence of environmentally sensitive materials, such as asbestos, lead containing paint, PCBs, or other hazardous materials. Typically, as part of the Design or RFP Development contract, investigations are conducted to determine the presence, levels, and limits of sensitive materials. The investigative firm then provides reports, from which the information is used to design the project, or provided in the DB RFP. The Government provides this information to the Contractor as part of the contract documents.

#### **8-6.6.1 Design-Bid-Build.**

Provide and attach reports to the end of the appropriate UFGS specification section; i.e. provide the asbestos report at the end of UFGS 02 82 16.00 20, *Engineering Control of Asbestos Containing Materials*.

**8-6.6.2 Design-Build.**

For DB, provide project reports in Part 6 of the RFP.

**8-6.7 Combining Multiple Projects into One Bid Package.**

Occasionally, several projects, that have been independently prepared, or need to be easily separated, will be combined into one solicitation package. One solution is to combine the packages into at least three Parts.

**8-6.7.1 Design-Bid-Build Parts.**

In Part A, provide one General Requirements (Division 01) specification for the entire package. This Division 01 must be edited and accurate for all of the combined projects. The header in Part A must list the titles of each project, justified to the left, and the corresponding eProjects Work Order Number or Maximo number, for each project, justified to the right. Example is provided in Figure 8-1.

Part B consists of the technical specifications (Divisions 02-49) for the first project, and Part C consists of the technical specifications for the second project. Add additional parts depending on the number of projects being combined. Provide a Divider, a Table of Contents, and the technical specification sections. The header in each part must contain only the title of that Project, and the corresponding eProjects Work Order Number or Maximo number, for that project. An example is provided in Figure 8-1.

**8-6.7.2 Design-Build Parts.**

Part A consists of the General Requirements Division (Division 01), Part B consists of the RFP (Parts 3-6) for the first project, and Part C consists of the RFP for the second project. Add additional parts depending on the number of projects being combined. Provide a Divider, a Table of Contents, and the RFP sections (Parts 3-6). The header in each part must contain only the title of that Project, and the corresponding eProjects Work Order Number or Maximo number, for that project.

For RFP's in which Parts are shared, such as Part 2, Part 4, and Part 5, projects may be combined by simply using a Part 3 for each project, distinguished by the cover page and title, and inserted in Part 3; and a Part 6 for each project, distinguished by the title, and inserted in Part 6. In this case, parts A, B, and C dividers may not be required. Reflect the layout in the overall Table of Contents.

**8-6.7.3 DB and DBB Hybrid.**

For contracts where a Design-Build RFP is combined with a Design-Bid-Build project, provide one project, complete, in Part A, and the other project, complete, in Part B; do not combine the General Requirements (Division 01) of these two different types of projects. An example is provided in Figure 8-2.

**8-6.7.4 Coversheet.**

Provide one overall coversheet for signature. The coversheet must contain all of the eProjects Work Order Numbers or Maximo numbers. Contact the Government for which Work Order Number or Maximo number to use first as the primary. Also include all project titles, and if different Designers of Record prepared the RFP or specification, the information of each Designer of Record firm or agency. Be careful not to change the location of the electronic signature portlets when adding information to the coversheet.

**8-6.7.5 List of Drawings.**

Provide UFGS 00 01 15, *List of Drawings*, listing all of the drawings in the entire package. Group drawing lists by Project.

**8-6.7.6 Table of Contents.**

Provide a single, overall Table of Contents, listing each Part and the sections or documents in each Part. Note that SpecsIntact uses Courier New (10 pt) as the default font. Use this font to generate the Table of Contents and any other documents in Word. A sample Table of Contents is provided in Figure 8-1 and Figure 8-2.

**8-6.7.7 Submittal Registers.**

Provide submittal registers for each Part at the end of UFGS 01 33 00, *Submittal Procedures* (for DBB) or UFGS 01 33 00.05 20, *Construction Submittal Procedures* (for DB). Separate the submittal register for each part with a Divider; for example, bookmark "Part A: Submittal Register" (for Division 01 only), "Part B: Submittal Register," and "Part C Submittal Register," within the PDF package.

Figure 8-1 Sample Table of Contents for Combined DBB Projects

GATE 5 SECURITY IMPROVEMENTS, NSA NORFOLK	222088
SECURITY IMPROVEMENTS, GATE 10, NAS OCEANA	235341
<b>PROJECT TABLE OF CONTENTS</b>	
<b>PART A: GENERAL REQUIREMENTS</b>	
<b>DIVISION 00</b>	
00 01 15	LIST OF DRAWINGS
<b>PART B LIST OF DRAWINGS</b>	
<b>PART C LIST OF DRAWINGS</b>	
<b>DIVISION 01 - GENERAL REQUIREMENTS</b>	
01 11 00	SUMMARY OF WORK
01 14 00	WORK RESTRICTIONS
01 20 00.00 20	PRICE AND PAYMENT PROCEDURES
01 30 00	ADMINISTRATIVE REQUIREMENTS
01 32 17.00 20	NETWORK ANALYSIS SCHEDULES (NAS)
01 33 00	SUBMITTAL PROCEDURES
	SUBMITTAL REGISTER PART A
	SUBMITTAL REGISTER PART B
	SUBMITTAL REGISTER PART C
01 33 29.00 20	SUSTAINABLE REQUIREMENTS
01 35 26	GOVERNMENTAL SAFETY REQUIREMENTS
01 45 00.00 20	QUALITY CONTROL
01 50 00	TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS
01 57 19.00 20	TEMPORARY ENVIRONMENTAL CONTROLS
01 57 19.01 20	SUPPLEMENTAL TEMPORARY ENVIRONMENTAL CONTROLS FOR GATE 5
01 57 19.02 20	SUPPLEMENTAL TEMPORARY ENVIRONMENTAL CONTROLS FOR GATE 10
01 58 00	PROJECT IDENTIFICATION
01 62 35	RECYCLED/RECOVERED/BIOBASED MATERIALS
01 78 00	CLOSEOUT SUBMITTALS
01 78 23	OPERATION AND MAINTENANCE DATA
01 78 24.00 20	FACILITY ELECTRONIC OPERATION MAINTANANCE AND SUPPORT OPERATION INFORMATION (eOMSI)
<b>-- End of Part A --</b>	
<b>PART B: GATE 5 SECURITY IMPROVEMENTS, NSA, NORFOLK, VA (WON 222088)</b>	
02 41 00	DEMOLITION
<b>DIVISION 26 - ELECTRICAL</b>	
26 08 00	APPARATUS INSPECTION AND TESTING
26 32 13.00 20	SINGLE OPERATION GENERATOR SETS

**DIVISION 31 - EARTHWORK**

31 00 00            EARTHWORK

**DIVISION 34 - TRANSPORTATION**

34 71 13.19        ACTIVE VEHICLE BARRIERS

-- End of Part B --

**PART C: SECURITY IMPROVEMENTS GATE 10, NAS OCEANA, VIRGINIA BEACH, VA (WON  
235341)**

**DIVISION 02 - SITE WORK**

02 41 00            DEMOLITION

**DIVISION 31 - EARTHWORK**

31 23 00.00 20     EXCAVATION AND FILL

**DIVISION 08 - OPENINGS**

08 11 13            STEEL DOORS AND FRAMES

08 71 00            DOOR HARDWARE

-- End of Part C --

**Figure 8-2 Sample Combined DB and DBB Project**

**PART A: GATE 5 SECURITY IMPROVEMENTS, NSA, NORFOLK, VA (WON 222088)**

**DIVISION 01 - GENERAL REQUIREMENTS**

01 11 00 SUMMARY OF WORK  
01 14 00 WORK RESTRICTIONS  
01 20 00.00 20 PRICE AND PAYMENT PROCEDURES  
01 30 00 ADMINISTRATIVE REQUIREMENTS  
01 32 17.00 20 NETWORK ANALYSIS SCHEDULES (NAS)  
01 33 00 SUBMITTAL PROCEDURES  
01 33 29.00 20 SUSTAINABLE REQUIREMENTS  
01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS  
01 45 00.00 20 QUALITY CONTROL  
01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS  
01 57 19.00 20 TEMPORARY ENVIRONMENTAL CONTROLS  
01 57 19.01 20 SUPPLEMENTAL TEMPORARY ENVIRONMENTAL CONTROLS FOR GATE 5  
01 57 19.02 20 SUPPLEMENTAL TEMPORARY ENVIRONMENTAL CONTROLS FOR GATE 10  
01 58 00 PROJECT IDENTIFICATION  
01 62 35 RECYCLED/RECOVERED/BIOBASED MATERIALS  
01 78 00 CLOSEOUT SUBMITTALS  
01 78 23 OPERATION AND MAINTENANCE DATA

**DIVISION 02 - SITE WORK**

02 41 00 DEMOLITION

**DIVISION 26 - ELECTRICAL**

26 08 00 APPARATUS INSPECTION AND TESTING  
26 32 13.00 20 SINGLE OPERATION GENERATOR SETS

**DIVISION 31 - EARTHWORK**

31 00 00 EARTHWORK

**DIVISION 34 - TRANSPORTATION**

34 71 13.19 ACTIVE VEHICLE BARRIERS

**--End of Part A --**

**PART B: GATE 2 SECURITY IMPROVEMENTS, NSA NORFOLK, VA (WON 352025)**

PART 1 - CONTRACT DOCUMENTS  
(Included under separate attachment)  
PART 2 - CONTRACT REQUIREMENTS  
PART 3 - PROJECT PROGRAM  
PART 4 - PERFORMANCE TECHNICAL SPECIFICATIONS (PTS)  
PART 5 - PRESCRIPTIVE TECHNICAL SPECIFICATIONS  
PART 6 - ATTACHMENTS

**-- End of Part B --**



## CHAPTER 9 DELIVERABLE: COST ESTIMATES

### 9-1 GENERAL REQUIREMENTS.

Provide cost estimates at each submittal stage as required by the Statement of Architect-Engineer Services (SAES) or master Indefinite Quantity contract. Unless specifically indicated otherwise in the contract documents, cost estimate submittals must be in accordance with the NAVFAC standard Cost Engineering practices. NAVFAC standard Cost Engineering practices are as defined by UFC 3-701-01, UFC 3-730-01, and UFC 3-740-05, as modified by the requirements of NAVFAC *Cost Engineering Policy and Procedures*. In cases of conflict between any of these documents, the NAVFAC *Cost Engineering Policy and Procedures* guidance governs.

### 9-2 USE OF SUCCESS ESTIMATOR™ AND PACES.

#### 9-2.1 Detailed Cost Estimates.

Detailed cost estimates, when required by contract for projects over \$500,000, must be prepared using SUCCESS Estimator™ (SUCCESS). The acceptable SUCCESS software version must be compatible with that in use by NAVFAC. While version information and standard NAVFAC SUCCESS Templates are available free of charge at <http://www.uscost.net/CostEngineering/index.htm>, the AE is responsible for purchase of the software and/or databases. Comply with the NAVFAC *Cost Engineering Policy and Procedures* for detailed cost estimates requirements for NAVFAC.

#### 9-2.2 Parametric Cost Estimates.

Prepare Parametric cost estimates as required by the contract using NAVFAC approved software. PACES (PARAmetric Cost Estimating System) is an application utilized by NAVFAC that was developed specifically for developing DOD and commercial parametric estimates. It is available for purchase directly from the vendor AECOM (303 228-3000). SUCCESS Estimator also has extensive Parametric modeling capabilities, and easily transitions from parametrics to a detailed estimate format (see above for purchase information). Comply with the NAVFAC *Cost Engineering Policy and Procedures* for Parametric cost estimates requirements for NAVFAC.

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## CHAPTER 10 DELIVERABLE: CONTRACTING REQUIREMENTS

### 10-1 GENERAL REQUIREMENTS.

The Contract Specialist incorporates Contract Line Items (CLINs) from the information provided in the Project Information Form (PIF) and Document 00 22 13.00 20, *Supplementary Instructions to Offerors*. Provide and submit the PIF and UFGS Document 00 22 13.00 20 in Microsoft Word or Adobe PDF format, to the Government Project Manager who will provide it to the Contracting Specialist.

### 10-2 PROJECT INFORMATION FORM (PIF).

Prepare and provide a Project Information Form (PIF); attach the completed UFGS Document 00 22 13.00 20 to it. The PIF communicates to the Contract Specialist which contract clauses to include in the solicitation. The Government representative forwards the PIF to the Contracting Specialist to prepare the contract clauses for the solicitation. A downloadable version of the PIF is available at [http://www.wbdg.org/ccb/browse\\_cat.php?c=44](http://www.wbdg.org/ccb/browse_cat.php?c=44).

### 10-3 SELECTION OF CLINS.

The Base Contract Line Item must provide a complete and usable facility (primary facility, supporting facilities, and design in accordance with previous paragraph). Option items and additive items must be able to be logically separated from the project without rendering the facility unusable. Intention is for the Base CLIN, together with all the contract line items, to provide the maximum, usable facility within the funds available. Do not use Additive and Option items in the same contract; use one or the other. Additive items are only allowed for sealed bids; do not use unless allowed by Contracting Officer.

Use multiple SUB-CLINs for cost breakdown of facilities and site, and unit prices. Use multiple CLINS for multiple funding sources (such as when combining one or more projects into one contract package), and option or additive line items. Provide separate SUB-CLINs for 1) Each facility (as indicated by the Category Code), 2) The total project supporting facility (utility) cost (outside the five foot (1.5 m) line, and 3) Design Fee (if a Design-Build project). The number of items and the estimated cost per item depends upon the nature of the project. Provide no more than four contract line items (base item, plus three), unless specifically approved by the Contracting Officer. Each estimated option or additive item should tend to approximate 2% to 10% of the estimated base item.

### 10-4 OPTIONS AND ADDITIVES ON DRAWINGS.

Options and Additives can change up to award of the contract. Do not indicate Contract Line Items on the drawings, or reference anywhere in the specifications, unless approved by the Government, who may allow only if a description of the line item in schedule does not adequately describe the work. Samples of Document 00 22 13.00 20 are provided in Appendix C.

Do not use the term “alternate” to represent line items. Do not use terms, such as “base item” to indicate items in the primary contract line item.

#### **10-5 OPTION ITEMS.**

When different funding sources are used, or when funding is not available to cover certain portions of the work at the time of proposal opening, but there exists a high probability of attaining the funding in the near future, option items provide a means to separate the funding sources, or to obtain and hold competitive prices for future award of items of work. Typically, the price for the option item(s) is added to the base item price to determine the low offer. Options need not be listed in a particular order. They are executed individually at the Government’s discretion. A time limit is given in the contract documents for the Government’s right to execute each option. Use of options in construction contracts must be approved by the Contracting Officer prior to advertisement.

#### **10-6 ADDITIVE ITEMS.**

Since additive line items are only allowed in sealed bid, do not use these unless allowed by the Contracting Officer. If used, arrange additive items such that the most essential portion of the work is added first. Arrange succeeding items in decreasing importance. During evaluation of the offers, additive items are added to the base item in the order listed. As each additive item is added, a new bid price is computed and compared to the available funds. As additive items are determined to be within the funds available they are added to the Offeror’s bid price. If they are not within the funds available, they are skipped. Each additive item must be independent of the others.

#### **10-7 DEDUCTIVE ITEMS.**

Do not use deductive items. The base contract line item must contain the minimum requirements of the contract. Using deductive items implies that the project is designed above those minimum requirements. Use Options instead.

#### **10-8 PLANNED MODIFICATION ITEMS.**

Planned Modifications are changes to the contract that the Government can only award after the initial award of the contract, due to the nature of the work. Award time of a planned modification is measured from construction completion date (usually 6 months prior to completion), rather than award date. This differentiates them from Option Items.

Planned funding for Furniture, Fixtures & Equipment (FF&E) is from a different source than the Base Contract Line Item. Therefore, provide a separate CLIN for the purchase and installation coordination of all FF&E; designate it as a Planned Modification. The Offeror must propose a Handling and Administration (HAR) not to exceed 5% within this CLIN which will be applied to the final FF&E package amount at modification award. HAR is limited to 5% for NAVFAC in accordance with NAVFAC Furniture, Fixtures & Equipment (FF&E) Contracting Guide for Design-Build Construction Projects, which is also valid for Design-Bid-Build Projects by Amendment, and available for download by NAVFAC employees at

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[https://portal.navfac.navy.mil/portal/page/portal/aq/aq\\_hi/pre\\_award/construction/9bc9974c17910abfe04400144f414f26](https://portal.navfac.navy.mil/portal/page/portal/aq/aq_hi/pre_award/construction/9bc9974c17910abfe04400144f414f26).

**10-9           SYNOPSIS.**

Provide a brief scope for the project synopsis, which is used in solicitation of bids by the Government. Describe facility in terms of square footage (or square meters), height (e.g. 2-story). A sample of scope and Synopsis is provided in Appendix C.

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**CHAPTER 11 DELIVERABLE: DESIGN-BUILD REQUEST FOR PROPOSAL (RFP)****11-1 GENERAL REQUIREMENTS.**

Requirements for preparation of RFP are also provided in Chapter 12, *Electronic Design Deliverables (EDD) Format*.

**11-2 DESIGN-BUILD REQUEST FOR PROPOSAL INTRODUCTION.**

NAVFAC Design-Build (DB) RFPs are developed by organizing project requirements into the NAVFAC DB Six part Format to procure facilities for our Navy Customers and Users. Requirements included in the RFP are driven by the need to control the design and the construction of the facility. Because the Contractor is designing and constructing the facility, design issues are just as important as construction issues and must be given equal consideration. The RFP information may be gathered from many sources such as:

- 1391 Documentation
- Funding Documents
- Site conditions and Restraints
- User Requirements
- Local and Regional Requirements
- Applicable Standards and Codes
- Applicable NAVFAC and DoD Criteria and Clauses
- Performance and Prescriptive Product, Material, and System Requirements

RFPs are a combination of performance and prescriptive requirements, but give preference to performance requirements for DB. However, many times prescriptive requirements are necessary to define a minimum acceptable solution or expected level of quality. Therefore, mold the type of information included in the RFP to meet the anticipated level of quality and needs of the User. Create performance and prescriptive requirements that comply with the following characteristics of each.

- Performance requirements state the function, desired results, and durability to control the Contractor's design and selection of products, materials, and systems.
- Prescriptive requirements define the products, materials, and system or their characteristics to control the facility function, performance, and quality.

### 11-3 DESIGN-BUILD REQUEST FOR PROPOSAL WEBSITE, FORMAT, AND DOCUMENTS.

Guidance on preparing the RFP for Design-Build projects and Design-Build Template documents are available on the NAVFAC Design-Build Master web site (<http://www.wbdg.org/ndbm.php>). This site is intended to (1) familiarize those new to the NAVFAC Design-Build process with the RFP format and typical RFP specification sections and (2) allow those preparing a Design-Build RFP to download the current and archived electronic documents. The Design-Build RFP web site is organized using links to major components of the Design-Build RFP, including:

- Overview and Training - NAVFAC RFP Format, Unifomat Information Structures, and NAVFAC Technical Contacts responsible for document maintenance.
- Design Guidance.
- Standard Template – This is the foundation template that can be used on all projects. The Standard Template is designed to cover most of the building types routinely designed and built by NAVFAC. Industrial and specialized facilities are examples of building types that require additional information to be added to the Standard Template to cover the design, materials, and equipment that are unique to these buildings types.
- Model RFP Templates - The Model RFP Templates use the Standard Template as its foundation. Each Model Template modifies the Standard Template to suit a particular building type. These Models are an advanced starting point toward creating an RFP, however they do require coordination with User and facility requirements to properly define the final RFP. The building type templates in the Design-Build Master Website are:
  - Armory
  - Child Development Centers
  - Dining Facility
  - Entry Control Facility
  - Fire Station
  - Fitness Center
  - Hangars
  - Magazine
  - Marine Corp BEQ
  - Market Style BEQ
- Small Project Template (SPT): The SPT is a scaled down version of the Standard Template to be used on projects of low-complexity and a limited number of construction trades. SPT projects utilize routine designs with limited plans & specifications and fit within monetary thresholds.



- A tool located with the SPT at web link:  
[http://www.wbdg.org/ndbm/pdfs/spt\\_decision\\_guide.pdf](http://www.wbdg.org/ndbm/pdfs/spt_decision_guide.pdf) includes a table “Decision Guidance for Use of Small Project Design-Build Process” to provide guidance in the application of the SPT.

### 11-3.1 RFP Format.

The RFP must include all six RFP Parts indicated below unless they are not applicable to the project. The typical facility project will have information in every RFP Part, with the possible exception of RFP Part Five, “Prescriptive Specifications.” Typically, Part One is not prepared by the RFP developer, but is provided by the NAVFAC Acquisition office after RFP Parts Two through Six have been completed by the RFP developer. The RFP developer is required to provide certain information such as the Project Information Form (PIF) for the NAVFAC Acquisition office to properly prepare the RFP Part One. Verify with the NAVFAC Facility Engineering Command, what provisions are necessary to allow for the RFP Part One to be integrated into the RFP.

The DB Templates utilize different types of information in different Parts of the RFP. Therefore, there are different information structures employed to organize the information in the different RFP Parts. The following list indicates the type of information and information structures are used in the RFP Parts:

- **Part One** includes the Proposal Form and Documents and specifies the contractual requirements.
  - This Part uses the Standard Procurement System documents that are organized using the CSI Masterformat.
- **Part Two** contains the General Requirements Specification Sections – some only available at the Design-Build website.
  - This Part uses specification sections organized using CSI Masterformat.
- **Part Three** contains the Project Program for the project.
  - This Part predominately uses a paragraph format; Chapter Six of Part 3, the Engineering Systems Requirements uses Uniformat.
- **Part Four** contains the Performance Technical Specifications.
  - This Part uses Uniformat.
- **Part Five** contains any Prescriptive Specifications required for the Design-Build RFP.
  - This Part uses CSI Masterformat.
- **Part Six** includes attachments to define existing conditions and design requirements (e.g., Boring Logs, reference drawings).
  - This Part is a combination of various attachments that have no predominate format.

### **11-3.2 Recommend Change to DB Documents.**

Submit a Contract Change Request (CCR) on the DB website to recommend a change to the DB documents.

## **11-4 DESIGN-BUILD REQUEST FOR PROPOSAL DOCUMENT PREPARATION.**

The DB documents are updated and changed regularly. Because the DB documents change regularly, it is necessary to use the updated documents when creating an RFP. Download the most current versions available on the DB website. Each DB Template and Model RFP Templates has a DOWNLOAD feature. Download individual documents or all documents organized into RFP Parts.

### **11-4.1 Combining Multiple RFPs into One Bid Package.**

Refer to Chapter 8 for guidance, when multiple RFPs are combined into one solicitation package.

### **11-4.2 Project Information Form (PIF).**

Provide and complete the PIF for Prefinal and Final submittals. Refer to Chapter 8 for further PIF requirements.

### **11-4.3 Sustainable Action Plan.**

#### **11-4.3.1 Guiding Principle Compliance.**

Usually, all Guiding Principles are required in the RFP. Occasionally, the RFP Preparer may have enough information at the RFP stage to determine some Guiding Principles are unobtainable. For each of the Guiding Principles Requirements that is not attempted or achieved, provide narrative explaining how effects on the project for each Guiding Principle precludes achieving specific sustainability requirement or goal. Provide analysis of particular requirement and level to which project is able to comply in accordance with Chapter 5.

#### **11-4.3.2 Owner Project Requirements.**

When the project requires design commissioning services, incorporate Owner Project Requirements (OPR), and any other documentation related to commissioning effort into RFP.

## **11-5 RFP ELECTRONIC DELIVERABLES.**

Provide RFP electronically in accordance with Chapter 12, *Electronic Design Deliverables (EDD) Format*. Organize the RFP into one or two PDF files, with order shown in the following Table of Contents. Bookmark each item below, and the additional items indicated.

- 1) RFP Coversheet
- 2) RFP PART 1 Divider (when directed by the Command)
- 3) Overall, RFP Table of Contents (Parts 2-6)
- 4) RFP PART 2 Divider
  - a) RFP Part 2 Table of Contents
  - b) RFP Part 2 Specification Sections (bookmark first page of each section)
- 5) RFP PART 3 Divider
  - a) RFP Part 3 Project Program Coversheet
  - b) RFP Part 3 Table of Contents
  - c) RFP Part 3 Project Program
  - d) Each Chapter of RFP Part 3 (bookmark first page)
  - e) Each ESR in Chapter 6 (bookmark first page)
- 6) RFP PART 4 Divider
  - a) RFP Part 4 Table of Contents
  - b) RFP Part 4 Performance Technical Specifications (bookmark first page of each PTS)
- 7) RFP PART 5 Divider (if prescriptive specifications are included in the RFP)
  - a) RFP Part 5 Table of Contents
  - b) RFP Part 5 Specification Sections (bookmark first page of each section)
- 8) RFP PART 6 Divider
  - a) RFP Part 6 Table of Contents
    - (1) Attachments (bookmark first page of each attachment)

**11-6 DB DESIGN SUBMITTALS.**

Provide design submittals electronically in accordance with Chapter 12, *Electronic Design Deliverables (EDD) Format*. Include information and organize DB design submittals in accordance with this FC and UFGS 01 33 10.05 20, *Design Submittal Procedures*.

**11-7 DESIGN AND CONSTRUCTION SUBMITTAL REQUIREMENTS.**

Because the DB projects require design and construction submittals, the submittals are more complex than Design-Bid-Build. The DB process utilizes the RFP and the UFCs to define design submittals and the RFP and the UFGS to define construction submittals.

**11-7.1 LOCATIONS OF DB SUBMITTAL REQUIREMENTS.**

Because the DB submittals are spread into different documents, the preparers of DB submittals are required to refer to multiple locations to obtain the complete submittal requirement. The design and construction requirements are found in the six major locations designated in the following table:

**Table 11-1 Design and Construction Submittal Summary**

<b>DESIGN-BUILD DESIGN and CONSTRUCTION SUBMITTAL SUMMARY</b>			
<b>NO</b>	<b>DOCUMENT</b>	<b>LOCATION</b>	<b>SUBMITTAL REQUIREMENT</b>
1	RFP Part Two UFGS Specs	NAVFAC DB RFP Website	
	A. Most RFP Part Two	RFP Part Two	Lists <i>Project Specific</i> Administrative Submittals for Government Approval
	B. UFGS 01 33 00.05 20 <i>Construction Submittal Procedures</i>	RFP Part Two	Lists <i>Project Specific</i> Government Reserved Construction Submittals for Approval or Surveillance
	C. UFGS 01 33 10.05 20 <i>Design Submittal Procedures</i>	RFP Part Two	Lists <i>Project Specific</i> Design Submittals
2.	Engineering System Requirements (ESR)	RFP Part Three	Lists <i>Project Specific</i> Design Requirements
3.	Performance Technical Specification (PTS)	RFP Part Four	Lists <i>PTS Specific</i> Critical Construction Submittals for DOR approval and Construction Submittal requirements
4.	Unified Facility Guide Specifications (UFGS)	Whole Building Design Guide Website	Edited UFGS specification required by RFP Part Two for Contractor's Design Submittal and Compliance to UFGS technical requirements
5.	FC 01-300-09N Navy and Marine Corps <i>Design Procedures</i>	Whole Building Design Guide Website	Lists <i>Discipline Specific</i> Design Submittals for NAVFAC to supplement Core UFCs
6.	Discipline Specific UFCs (Arch, Struct, Civil, Geotech, Mech, Elect, Fire Protection, Force Protection Anti- Terrorism)	Whole Building Design Guide Website, some temporarily on DB Website in Design Guidance webpage	Lists <i>Discipline Specific</i> Design Requirements and Explanation of FC 01-300-09N listed design submittals

## 11-7.2 GOVERNMENT APPROVAL AND SURVEILLANCE OF DB SUBMITTALS.

The RFP DB submittals are organized to allow the RFP editor the flexibility to evaluate the project needs, determine the availability of Government resources to review submittals, and modify the submittal approval requirements to suite the project. The following Government approvals are built into the RFP Part Two DB Templates but may need input from the RFP editor to tailor the submittal to the project;

- a) RFP Part Two, UFGS 01 33 00.05 20, *Submittals Reserved for Government Approval* - all RFP Part Two UFGS section submittals denoted with a "G" submittal action code.
- b) RFP Part Two, UFGS 01 33 10.05 20, *Government Approving Authority* – Government approves all design submittals.
- c) RFP Part Two, UFGS 01 33 10.05 20, *Exception to Contractor Construction Actions* – Identifies certain Government design submittals approvals that have to be accomplished before construction related to that design submittal can begin.
- d) RFP Part Two, UFGS 01 33 10.05 20, *Design Documents*, and UFGS 01 33 00.05 20, *Contractor Reviewing, Certifying, Approving Authority* - Government identified construction submittals required to be incorporated in the design submittals. DOR approval of identified construction submittals precedes Government approval of associated design submittals.
- e) RFP Part Two, UFGS 01 33 00.05 20, *Submittals Reserved for Government Approval* - Construction submittals reserved for Government approval. The approval of these identified construction submittals prevents the contractor from beginning construction on that portion of the work until Government approval is obtained.

### 11-7.2.1 Surveillance Submittals.

The Government requires the contractor's DOR to approve most of the construction submittals; however, the RFP identifies certain construction submittals for Government surveillance. Government surveillance does not prevent the contractor from proceeding with construction but allows the Government a chance to confirm the submittal approvals of the DOR. Surveillance of construction submittals are built into the DB Template at the following location:

RFP Part Two, UFGS 01 33 00.05 20, *Submittals Reserved for Government Surveillance* - Construction Submittals Reserved for Government surveillance.

### **11-7.2.2 Critical Path Submittals.**

Contractor submittals in Design-Build may be designated as Critical Path Submittals, as further described in UFGS 01 33 10.05 20 of the RFP. In this situation, the submittal may only contain the design of one or a few disciplines, for example, civil and structural. Follow the submittal requirements as applicable for the disciplines pertaining to that critical path submittal. Ensure that work is included and coordinated with the other disciplines that are affected by that critical path work; for example, electrical and mechanical site work is included and shown on the civil site work critical path submittal, and provisions are made for the utility service entrances through foundation and for major pieces of equipment for the foundation work critical path submittal.

**CHAPTER 12 ELECTRONIC DESIGN DELIVERABLES (EDD) FORMAT****12-1 SUMMARY.**

This Chapter sets the policy for NAVFAC compliance with DoD and Navy policy for paperless acquisition systems. The DoD requires implementation of electronic bid solicitation at all NAVFAC components for all construction projects. These Electronic Design Deliverables (EDD) requirements provide NAVFAC specific format guidance. Regardless of acquisition method, all projects must follow these EDD requirements. DB RFP submittals follow the requirements for the phase of design in the following paragraphs. Comply with requirements for posting of design deliverables on unsecured servers, including use of FOUO, in Chapter 2.

**12-2 ELECTRONIC DESIGN DELIVERABLES (EDD).**

The following electronic deliverables are required for all projects:

- Native CAD files
- Native input and output files for structural calculations
- PDF of Drawings and Specifications, or RFP
- RFP source files
- Specification source files
- Calculations
- Cost Estimate
- All Reports, Surveys and Studies
- Basis of Design
- Record Drawings
- Shop Drawings/transmittals
- Architectural Color Boards (photos)
- Submittal Register
- Other (e.g. Photos or Project background/support files)
- Project Information Form
- Bid Schedule (when required)

**12-3 EDD FORMAT REQUIREMENTS.****12-3.1 Specifications.**

Develop Project Specifications in accordance with the requirements of this FC and UFC 1-300-02, using SpecsIntact software. Organization of PDF for Specifications is described in Chapter 8. Organization of PDF for RFP is described in Chapter 11.

**12-3.1.1 Source Files.**

From the SpecsIntact Job File, provide the following source files: "Pulldata" and "Submittal Register." "Printdata" does not have to be provided.

### **12-3.1.2 DB RFP Part 2 Source Files.**

Develop RFP and Part 2 specifications in accordance with Chapter 11 of this FC.

If a program other than SpecsIntact is allowed to be used, all original source data must be provided as follows:

- The native authoring application file format.
- A PDF format print of the original authoring data. No scans, copied images or third party reproductions of paper prints will be accepted.

### **12-3.2 Drawings.**

#### **12-3.2.1 General.**

Produce all source drawings using vector based Computer Aided Design (CAD) software. Provide all source CAD files in native DWG format meeting the following requirements.

#### **12-3.2.2 CAD Standards.**

Comply with the DoD A/E/C CAD Standard latest version except as noted below. The A/E/C CAD standard is available at <https://cadbim.usace.army.mil/CAD> or [http://www.wbdg.org/ccb/browse\\_org.php?o=65](http://www.wbdg.org/ccb/browse_org.php?o=65). In cases where the DoD A/E/C CAD Standard version changes after a project has commenced, the project PM must be consulted prior to adoption and integration of the newer standard into the drawing files. In cases where the DoD A/E/C CAD Standard does not provide guidance for (or reference to) a specific CAD Standard element, refer to the referenced National CAD Standards (NCS) document identified in the DoD A/E/C CAD Standard for guidance. In all cases, the project PM will be consulted.

##### **12-3.2.2.1 NAVFAC Standard Drawing Format.**

All sheet drawings must use the NAVFAC standard CAD title block (border sheet). Provide all sheet drawings in ANSI D (22x34 inches) size format for projects using imperial units. Provide all sheet drawings in ISO A1 (594x841 mm) for projects using metric units (ANSI D is assumed in other parts of this FC, but modify and scale as appropriate if ISO A1 is used). See the paragraph in this chapter entitled, "NAVFAC Supported EDD Standard Components." All sheet drawings must contain only (1) one plotted sheet. CAD files which contain more than one sheet will be rejected with the following exceptions:

- Civil Sheet Files which the entirety of the project site cannot be legibly shown on a single sheet.
- Plan Sheet Files which the entirety of the project plan cannot be legibly shown on a single sheet at 1/8" = 1'- 0" (1 = 100) scale.

In both cases consult with the project PM prior to developing sheet files to ensure concurrence.



#### **12-3.2.2.2 Plotting Guidelines.**

Pen weights and colors must be in accordance with the NAVFAC pen table. NAVFAC has developed a comprehensive pen table that utilizes the NCS 255-pen table as a basis, but has added thinner lines and grayscale pens. The NAVFAC pen tables are provided on the Whole Building Design Guide (WBDG) (See the paragraph in this Chapter entitled, “NAVFAC Supported EDD Standard Components”). This pen table and corresponding line weights were established to be legible when printed at half-size (11x17 inches (279 x 431 mm)), when the displayed text height is 1/16 inch (1.5 mm). All plotted files (hardcopy or PDF) must be monochrome, unless color plots are specifically requested. Use color numbers assigned to “black” or “halftone” only.

#### **12-3.2.2.3 Text Font and Size.**

Use standard text heights for a plotted full-size drawing of 1/8 inch (3 mm) for typical text, 1/4 inch (6 mm) for titles, and 1 inch (25mm) maximum for project titles on cover sheets. For existing features on plotted full-size civil drawings, a minimum text height of 0.1 inch (2.5 mm) and an oblique angle of 12 degrees are allowed. Use a width factor of 0.8 for all fonts that are not a part of the border sheet.

- Use the ROMANS.SHX font file for all 1/8 inch (3 mm) or smaller text.
- Use SWISS.TTF (*Swis721 BT*) font file for all 1/4 inch (6 mm) or larger text.

In cases where a CAD program (see the paragraph in this chapter entitled, “CAD Standards”) does not support the specified font styles/format, the use of alternate font styles which match the specified fonts styles (both in the printed PDF and DWG files), is permitted. In this case, it is required that the original source CAD files be provided in addition to the DWG files. Notify the project PM prior to commencement of drawing development with the following information:

- Name, Version, File format and Vendor of CAD application being used
- Name of font(s) being substituted and name of substitute font(s)
- Copy of substitution font(s).

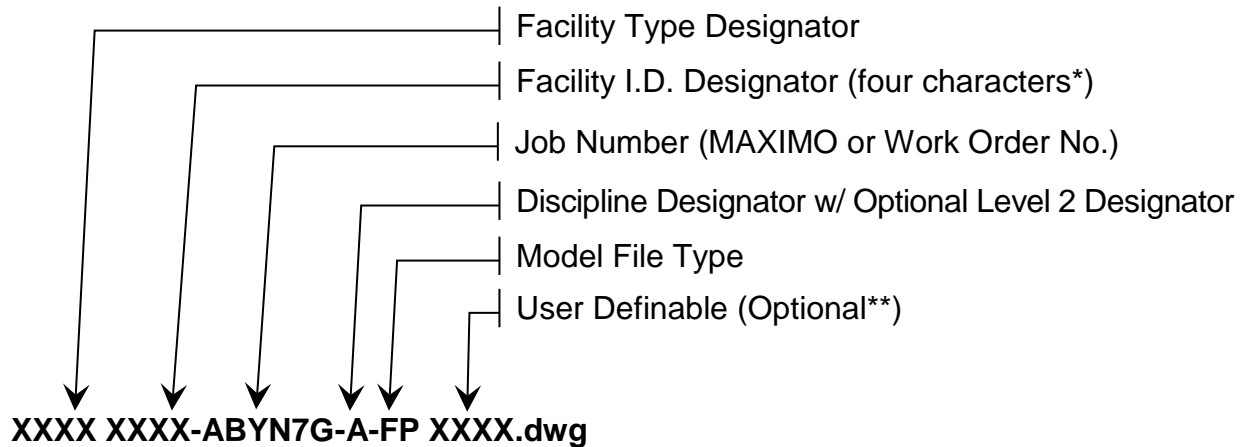
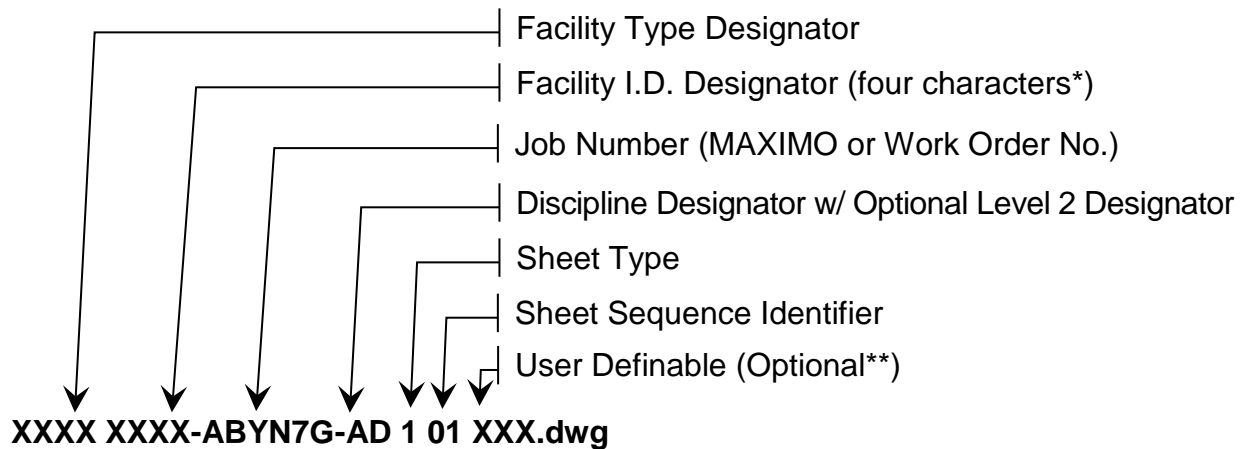
Project PM confirmation of substitution is required to ensure font styles are acceptable.

#### **12-3.2.2.4 Translations.**

Construction drawings are required to be prepared in dual language at a majority of overseas locations. For drawings developed in dual language, provide adequate space for the foreign language translation for objects such as notes, titles, and symbols. The final drawing must not appear cluttered or congested. Provide translations (such as for notes, titles, and symbols) on Drawings with English on top, and the Host Nation language on the bottom.

**12-3.2.2.5 File Naming Conventions.**

Use File Naming Convention for all CAD Files as specified in the DoD AEC CAD Standard except as noted below:

**Model Files****Sheet Files**

\* If no building designation has been assigned, such as for new construction prior to completion, then utilize the project number (P-number) for the Facility Type and I.D. designators. If installation has an alternate building identification system, that designator may be utilized in lieu of the Facility Type and Facility I.D. Designator.

\*\* When used, typically the first two characters of the User Definable suffix address the floor number. Use the last two characters to further specify quadrants, phases, or wings. For example: BLDG0001-MAXIMO-C-101-12.dwg; The User Definable suffix “-12” is used here on a Civil plan sheet where multiple tabs/layouts contain (12) adjacent sheets that are connected by match lines.

Model file types, sheet file types, and discipline designators are found in the *DoD A/E/C CAD Standards*. Obtain the Facility I.D. Designator and Job Number from the Contracting Officer or Contracting Officer's technical representative.

### 12-3.2.2.6 Facility Type and I.D. Designators.

Use following Facility Type and I.D. designators if applicable.

#### Facility Type

AFLD	=	AIRFIELD
BLDG	=	BUILDING
DRDG	=	DREDGE
DRYD	=	DRYDOCK
BRTH	=	BERTH
PIER	=	PIER
SLIP	=	WET SLIP
PRKG	=	PARKING LOT
ROAD	=	ROAD
RAIL	=	RAIL
FENC	=	FENCE
GATE	=	GATE
UTIL	=	UTILITY
CRAN	=	CRANE

For **Utility** projects the Facility I.D. Designator must be as follows:

SWTR	=	SALT WATER
FWTR	=	FRESH WATER
PWTR	=	POTABLE WATER
NGAS	=	NATURAL GAS
STEM	=	STEAM
SSWR	=	SANITARY SEWER
STRM	=	STORM DRAIN
CAIR	=	COMPRESSED AIR
POWR	=	POWER
COMM	=	COMMUNICATIONS
CATV	=	CABLE TV

For **Rail** projects the Facility I.D. Designator must be as follows:

CRAN	=	CRANE RAIL TRACK
TRAK	=	RAILROAD TRACK

### 12-3.2.3 Drawing Support Files.

Support files necessary for initializing, editing and plotting drawing files must be a standard DWG or Microsoft Windows ® component (or they must be an integral and standard component within the drawing file that require no third party custom utility or program to use). Support files include, but are not limited to, line types, hatch patterns, font styles, layer filters, display configurations and object styles. DWG files containing objects, styles, or definitions that require any external files (e.g. SHX, LIN or LAY) to initialize, operate and display properly will be rejected.

### 12-3.2.4 Cost Estimates.

Submit the contract cost estimate electronically in PDF and SUCCESS Estimator native format (or as otherwise required by contract) with each submittal. Do not submit the cost estimate on the project CD/DVD when provided. Make all cost estimating submissions in accordance with the NAVFAC *Cost Engineering Policy and Procedures* manual.

### **12-3.3 Intermediate Design.**

All native drawings and their associated PDFs must maintain a “PRELIMINARY Not For Construction” stamp across the signature areas of the title block, until the actual final design submittal. The NAVFAC D-size borders have this block on the default title block displayed on layer “G-ANNO-TTLB-PRLM”. That layer must be frozen at the time of creating the final deliverables. Except at final submittal, provide the submittal phase, such as “Prefinal” after the project title in the header and on the coversheet of the specifications or the RFP.

### **12-3.4 Final Design Documents.**

#### **12-3.4.1 General.**

Convert documents to PDF format directly from their authoring software. Any drawing (DWG) files larger than 17Mb must be broken into smaller files. Drawing PDF file sizes must be a maximum of 17Mb with digital signatures. There is no limit on file size for specifications or RFPs.

#### **12-3.4.2 Format of Final Design Drawings.**

Combine all drawings into a single PDF file to facilitate ease of use unless file size requires a multi-file submission). Do not combine multiple PDFs into a PDF package prior to submission.

Bookmark PDF files and create visual “thumbnails.” Create a bookmark for the beginning of each drawing discipline. Create a sub-bookmark for individual drawing sheets. Bookmark wording must be as descriptive as practical (i.e., S-101 Foundation Plan). When complete, the files must open to the “bookmarks” view as the default view with the drawing sheets visible in “fit to page” magnification. Before submission to NAVFAC, the professional must electronically sign and seal all sheets and appropriate locations on the NAVFAC Title Block(s) (See paragraph in this chapter entitled, “NAVFAC Electronic Signature Requirements”).

##### **12-3.4.2.1 Multi-File Drawings.**

If the PDF drawing set must be broken into several PDF sets due to the file size restrictions given in the paragraph in this chapter entitled, “Record Drawing Preparation”, every attempt should be made to package complete discipline sets (i.e., do not break-up discipline specific sheets).

#### **12-3.4.3 Format of Final Design Specifications.**

Convert all specifications to PDF format directly from their authoring software. Combine specification sections into a single PDF file to facilitate ease of use. Insert PDF of attachments, such as Submittal Register and Environmental Forms, following the respective UFGS section and Bookmark.

**12-3.4.3.1 Preparation of PDF for Final Design Specification.**

- 1) Merge PDF files for each section into one PDF file.
- 2) Combine the PDF files of the Coversheet, Table of Contents, and other project specific files including the Submittal Register. Insert blank pages where needed so that sections, graphics, and reports begin on an odd number page. Create “thumbnail” images of each page.
- 3) Bookmark the Coversheet, Table of Contents, each Division, Section, and inserted graphics, including the submittal register. Each Division bookmark must read “DIVISION XX - DIVISION TITLE”, each Section bookmark must read “XX XX XX.XX XX - SECTION TITLE”, and is a sub-bookmark of its corresponding division. SpecsIntact allows printing of the PDF in this format automatically; however the coversheet and graphics must be inserted at the appropriate location.
- 4) Set the Document Properties of the PDF such that it opens to the first page and to the “bookmarks” view as the default view with the specification or RFP pages visible in “fit page” magnification.
- 5) Before submission to NAVFAC at Final, the principle design professional must electronically sign the documents in accordance with paragraph “NAVFAC Electronic Signature Requirements”.

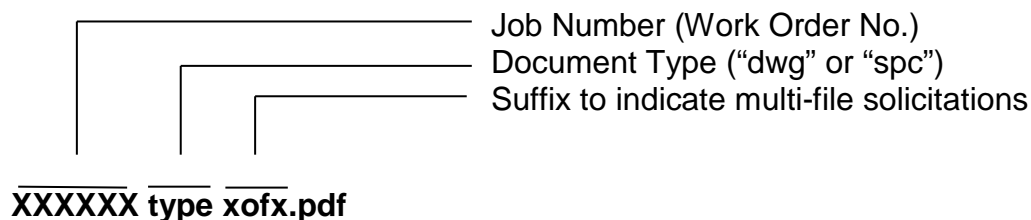
**12-3.4.4 Format of PDF for Final DB RFP.**

Provide PDF of RFP following the requirements for Specifications in the paragraph in this chapter entitled, “Record Drawing File Naming”, except add a bookmark for each Part. Insert attachments following the same convention.

If the RFP contains drawings, provide a separate PDF for the RFP and the drawings. Typically, reference drawings are provided in Part 6. This should be a separate file because of the sheet size (11 x 17 inches (279 mm x 432 mm) or 22 x 34 inches (558.6 mm x 863.6 mm)), and will facilitate printing of this file separately by the Contractor.

**12-3.4.5 File Naming Convention for Final Design PDF Files.**

File naming convention for the final design drawings and specifications is:



**12-3.4.6 File Naming Convention for Amendments.**

File naming convention for the Continuation Sheet is as follows:

Job Number (Maximo or Work Order No.) Amend XXXX .pdf

For example, **55555Amend0001.pdf**.

File naming for any attachments to the amendment follows guidance for naming specifications and drawings, with the exception that the amendment number must be included.

For example, **55555Amend0001dwg.pdf** or **55555Amend0001spc.pdf**

Combine attached drawing files into a single PDF file, and attached specification files into a single PDF.

**12-3.4.7 Password Protection of PDF Files.**

Password protection to prevent changes to the PDF files is not allowed.

**12-3.5 Record Documents.****12-3.5.1 Record Drawing Preparation.**

Prepare Record Drawings in accordance with the drawing format guidelines of this Chapter and the following additional requirements. Make all drawing changes in native Drawing (\*.DWG) format incorporating modifications and as-built conditions. Use the CAD standards used for the original design for as-built modifications and the following guidelines:

- Make revisions on the original layer of the object being changed. Draw a “cloud” around the changed portion and place it on layer Z-ANNO-REVC. Place revision symbols and notes, including those placed in each drawing’s revision block, on the Z-ANNO-REVS layer.
- Place a “Record Drawing Stamp” on each sheet, as illustrated below, for maximum visibility without conflicting with other pertinent data. Place the stamp on layer Z-ANNO-REVS.
- Provide the following information in the revision block of Record Drawings

<p>RECORD DRAWING LETTER DATED – dd/mm/yy</p>
---

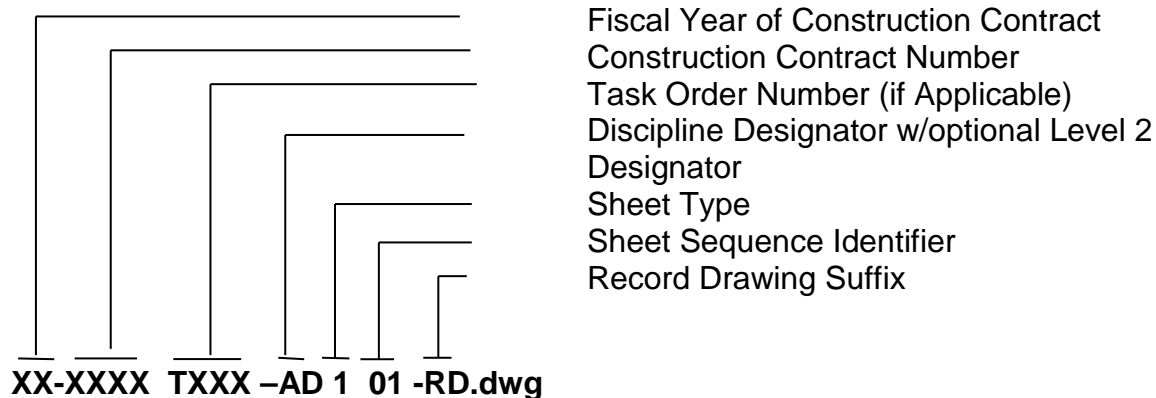
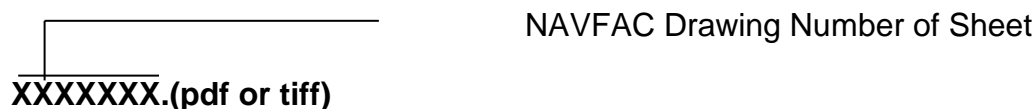
- Sheets with No Changes → **“As-Built”**

- Sheets with revisions to match final field conditions → **“As-Built Conditions Shown”**
- Cover Sheet → **“RECORD DRAWINGS INCLUDE AS-BUILT CONDITIONS AND MAY NOT MATCH THE ORIGINAL CONTRACT DRAWING SHEETS.”**
- Type in the signatures, initials, dates and SAT-TO information, in the title block area on the contract drawings, as text on the record drawings. The record drawings are not signed again by the DOR. The record drawings do not have to be sealed, and the seal from the DOR is not transferred.
- Provide extra sheets as required to accommodate sketches, amendments, and field changes. Obtain NAVFAC drawing numbers from the Design Activity for all added sheets; these numbers will be out of sequence for inserted sheets. Typically, use the previous sheet designation followed by “A,” “B,” and so on for inserted sheets. Update the sheet index to reflect the final record drawing titles, sheet numbers, and NAVFAC numbers.
- Upon completion of the drawing modifications, save all drawing files named as specified in this chapter.
- Produce a PDF file of each individual record drawing using a PDF page size that corresponds to the original document sheet size. Provide a PDF print resolution that results in clear detail of all drawing features. Electronic signatures are not required.
- For Design-Build Contractor provided drawings, the RFP reference or definitive drawings are not required for inclusion in the Record set of drawings.

Produce a TIFF file for Official Record Drawings by exporting each PDF file to the TIFF format using Adobe Acrobat.

### **12-3.5.2 Source Documents.**

In addition to the drawings, provide the specifications, cost estimate, design analysis, reports, surveys, calculations, and any other contract documents utilized in creating the design package (drawings, specifications, and cost estimate) on the CD or DVD disk(s) as specified in the paragraph in this chapter entitled, “Minimum Record Drawing Submittal Requirements”.

**12-3.5.3 Record Drawing File Naming.****Record CAD Files****Record PDF or TIFF Files****12-3.6 NAVFAC Supported EDD Standard Components.**

The Whole Building Design Guide at [http://www.wbdg.org/ccb/browse\\_org.php?o=78](http://www.wbdg.org/ccb/browse_org.php?o=78) contains the following NAVFAC standards for use on developing project deliverables: NAVFAC Standard CAD title blocks (border sheets), pen configuration tables, NCS templates, layer keys, and standard details.

**12-4 NAVFAC ELECTRONIC SIGNATURE REQUIREMENTS.**

Federal legislation has established the legality and acceptability of electronic signatures (see Public Law 106-229, *Electronic Signatures in Global and National Commerce Act*). NAVFAC requires the use of electronic signatures for the certification of all drawings and specifications. The following sections outline the requirements for electronic signatures on NAVFAC deliverables.

**12-4.1 General Requirements.**

Electronically sign the PDF of the specification coversheet (RFP coversheet for DB) and seal and sign each drawing PDF sheet, using Sign-it®. If the professional is required to submit “wet-signed” documents to be in compliance with their state regulations, then a separate “wet-signed” drawing and specification set may be submitted, meeting the requirements of paragraph in this chapter entitled “Wet-Signed Documents”. A fully electronic solicitation, including electronic signatures is still required.

At a minimum NAVFAC will sign the “For Commander NAVFAC” and the “SATISFACTORY TO” areas in the title block. Type in the initials of the “DES, DRW, and REV” areas on the border to indicate the individual(s) who designed, drafted, and



checked the sheet, respectively. These areas must display the responsible individual's initials in AutoCAD text. The REV initials CANNOT be the same as the DES and DRW initials. The "PM, BRANCH MANAGER, CHIEF ENG/ARCH, and FIRE PROTECTION" fields are for use by NAVFAC only and may be either signed with Sign-it® or initialed with AutoCAD text. If signed, the individual signing is a supervisor or has delegated signature authority under NAVFACINST 5216.1L.

**Figure 12-1 NAVFAC Signatures**

The diagram shows a signature block with the following fields and callouts:

- APPROVED**: A large yellow box with a callout: "CIBL/TL or PMEB (for PWD) SignIT Signature and Date".
- FOR COMMANDER NAVFAC**: A yellow box with a callout: "Client/Customer SignIT Signature and Date".
- ACTIVITY**: A large yellow box with a callout: "DES – DRW – REV Typed Initials".
- SATISFACTORY TO**: A yellow box with a callout: "DES – DRW – REV Typed Initials".
- DATE**: A yellow box with a callout: "DES – DRW – REV Typed Initials".
- DES**, **DRW**, **REV**: Three small yellow boxes with callouts: "DES – DRW – REV Typed Initials".
- PM/DM**: A yellow box with a callout: "PM/DM SignIT Signature".
- BRANCH MANAGER**: A yellow box with a callout: "Branch Manager SignIT Signature".
- CHIEF ENG/ARCH**: A yellow box with a callout: "Branch Manager SignIT Signature".
- FIRE PROTECTION**: A yellow box with a callout: "Fire Protection SignIT Signature".

#### **12-4.2 Specific Software Requirements.**

The design documents must be signed using the Sign-it® software. Current version information, points of contact, and order forms for Sign-it® are located on the WBDG ([http://www.wbdg.org/ccb/browse\\_org.php?o=78](http://www.wbdg.org/ccb/browse_org.php?o=78)).

#### **12-4.3 Wet-Signed Documents.**

If required, produce any wet-signed documents from the final electronic PDF documents (prior to electronic signature application) submitted to NAVFAC.

##### **12-4.3.1 Signature Requirements for Design-Build.**

The Contractor's Designer of Record must sign and seal drawings and specifications signifying completeness and ownership of their design. Sheets without seal and

signature will not be accepted. The Contractor must place a "Prepared By:" statement followed by the Contractor's company name on the drawing cover sheet.

## **12-5 EDD MEDIA AND ORGANIZATION.**

### **12-5.1 General.**

Provide Official submittals on CD or DVD Discs or as directed. Submit all CAD files in native Drawing (\*.DWG) format in the NAVFAC supported version. Drawing files must be uncompressed and unzipped. Purge files of all unused items (e.g. blocks, layers, line types, and nested items). Do not submit single drawing files with multiple layouts except as described in the paragraph in this chapter entitled, "NAVFAC Standard Drawing Format." Do not bind cross referenced parent and child drawings. If the submitted native DWG files are not the native file format for the authoring software, provide all native design data in the original authored format in addition to the native DWG compliant format.

### **12-5.2 Minimum Final Submittal Requirements.**

Provide the following as a minimum at final design submittal. NAVFAC Components may require additional submittals, CD/DVDs, and numbers of copies.

#### **CD/DVD#1 - Final Design or RFP for Government Signature (2 Copies)**

Drawing PDF file(s) electronically signed by the Professional(s) in Responsible Charge

RFP or Specification PDF file electronically signed by the Professional in responsible charge in the "Submitted By:" Section

#### **CD/DVD #2 - Source Files (2 Copies)**

**/CAD** All Native CAD Files for all disciplines; include all X-refs, image, or other external reference files.

**/Specifications** folder - All Specification source files

**/PullData** folder (-.sec files)

**/RFP** folder - **All** source files of RFP package, further divided by subfolders into Parts, except for specification section files or CAD files.

**/Calculations** folder (pdf and input/source files)

**/Support** folder

**/Reports-Surveys- Studies** folder

**/Basis of Design** folder

**/Architectural Color Boards** folder (photos)

**/Other** folder (Photos, Project background/support files, etc.)

**CD/DVD#3 - Cost Data** (-.pwz file) (1 copy)

### **12-5.3 Minimum Record Drawing Submittal Requirements.**

Submit Four CD/DVDs. Each must have the following folders and content.

#### **/Record Drawings/**

**/CAD** - All record CAD files and X-refs for all disciplines must be stored in the same folder (directory).

**/PDF**

**/Specs**

**/Calcs**

**/Cost**

**/Basis of Design**

**/Other**

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## **CHAPTER 13 PHASE: PREDESIGN SUBMITTALS**

### **13-1 GENERAL REQUIREMENTS.**

Pre-design consists of identifying the requirement and developing the project documentation. The requirements may come from a variety of sources i.e., new Navy platforms, facilities planning data, or base realignment and closure. Project documentation may involve multiple levels of approval. Projects are classified as minor work, special projects or military construction. Each of these classifications has its own authorization process.

Once the requirement has been identified, complete the Facility Planning Data and initiate project development; select the best alternative to fulfill the requirement. This may include renovation/modernization of an existing facility, new construction, leasing, or a combination. Include other elements of the project documentation to include: the 1391 in Electronic Project Generator (EPG) format with detailed scope, collateral equipment list and cost, preliminary budgetary cost information for primary facility and supporting facilities (e.g., utilities, connections, site work), site location and approval, NEPA documents (such as CATEX, EA, EIS, RONA, or RAC), SHPO (as required), Economic Analysis, Facilities Planning Data including Basic Facilities Requirement, the initial DD1354, and other project specific data. In the site approval process, include the review of Land Use Plan and any possible site constraints. The constraint issues may require unique design or construction elements and, therefore, the site should be fully approved prior to initiating the project design.

### **13-2 SITE CONSTRAINTS.**

Some constraints may restrict or prevent development on a selected site. If a site is considered developable but restricted, project cost can increase significantly due to the addition of design and construction elements needed to build on the site. Due to site location or facility elements, some projects require other agency design approval process (i.e., NOSSA, SHPO, and NEPA). These design reviews can be protracted.

### **13-3 ENVIRONMENTAL DOCUMENTATION.**

Time required for the completion of environmental documentation varies and may be developed in parallel to the design effort, but must be completed prior to award of construction contract.

### **13-4 ADDITIONAL DATA.**

Include other data in the project documentation such as site drawings and sketches, site location, map of existing supporting facilities and site utilities, location of identified constraints, diagrams and sketches that suggest the relationships among project Functional Space Areas, adjacent or related projects, and existing facilities.

**13-5 COST REQUIREMENTS.**

Develop budgetary cost estimates following the guidance of UFC 3-730-01, UFC 3-701-01, and *NAVFAC Cost Engineering Policy and Procedures*. In cases of conflict between these documents, *NAVFAC Cost Engineering Policy and Procedures* governs.

**13-5.1 Life Cycle Cost Analysis.**

Include a Life Cycle Cost Analysis justifying the project as programmed by the activity. Guidance for developing a Life Cycle Cost Analysis is provided in *Economic Analysis Handbook NAVFAC P-Pub 442*.

**13-5.2 Security and Anti-Terrorism Costs.**

Comply with UFC 4-020-01 *Security Engineering Facilities Planning Manual*, requirements in identifying the cost implications of incorporation of physical security and antiterrorism elements into DoD facilities.

**13-6 DD 1391.**

Typically, provide Special Projects and most MILCON projects on Form DD 1391. Identify Special Projects and MILCONs by the project number and make available for review. Attach the necessary documentation to the projects, including a DD 1354, NSERDC/HPSB Checklist, and Checklist where applicable. For more information about special project authorization, see OPNAVINST 11010.20G.

**13-7 FURNITURE, FIXTURES, & EQUIPMENT (FF&E).**

Identify FF&E cost on Form DD 1391, Block 12b, Equipment from Other Appropriations (EFOA). Identify FF&E separately from other EFOA (i.e. Audio/Visual, PSE, and C14). Identify the funding year for FF&E. FF&E cost can be generated using estimating guides provided by NAVFAC Interior Designers.

**13-8 ENERGY STUDY (SOLAR ANALYSIS AND ENERGY ANALYSIS).**

Comply with requirements concerning Energy Studies in UFC 1-200-02.

**13-9 ENVIRONMENTAL REQUIREMENTS.**

Conduct all required surveys, information gathering, and analytical testing required by the contract and in accordance with UFC 3-800-10N (DRAFT). Review Installation Focus Plans (IFPs) and GEO Readiness Database for identified site and development constraints that may include site contamination, hazardous waste (lead paint, PCBs, asbestos) abatement issues, cultural and natural resources (such as historic structures, endangered species, wetlands), and Clean Water Act. Some projects may require NEPA documentation prior to construction authorization.

**13-10            REQUIREMENTS AND MANAGEMENT PLAN (RAMP).**

For Air Force projects only, the RAMP provides project planning information such as base architectural guidelines; base standards and regulations for fire protection, safety, security, communications, systems operability, and maintainability, energy conservation, and other base or site specific requirements, such as a Base Long Range Plan. The RAMP is prepared at the project base or major command level, and will be provided to the DOR by the Government's PM.

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**CHAPTER 14 PHASE: CONCEPT DESIGN SUBMITTALS (10-15%)****14-1 GENERAL REQUIREMENTS.**

The Concept Design Submittal is intended to convey the extent of the work in a preliminary conceptual manner. Deliverables are approximately 10% to 15% complete at this stage. In addition to the requirements of the Core UFCs and the contract, include the deliverables described herein, as a minimum.

**14-2 DESIGN-BUILD CONCEPT DESIGN SUBMITTAL.**

For Design-Build, if defined by the RFP, the concept design may be the Contractor's technical response to the RFP, including layout, functional drawings, and design. When this is used, any exceptions to the UFC requirements must be outlined in the RFP solicitation.

**14-3 BASIS OF DESIGN.**

Submit a preliminary version of the Basis of Design addressing items defined in the contract, the Core UFCs, Chapter 5, and as follows.

**14-3.1 Geotechnical.**

Include the Geotechnical Report, if available, as an appendix. It is encouraged to have this report at this submittal to obtain any review comments at the earliest possible date.

**14-3.2 Sustainable.**

Provide Sustainable Action Plan, NSERDC/HPSB Checklist, TPC Checklist (where applicable), copy of TPC registration information (where applicable), and narrative.

**14-4 DRAWINGS.**

Provide drawings required by the contract, the Core UFCs, and herein as applicable to the project:

**14-4.1 Architectural.**

- Floor Plans – Provide all floor plans, new and demolition, indicating room names and basic dimensions.
- Building Elevations – Provide all building elevations indicating all exterior materials.
- Building Section – Indicate heights of critical building elements.

**14-4.2 Civil.**

- Conceptual Site Plan - Indicate above and below grade utility lines, vehicular and pedestrian circulation paths, buildings, parking, paved areas, and existing site features to remain.
- ATFP Standoff Distances.

**14-4.3 Landscape Architecture.**

- Landscape Architectural Plan

**14-4.4 Electrical.**

Provide the following in accordance with UFC 3-501-01. The drawings need not provide extensive details but must be complete enough to thoroughly express the Designer's intentions:

- Existing Site and Demolition Plan.
- Site Plan.
- Single Line Diagram.
- Preliminary floor plans with dedicated space clearly identified for electrical and telecommunications rooms.

**14-4.5 Fire Protection.**

- Code Compliance Summary Sheets.
- Life Safety Floor Plan.

**14-4.6 Geotechnical.**

Boring log drawings are encouraged, but not required.

**14-5 CALCULATIONS.**

Provide calculations complete and in sufficient detail to support the items outlined in the preliminary Basis of Design, as indicated on the drawings, in accordance with the Core UFCs and herein.

**14-6 SUSTAINABILITY NOTEBOOK.**

Maintain an up-to-date Sustainability Notebook that contains the electronic files of the deliverables required for the project. The amount of information in the Sustainability Notebook is based on the level of Guiding Principle compliance tracking required, and may also be used in the Basis of Design. The Sustainable Notebook contains the following components:

**14-6.1 Sustainability Action Plan.**

Provide the Sustainability Action Plan with each submittal. The amount of planning and documentation in the Sustainable Action Plan is based on the level of Guiding Principle compliance tracking required for the project. Provide, as a minimum, a description of how DOR intends to achieve each GP requirement and other sustainable goals for the project.

**14-6.2 HPSB/NSEDRC Checklist.****14-6.3 Third Party Certification (TPC).**

When TPC is required by the contract, register project with TPC organization within 30 days of the Charette, FACD, or design kickoff meetings.

**14-6.3.1 Format.**

Use the following format:

- Project Title First Line: U.S. Navy or U.S. Marine Corps, Building Name (if applicable)
- Project Title Second Line: P-(#); (1391 Project Name)
- Project Address First Line: UIC (Installation Code)
- Category Code: RPUID (Real Property Unique Identifier) Number
- Project Owner Organization: U.S. Navy or U.S. Marine Corps
- Primary Contact, Owner: NAVFAC Project Manager
- Additional Contact, Bldg. Owner: Choose Either: Public Works Officer/Deputy Public Works Officer or a Designee

**14-6.3.2 Management and Documentation.**

Provide TPC management and documentation all online (or offline, with secure facilities) throughout the design of the project. Maintain TPC Checklist and obtain TPC Design Review. Include up-to-date copy in Notebook.

**14-7 CHARETTES AND FUNCTIONAL ANALYSIS CONCEPT DEVELOPMENT (FACD) STUDIES.**

Charettes and FACDs may be used in DBB to develop the design of the project or in DB to develop the Project Program in the RFP. Both use value-engineering techniques to develop concept designs. Provide charette or FACD when required by the contract.

**14-7.1 Description.**

FACD studies and design charettes are cooperative efforts by the design team, user and client representatives, installation planning staff, 1391 project team members, other

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appropriate Regional staff, facility engineering command personnel, and other interested parties. A charette may last one to three days, while a FACD may last one to two weeks. They include on-site development of a conceptual design in response to functional, aesthetic, environmental, base planning, site, budgetary, and other requirements. Submittals include meeting minutes, conceptual design, and documentation of the decision and information that led up to that decision, including a partnering agreement signed by all the principle participants.

**CHAPTER 15 PHASE: DESIGN DEVELOPMENT SUBMITTALS (35% - 50%)****15-1 GENERAL REQUIREMENTS.**

The Design Development Submittal is intended to convey the complete extent of the work in a preliminary manner. The deliverables are typically about 35% to 50% complete at this stage. Update and include submittals from the previous submittal stage, and provide additional detail to bring them to the required completion percentage. In addition to the requirements of the Core UFC's and the contract, include the following as a minimum:

**15-2 BASIS OF DESIGN.**

Update and submit a complete Basis of Design addressing items defined in this document and the Core UFCs.

**15-3 DRAWINGS.**

Provide updated drawings from the previous submittal and additional drawings required by the contract, the Core UFCs, and herein as applicable to the project.

**15-3.1 Architectural.**

- Legend and Abbreviations
- Floor Plans – Provide all floor plans, new and demolition, indicating room names and dimensions.
- Building Elevations – Provide all building elevations indicating all exterior materials.
- Roof Plan – Provide a plan of all roof areas, indicating direction of slope and method of drainage.
- Building Section – Indicate heights.
- Typical Wall Sections – Provide sufficient wall section(s) to indicate all materials and different conditions.
- Finish Schedule – Indicate all proposed finishes.

**15-3.2 Interior Design.**

Provide Structural Interior Design (SID) to include the following:

- Interior and Exterior Material and Finish samples in loose format
- Furniture and Equipment (FF&E) Plan indicating built-in and movable items
- FF&E Summary List corresponding to the FF&E Plan with estimated item costs

**15-3.3 Landscape Architecture.**

- Planting Plan. Show locations of all facilities (such as buildings, parking areas, roads, existing vegetation noted for preservation) and new plantings (e.g. trees, shrubs, ground cover).
- Plant Schedule and Details. Provide a schedule for plant material showing as a minimum: common name, botanical name, quantity of plants, root condition (i.e. balled and burlapped, containerized, boxed), and a keyed reference to a planting detail. Provide separate details for plant types (e.g. trees, shrubs, ground covers).
- Miscellaneous Plans and Details. Provide plan drawings and details for specialized construction including such items as plazas, courtyards, child play equipment, monuments, memorials, site furniture, fences, walls, and signage.
- Irrigation Plan. Show all water lines, sprinkler heads, valves, backflow preventers, water source connections, wells, automatic controllers, schedules, and similar items when a site irrigation system is required.
- Irrigation Details. When a site irrigation plan is required, provide details equipment such as sprinkler heads, backflow preventers, valves, and accessories.

**15-3.4 Geotechnical.**

- Results of subsurface investigation – e.g. boring logs, test pit logs.

**15-3.5 Civil.**

- Cover sheet, Drawing Index, Vicinity Map, Location Plan, Abbreviations, Legend and Notes.
- Existing Conditions / Demolition Plan.
- Site Plan.
- Water and Sanitary Sewer Plan.
- Grading and Drainage Plan.

Drawings indicated above can be combined. Contact Government's Civil Reviewer for approval of combined drawings prior to project submittal. For example, on small projects a Site and Water and Sewer Plan can show the Site Plan, and Water and Sanitary Sewer Plan all on the same sheet or the Site and Grading and Drainage Plan can show the Site Plan and Grading and Drainage Plan all on the same sheet.

**15-3.6 Structural.**

- Foundation Plans. Include for all structures, showing dimensions, arrangements, elevations, locations referred to a column line grid system, type of foundation and foundation obstructions. Include the layout of all

parts, including but not limited to, slabs, footings, piers, grade beams, and piles, showing all foundation features of the design.

- Framing Plans. Include a framing plan for each structural level of the facility, showing dimensions, elevations, and column locations and numbering referenced to a column line grid system, and overall sizes of major members and components. Show the layout of system, including, but not limited to, beams, joists, and stringers.
- Structural Details. Show typical details of construction, indicating the connection and relationship between major components of the structural system.
- Structural Elevations. Show general sizes, location and arrangement of all significant features of the vertical framing system, such as columns, walls, and beams.

### **15-3.7 Mechanical.**

- Plumbing Floor Plan. Show plumbing fixtures, floor drains and equipment locations.
- Site Plan. Show connections, such as to base steam distribution, location of propane and oil tanks, and layout of ground coupled heat pump well fields.
- HVAC Floor Plan. Show equipment locations, one or two-line duct layout and preliminary piping runs.
- Mechanical Room Plan. Show major equipment and maintenance access space. Provide section view(s) to clarify layout and supports.

### **15-3.8 Electrical.**

- Existing Site and Demolition Plan.
- Site Plan.
- Single Line Diagram.
- Preliminary floor plans with dedicated space clearly identified for electrical and telecommunications rooms.
- Legend and Abbreviations.
- Lighting Plan(s).
- Power Plan(s).
- Lightning Protection Plan.
- Cathodic Protection Plan.
- Communications Plans.
- Special Systems Plans.

- Additional Plans/Risers.

### **15-3.9 Fire Protection.**

- Code Compliance Summary Sheets (Updated from Concept Design Submittal).
- Life Safety plan (Updated from Concept Design Submittal).
- Fire Suppression plans.
- Fire Alarm and Mass Notification System Plans.
- Detail Sheets.

### **15-4 OUTLINE SPECIFICATIONS.**

Provide outline specifications, in the form of a list of specification sections the DOR intends to use in the job.

Use Unified Facilities Guide Specifications, as required in Chapter 8. Provide a listing of the UFGS used in the job by Section Number, Title, and Section Date. Follow the Order of Precedence for choosing UFGS master guide specifications in Chapter 8, unless required otherwise by the contract.

### **15-5 CALCULATIONS.**

Provide calculations complete, and in sufficient detail to substantiate the design level in this concept Basis of Design, as indicated on the drawings, in accordance with the Core UFCs and herein, and any updated from the previous design phase.

#### **15-5.1 Structural and Geotechnical.**

Provide Structural and Geotechnical calculations in sufficient detail to support the items outlined in the Basis of Design and indicated on the drawings.

#### **15-5.2 Civil.**

Provide calculations in sufficient detail to indicate compliance with LID criteria, Navy LID Policy, and state or local stormwater regulations. Provide calculations for utility systems and pavements in sufficient detail to support items outlined in the Basis of Design and indicated in the drawings and specifications.

#### **15-5.3 Architectural.**

Provide acoustical calculations in accordance with UFC 3-101-01.

#### **15-5.4 Mechanical.**

Provide a bookmarked Adobe PDF, on CD-R or DVD-R media, of all input and output data, and summary sheets for Energy Analysis, Life Cycle Cost Analysis, Building



Heating and Cooling Loads, and ASHRAE 90.1 Compliance Calculations as required by UFC 3-410-01.

#### **15-5.4.1 Energy Analysis.**

Provide an Adobe PDF copy of the computerized energy analysis that includes input and output data in their entirety.

#### **15-5.4.2 Life Cycle Cost Analysis.**

Submit the computerized LCC analysis utilizing the latest edition of the NIST Building Life-Cycle Cost Program.

#### **15-5.4.3 Building Heating and Cooling Load.**

Provide an Adobe PDF copy of the computerized load calculations with input and output data in their entirety.

#### **15-5.4.4 ASHRAE 90.1 Compliance Calculations.**

Submit calculations and compliance forms indicated in the Basis of Design.

#### **15-5.4.5 Plumbing Calculations.**

Provide Design Basis as required by UFC 3-420-01.

#### **15-5.5 Electrical.**

Provided calculations required by Core UFCs and also include:

- Lighting: Interior and Exterior Foot-candles.
- Load Analysis.
- Service size.
- Feeder size.
- Larger special circuit sizes.
- Lightning Risk Assessment.

#### **15-5.6 Fire Protection.**

Submit all calculations supporting all fire suppression and fire alarm/detection systems for the project. Calculations for systems, features, or elements other than fire suppression or detection will be required as applicable. Fire suppression system calculations must be prepared using commercially available computer software.

#### **15-5.7 Environmental Report.**

Provide reports as required in UFC 3-800-10N (DRAFT).

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**CHAPTER 16 PHASE: PRE-FINAL DESIGN SUBMITTALS (100%)****16-1 GENERAL.**

The intent of the Pre-Final submittal is to provide a complete set of design deliverables. The following are the minimum requirements of a Pre-Final submittal:

**16-2 BASIS OF DESIGN.**

Submit revised Basis of Design including updated information and incorporating responses to previous government review comments.

**16-2.1 Geotechnical.**

The Geotechnical Report, if modified during the previous review, must be re-submitted as an appendix to the Basis of Design; otherwise, do not submit.

**16-2.2 Sustainable.**

Provide updated Sustainable Action Plan, NSERDC/HPSB Checklist, TPC Checklist (where applicable), and updated narrative.

**16-3 DRAWINGS.**

Drawings must be 100% complete, minus final signatures, and incorporate all responses to the previous review comments. The drawings must be complete to the extent that they may be released for bid or constructed as submitted. Provide a complete set of construction drawings organized by discipline as described in this document and the Core UFCs. Upon submittal of the Pre-Final package, request NAVFAC Drawing Numbers from the Government. For Design-Build projects, follow the requirements of the RFP when shop drawings are used as design drawings.

Provide drawings updated from the previous submittal level, drawings specified in the Core UFCs, and the following, as a minimum:

**16-3.1 Civil.**

Provide updated drawings from the previous submittal and the following:

- Water, Storm and Sanitary Sewer Profiles
- Site / Utility Details.

**16-3.2 Electrical.**

Provide updated drawings from the previous submittal to substantiate design level, and the following in accordance with UFC 3-501-01:

- Existing Site and Demolition Plan.
- Site Plan.
- Single Line Diagram.
- Legend and Abbreviations.
- Lighting Plan(s).
- Power Plan(s).
- Lightning Protection Plan.
- Cathodic Protection Plan.
- Special Systems Plans.
- Additional Plans/Risers.
- Lighting: Interior and Exterior Foot-candles.
- Load Analysis.
- Service size.
- Feeder size.
- Larger special circuit sizes.
- Lightning Risk Assessment.
- Communications Riser Diagram.
- Intercommunication Riser Diagram.
- Fire Alarm Riser Diagram: Include only when separate Fire Protection Drawings are not required to be included in the design.
- Other Riser Diagrams for Television, Security, and similar systems.
- Panel Schedules.
- Switchboards and Motor Control Center Schedules.
- Lighting Fixture Details.

### **16-3.3 Fire Protection.**

Provide, as a minimum, all noted drawings in UFC 3-600-10N (DRAFT) in addition to drawing requirements specified for Design Development.

### **16-4 SPECIFICATIONS.**

Provide edited, red-lined specification sections, showing deletions from and additions to the UFGS master sections. When using SpecsIntact, use the default settings showing deletions lined out and additions underlined. Run all verification reports when printing. Print project specification sections with the official date of release of the master guide

specification to display the version of the specification used. This date appears immediately below the specification section title

Design submittal must be complete at this stage and require only minor corrections if any. Organize specifications in accordance with Chapter 8. Provide a submittal register with the specifications

#### **16-4.1 Sustainable.**

Attach NSERDC/HPSB Checklist to UFGS 01 33 29.00 20, *Sustainable Requirements*.

#### **16-4.2 Environmental Specifications.**

Provide additional requirements for Environmental specifications as required by UFC 3-800-10N (DRAFT).

#### **16-5 CONTRACT SOLICITATION.**

Provide a PIF, which includes the Bid Schedule as specified in Chapter 10, and a complete scope for use in the project Synopsis.

#### **16-6 INTERIOR DESIGN.**

##### **16-6.1 Structural Interior Design (SID).**

Include the following:

- Interior and Exterior Material and Finish samples submitted in presentation board or binder format.
- Signage plans and details.
- Furniture and Equipment (FF&E) Plan indicating built-in and movable items.
- FF&E Summary List corresponding to the FF&E Plan with estimated item costs.

##### **16-6.2 FF&E.**

Provide Preliminary FF&E to include the following, and present to the Activity and NAVFAC personnel:

- Cover Title Page (project name, project #, submittal date, submittal title).
- FF&E list (Cost Summary).
- Furniture placement plans coded to the FF&E list and furnishings specifications.
- Specifications and procurement data sheets (i.e. furniture, furnishings), indicating final finish and fabric selections.

- Catalog cuts and finish samples for all specified items.
- 16 x 20 inch (406 x 508 mm) color boards of furniture/furnishings and finishes specified for Activity presentation to indicate overall design intent.
- Best Value Determination (BVD) Analysis including copy of the BVD Analysis cover letter, performance specifications, project specific typical, pricing spreadsheet and questionnaire.

**16-7 CALCULATIONS.**

Provide calculations, updated from previous submittal, to substantiate design level and to reflect resolution of all previous government review comments, and in accordance with the Core UFCs. Provide design analysis that is 100% complete. In addition, provide the following:

**16-7.1 Mechanical.**

Submit calculations to support the plumbing and mechanical systems and the major equipment comprising those systems. Submittals must include, but not be limited to, cooling loads, heating loads, air balance, and outside air calculations.. Update the energy analysis, provided at the Design Development phase, with the equipment efficiencies scheduled on the drawings.

**16-7.2 Electrical.**

Provide updated and complete calculations required by Core UFCs, and include photometric calculations for interior and exterior lighting.

**16-8 DRAFT DD FORM 1354.**

Provide a Draft DD Form 1354, *Transfer and Acceptance of Military Real Property*, in accordance with UFC 1-300-08. A blank, editable form is available for download at <http://www.dtic.mil/whs/directives/infomgt/forms/eforms/dd1354.pdf>.

Break out all assets by construction categories, provided on the form, and by the Navy-specific "Category Codes for Military Real Property" found in NAVFAC P-72. Coordinate the identification of appropriate asset construction categories with the Government's Real Property Accounting Officer. Include all quantities and units of measure; however, cost breakdown is not required.

**16-9 FACILITY RECOGNITION PLAQUE.**

Design for and specify a professionally designed and manufactured recognition plaque commemorating the opening of the facility and recognizing the leadership participants of the project. If multiple facilities are in the project, design a plaque for each major facility. Indicate requirements of plaque on drawings and specify in UFGS 10 14 00.20, *Interior Signage*. Include the following information:

- Facility Name
- Identify any recognition applied to the facility or person for which the facility has been dedicated
- Date of occupancy (month/year)
- Third Party Certification achieved (if applicable)
- Using Activity Commander/ Commanding Officer
- Base Commander/ Commanding Officer
- NAVFAC Component Commander/ Facility Engineering Component Commanding Officer
- Prime Contractor
- Architect/ Engineer (The main facility designer)

**16-10 DB RFP DEVELOPMENT.**

Provide edited, red-lined RFP, showing deletions from and additions to the DB template and UFGSSs. Follow Specifications requirements in Chapter 8 for prescriptive specifications provided in Part 5 of the RFP.

RFP submittal must be complete at this stage and require only minor corrections if any. Organize Part 2 specifications in accordance with Chapter 11.

**16-11 OVERSEAS TRANSLATIONS.**

Provide translated documents as required by the contract.

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**CHAPTER 17 PHASE: FINAL DESIGN SUBMITTALS****17-1 GENERAL REQUIREMENTS.**

The Final Submittal provides a complete and final set of contract documents ready for bid solicitation by the Government, or in the case of Design-Build, ready for construction by the Contractor. All previous government review comments must have been addressed.

Unless specified otherwise by the Contract, provide final submittals in electronic format in accordance with Chapter 12. Update deliverables from the previous submittal stages, and in addition to requirements from the Core UFCs, provide the following, as a minimum, for the Final Submittal:

**17-2 BASIS OF DESIGN.**

Submit final, revised and updated, Basis of Design.

**17-2.1 Sustainable.**

Provide updated Sustainable Action Plan, NSERDC/HPSB Checklist, and updated narrative. Provide updated TPC Checklist (where applicable) as a separate PDF,

**17-2.2 Sustainability Notebook.**

No later than 60 days after providing the Final Design Submittal, provide Sustainability Notebook.

**17-2.3 TPC Design Review.**

For projects that require TPC certification, submit TPC requirements for Design Review to TPC organization, no later than 60 days after Final Design Submittal.

**17-3 DRAWINGS.**

Provide complete construction drawings organized by discipline in accordance with the Core UFCs and herein. Ensure NAVFAC drawing numbers are entered into the appropriate location on the NAVFAC standard drawing border.

**17-3.1 Plotstamp Record.**

Provide a Plotstamp Record for each contract drawing. This history begins with the final design submittal and continues with subsequent submissions and modifications of that drawing. Maintain this record and make it available at the jobsite for review.

**17-3.1.1 Design-Build Plotstamp Records.**

In addition, provide an updated Plotstamp Record at the following developmental stages of the contract drawings:

- a) DOR signed Final Critical Path Submittal or the Final Design Submittal.
- b) Government approved Final Critical Path Submittal or the Final Design Submittal. This development stage may be combined with "c." below, if issued at the same time.
- c) Incorporation of the Final Critical Path or Final Design drawings in the contract by modification.
- d) Submissions to Government and modifications of the Final Critical Path or Final Design drawings incorporating variations in the contract.

**17-3.2 Design-Build Shop Drawings.**

For Design-Build projects, follow the requirements of the RFP when shop drawings are used as design drawings.

**17-4 QUALITY CONTROL REVIEW.**

Provide a quality control review. Evaluate both technical accuracy and discipline coordination. With the final submittal, provide a single set of 100% prints and specifications highlighted to validate that the review was performed, and that the corrections were made. Provide a stamp on the cover page of the drawing set and specifications as shown in Figure 17-1. Mark and verify correctness of such items as section, detail, and note references to other sheets, major dimensions, and equipment locations. Verify that all equipment is correctly identified the same way on all sheets and in the specifications. Ensure that all work as indicated on the drawings is fully and consistently specified.

**Figure 17-1 Quality Review Block.**

<b>QUALITY CONTROL REVIEW</b>	
_____ <b>Signature</b>	_____ <b>Date</b>

**17-4.1 Design-Build Quality Control.**

For Design-Build projects, this review must be a coordinated effort between the Contractor and their Designer of Record.

**17-5 SPECIFICATIONS.**

Provide complete, final specifications with redlines executed. Organize and compile the package as detailed in Chapter 8.

**17-5.1 Sustainable.**

Attach final NSERDC/HPSB Checklist to UFGS 01 33 29.00 20 *Sustainable Requirements*.

**17-5.2 Environmental Specifications.**

Comply with additional requirements in UFC 3-800-10N (DRAFT), for environmental specifications.

**17-5.3 Design-Build Design Submittal Specifications.**

For Design-Build projects, follow the requirements of the RFP when manufacturer's catalog data is used in lieu of prescriptive specifications.

**17-5.3.1 Fire Protection Specifications.**

For Fire Protection systems only, provide manufacturer's data sheets instead of prescriptive specifications, for the suppression systems, the detection and alarm systems, fire-stopping, and spray-applied fireproofing. In exception, and in addition, submit prescriptive specifications for Fire Protection systems when provided in the RFP.

**17-5.4 Report Source File.**

As part of the Final submittal of the specifications, provide the source files of Reports included in the specifications.

**17-6 CONTRACTING DOCUMENTS.**

Provide a final, completed PIF, including Bid Schedule. Provide final scope for Project Synopsis.

**17-7 INTERIOR DESIGN.****17-7.1 Structural Interior Design (SID).**

Update deliverables for Interior Design from Pre-Final. Include Interior and Exterior Material and Finish samples submitted in presentation board or binder format.

**17-7.2 FF&E.**

Provide the final FF&E submittal with final submittal package. Present to NAVFAC and to the Activity. Update FF&E deliverables from Pre-Final.

- Cover Title Page (project name, project #, submittal date, submittal title)
- Table of Contents and Manufacturer Contact List
- FF&E list (Cost Summary)

- Furniture placement plans coded to the FF&E list and furnishings specifications
- Specifications and procurement data sheets, such as for furniture and furnishings furnishing, indicating final finish and fabric selections.
- Catalog cuts and finish samples for all specified items.
- 16x20 inch (406 x 508 mm) color boards of furniture/furnishings and finishes specified for Activity presentation to indicate overall design intent
- BVD Sheets signed by the Offeror's Interior Designer with required supporting information.

**17-8            CALCULATIONS.**

Revise design analysis and calculations as required to reflect resolution of all previous government review comments and as required by this document and the core UFCs.

**17-9            DRAFT FORM DD 1354.**

Provide completed Draft Form DD 1354.

**17-10          STATEMENT OF SPECIAL INSPECTIONS.**

Where special inspection or testing is required per Chapter 17 of the International Building Code (IBC), the registered design professional in responsible charge must prepare a statement of special inspections in accordance with the requirements as stated in the IBC

**17-11          RFP.**

Provide complete, final RFP with redlines executed. Organize and compile the package as detailed in Chapter 11.

**17-11.1       Report Source File.**

As part of the Final submittal, provide source file of Reports included in the RFP, in either Word or SpecsIntact.

**17-12          ADDITIONAL OVERSEAS SUBMITTALS REQUIREMENTS.**

Provide the following:

- Host Nation Life Safety and Building Code analysis.
- Comparisons of Host Nation requirements with NFPA Codes, UFC 1-200-01, and UFC 1-200-02

Translate the Geotechnical Report into English. Unless stated otherwise in the contract, the boring logs must be shown in two languages, English and the local language of country of bidding and construction.

**17-12.1 Code Compliance Certification.**

Design of all disciplines must comply with the applicable U.S. & Host Nation norms, regulations and all applicable U.S. Military criteria. Plans and Specifications must be certified by a Host Nation architect or engineer, registered on the country's professional rolls, for compliance with all applicable codes and laws.

Provide this certification on the cover sheet of project drawings and specifications, in dual languages. If the specifications coversheet does not have sufficient space for this certification, provide directly behind the coversheet on a separate page, including the project information from the coversheet. The code compliance certification must be provided as indicated below, and dated, signed and stamped in accordance with the requirements set forth in Chapter 7 of this document.

HAVING PARTICIPATED IN THE DESIGN OF PROJECT No. (Identify project number, project title, location), AND HAVING THOROUGHLY REVIEWED THE COMPLETED PROJECT DOCUMENTS, I DECLARE THAT THE FACILITY DESIGN INCLUDED HEREIN COMPLIES WITH ALL APPLICABLE (Identify Host Country) CODES AND LAWS.

Date

Signature

(Professional Seal)

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## CHAPTER 18 PHASE: POST-DESIGN OR POST-RFP DEVELOPMENT SUBMITTAL REQUIREMENTS

### 18-1 GENERAL REQUIREMENTS.

Submissions after final design or RFP development include providing DOR and Government responses to Contractor Pre-Proposal Inquiries (PPI), Pre-Bid Inquiries (PBI), and Requests for Information (RFI), and providing amendments and contract modification documents. Submissions may include sketches, additions or corrections to drawings, specifications, or RFP, and a continuation sheet with an explanation of changes.

Changes made to the drawings, specifications, or RFP after the Final Submission are changes to the Contract Documents. Changes before contract award are amendments; changes after contract award are contract modifications.

### 18-2 PRE-PROPOSAL/PRE-BID INQUIRIES AND REQUESTS FOR INFORMATION.

Responses to Pre-Proposal/Pre-Bid Inquiries and Requests for Information must be responded to as quickly as possible to prevent delay to bid opening or to construction of contract. It is expected that the DOR will provide response to a PPI/PBI or RFI no later than 3 working days after notification. Where the response to a PPI/PBI or RFI requires additional time, the DOR must notify the Government Project Manager/Design Manager or ROICC/PWD as to the expected date of response. In any case, the DOR should indicate if an amendment or a contract modification is required in response to the PPI/PBI or RFI.

### 18-3 CHANGE NUMBERS.

The Contracting Officer for procurement assigns the Amendment or Contract Modification number. Numbers are assigned in numerical order as required. Amendment numbers are prefixed by three ciphers, for example, the first amendment is numbered "0001." The Contracting Officer prepares a cover sheet, Standard Form (SF) 30, *Amendment of Solicitation/ Modification of Contract*, for changes. Thus, the first page of the change's text starts on page two.

### 18-4 COST ESTIMATE CHANGES.

Accompany amendment or contract modification with detailed cost estimates to indicate all changes in construction cost of the project, or to substantiate a statement of no change in cost. Prepare cost estimates in accordance with *NAVFAC Cost Engineering Policy and Procedures*. Accompany contract modification with a detailed cost estimate that can be used in the negotiation of contract modification.

**18-5 CHANGE FORMAT.**

Provide a Continuation Sheet for an Amendment and a Proposed Change Sheet for a contract modification with an explanation of the changes. Where drawings, sketches, RFP sections, or specifications are replaced or added, attach the document PDF file separately, and reference in the Continuation Sheet or Proposed Change Sheet in accordance with guidance below. When multiple drawing, sketch, RFP section, or specification files are replaced or added, combine the documents by type into a single file, and bookmark each document; i.e. combine the drawings into a single file and bookmark each drawing, and combine the specification sections into a single file and bookmark each section. Follow file size limitations in accordance with Chapter 15.

Prior to submittal of an amendment or contract modification, contact the Government representative for the number of the amendment or contract modification.

**18-5.1 Language Format.**

Use Table 18-1 "Specifications or RFP Changes Format" and Table 18-2 "Drawing Changes Format" for guidance on how to format the language for changes. Note that any additions, deletions, or replacement of complete specification sections should be done at the Table of Contents; do not list the section separately within the document by Section number and title with note to add, delete, or replace the section. Note that adding, deleting or replacing a drawing or sketch in its entirety is done at Section 00 01 15, *List of Drawings*; do not list each drawing or sketch separately with a note to add, delete, or revise the entire drawing.

**18-5.2 Continuation Sheet.**

Use the Continuation Sheet for Amendments. A sample Continuation Sheet is provided at Figure 18-1. Follow the specific guidance for drawing, specification, and RFP changes.

**18-5.3 Proposed Change Sheet.**

Use a Proposed Change Sheet for contract modifications. A sample sheet is provided at Figure 18-2. Use the guidance for amendments and changes for language and format.



Table 18-1 Specification or RFP Changes Format

Change	Change Format
Adding a Specification Section	<p><b>PROJECT TABLE OF CONTENTS</b></p> <p>Section 09 68 00, CARPET, is added to the Project Table of Contents.</p> <p>This Section accompanies this [Amendment] [Modification].</p>
Replacing an Existing Specification	<p><b>PROJECT TABLE OF CONTENTS</b></p> <p>Section 09 68 00, CARPETING, is deleted and Section 09 68 00, CARPETING, dated May 17, 2012, as shown in the footer, is added to the Project Table of Contents and accompanies this [Amendment] [Modification].</p> <p>NOTE: To change the date, for any subsequent replacements of the section, date must be manually typed into the footer on the printing screen, in SpecsIntact. See SpecsIntact Quick Start Guide for assistance in manually adding a line to the section footer.</p>
Adding Paragraphs or Sub-paragraphs	<p><b>SECTION 03 33 00 CAST-IN-PLACE ARCHITECTURAL CONCRETE</b></p> <p>2.1 MATERIALS FOR FORMS</p> <p>After this paragraph, add the following:</p> <p>"2.1.1 Reuse of Forms</p> <p>Forms may be reused in subsequent parts of the project provided they are undamaged and continue to meet all specified requirements."</p> <p><b>PART 3 PROJECT PROGRAM</b></p> <p>1.2 REQUIREMENTS</p> <p>After this paragraph, add the following:</p> <p>"1.2.1 ...."</p>
Making Word Changes	<p><b>SECTION 23 23 00 REFRIGERANT PIPING</b></p> <p>2.1.1.2 Copper Pipe and Fittings:</p> <p>In the second sentence, delete "bronze" and replace with "galvanized steel."</p> <p><b>PART 4 PERFORMANCE TECHNICAL SPECIFICATIONS</b></p> <p><b>D50 ELECTRICAL</b></p> <p>D5010 Electrical Service and Distribution</p> <p>In the second sentence, delete "bronze" and replace with "galvanized steel."</p>
Omitting Paragraphs or Sub-paragraphs	<p><b>SECTION 32 12 16.16 ROAD-MIX ASPHALT PAVEMENT</b></p> <p>2.2 ASPHALT CEMENT</p> <p>Delete this Paragraph in its entirety and replace with the following:</p> <p>"2.2 NOT USED."</p> <p><b>PART 4 PERFORMANCE TECHNICAL SPECIFICATONS</b></p> <p>A10 FOUNDATIONS</p> <p>A1010 FOUNDATION RESTRICTIONS</p> <p>Delete this paragraph in its entirety.</p>

**18-5.4 Drawing Changes and Sketches.**

Use Table 18-2, Drawing Changes Format, as a guide in preparing changes to the Drawings.

When drawings are revised and replaced, use a cloud to highlight the change. For amendments, place a triangle with a sequential number in it, next to the cloud or the item(s) changing for each sheet. For modifications, use a triangle with a sequential letter instead of a number. Also provide this triangle with the number or the letter in the revisions block. Under description, describe what the change is; listing the amendment or contract modification number is not appropriate. Insert the date that the change was made. This date and revision block distinguishes the revised drawing from the original drawing. Do not change sheet numbers or sheet designations for revised drawings.

**Table 18-2 Drawing Changes Format**

<b>Change</b>	<b>Change Format</b>						
Adding Drawings	<p><b>DOCUMENT 00 01 15</b> <b>LIST OF DRAWINGS</b></p> <p>1.2 CONTRACT DRAWINGS</p> <p>Add the following to the list of drawings:</p> <table> <tr> <td>NAVFAC DWG NO.</td> <td>Title</td> </tr> <tr> <td>4265191</td> <td>Revised Floor Plan – Area A</td> </tr> <tr> <td>4265192</td> <td>Lighting Fixture Details</td> </tr> </table> <p>These Drawings accompany this [Amendment] [Modification].</p>	NAVFAC DWG NO.	Title	4265191	Revised Floor Plan – Area A	4265192	Lighting Fixture Details
NAVFAC DWG NO.	Title						
4265191	Revised Floor Plan – Area A						
4265192	Lighting Fixture Details						
Revising Drawings	<p><b>DOCUMENT 00 01 15</b> <b>LIST OF DRAWINGS</b></p> <p>1.2 CONTRACT DRAWINGS</p> <p>The following drawings are revised as of [Date]:</p> <table> <tr> <td>NAVFAC DWG NO.</td> <td>Title</td> </tr> <tr> <td>4265191</td> <td>Foundation Plan, Revised [Date]</td> </tr> <tr> <td>4265192</td> <td>Floor Plan, Revised [Date]</td> </tr> </table> <p>These revised Drawings accompany this [Amendment] [Modification].</p>	NAVFAC DWG NO.	Title	4265191	Foundation Plan, Revised [Date]	4265192	Floor Plan, Revised [Date]
NAVFAC DWG NO.	Title						
4265191	Foundation Plan, Revised [Date]						
4265192	Floor Plan, Revised [Date]						
Making Text Changes to Drawings	<p><b>DOCUMENT 00 01 15</b> <b>LIST OF DRAWINGS</b></p> <p>1.2 CONTRACT DRAWINGS</p> <p><b><u>On NAVFAC Dwg No.14265191 (T-1)</u></b></p> <p><u>Foundation Plan Notes.</u> In note number 3, delete “the bottom of the footing” and replace with “the top of the footing.”</p>						

**Figure 18-1 Sample Amendment**

CONTINUATION SHEET

**DOCUMENT 00 01 15 LIST OF DRAWINGS**

## 1.2 CONTRACT DRAWINGS

NAVFAC Dwg. Nos. 14376950 and 14376951 are added to the list of drawings and accompany this amendment.

NAVFAC Dwg. Nos. 14376308, 14376309, 14376310, 14376311, 14376312, 14376313, 14376314, 14376315, and 14376316 are revised as of March 17, 2012. These revised drawings accompany this amendment.

**On NAVFAC Dwg. No. 4376290 (T-1)**

**General Notes:** Delete Note 1 in its entirety and replace with the following: "1. One lane of Williamsburg Road must remain open at all times."

**PROJECT TABLE OF CONTENTS**

Section 03 37 13, SHOTCRETE, is added to the Table of Contents and accompanies this amendment.

Delete sections 26 00 00.00 20 and 33 71 02.00 20 in their entirety and replace with Sections "26 00 00.00 20, BASIC ELECTRICAL MATERIALS AND METHODS, dated July 4, 2012" and "33 71 02.00 20, UNDERGROUND ELECTRICAL WORK, dated July 4, 2012." Sections 26 00 00.00 20 and 33 71 02.00 20, dated July 4, 2012, accompany this amendment.

**SECTION 01 50 00 TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS**

## 1.3 CONSTRUCTION SITE PLAN

Delete this paragraph in its entirety.

## 1.4 STORAGE AREAS

At the beginning of this paragraph add the following: "Contractor is responsible for security of their own property."

## 1.4.1 Storage in Existing Buildings

Delete this paragraph in its entirety and replace with the following:

## "1.4.1 Laydown Area

The enclosed site available for storage must be located at the North side of the building near the Lobby's North entrance

## 1.4.2 Material Storage

The Contractor will be working in and around an occupied building. The storage of materials, unless approved by the Contracting Officer, will not be allowed in the building."

5555 Amend0003

2

**SECTION 26 20 00 INTERIOR DISTRIBUTION SYSTEM**

2.2.1 Surface Non-metallic Raceway

After the text “snap cover type”, add “color must be white.”

3.1.3.1 Workmanship

After this paragraph, add the following:

“3.2 FIELD QUALITY CONTROL

Furnish test equipment and personnel, and submit written copies of test results. Give Contracting Officer five working days notice prior to each test.

3.2.1 Devices Subject to Manual Operation

Operate each device subject to manual operation at least five times, demonstrating satisfactory operation five out of five times.”

-- End of Amendment --

555555 Amend 0003

3

**Figure 18-2 Sample Contract Modification**

	N62470-96-C-6042 NAVFAC WORK ORDER NUMBER 555555
	PROPOSED CONTRACT MODIFICATION
TACTICAL SUPPORT VAN PAD AT THE MARINE CORPS AIR STATION, NEW RIVER JACKSONVILLE, NORTH CAROLINA	
<b>DOCUMENT 00 01 15 LIST OF DRAWINGS</b>	
1.2 CONTRACT DRAWINGS	
<b><u>On NAVFAC Dwg. No. 4369801 (C-15)</u></b>	
<u>Van Pad Pavement Detail A/C12/C12:</u> Delete "(5.2 Mpa FLEXURAL STRENGTH)" and replace with "(4481 kPa FLEXURAL STRENGTH)".	
<b>SECTION 03 30 00 CAST-IN-PLACE CONCRETE</b>	
3.3.7 Dowel Assemblies	
Delete the first sentence of this paragraph.	
-- End of Proposed Contract Modification --	
555555 PROPOSED CONTRACT MODIFICATION	
1	

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**CHAPTER 19 PHASE: POST-CONSTRUCTION DOCUMENTS****19-1 PROJECT CLOSE-OUT.**

The Designer of Record (DOR) may be required to execute specific project tasks during project close-out. These tasks may include preparing DD Form 1354, "Real Property Record," for Government signature, attending project close-out meetings, verifying that the LID IMPs were constructed as designed, or performing other tasks. Refer to the design contract (if a Design-Bid-Build project) or the Design-Build RFP for project close-out related tasks.

**19-1.1 INTERIM FORM DD 1354.**

Update the Draft DD Form 1354 to include any additional assets, improvements or alterations that occurred during construction. Identify costs. Submit completed form for approval to the Government.

**19-1.2 RECORD DESIGN.**

The Record Design documents are comprised of the Final Design documents inclusive of marked prints (As-Built Marked Prints) indicating construction deviations from the Final Design Contract Documents. Prepare record drawings in accordance with Chapter 12.

**19-1.3 NSERDC/HPSB Checklist.**

No later than 60 days after Beneficial Occupancy Date, provide updated NSERDC/HPSB Checklist and completed Sustainable Notebook to Project Manager to update eProjects record. Obtain TPC Certification when all TPC organization requirements are complete.

For projects with post-occupancy sustainable or energy requirements (such as commissioning), provide updated NSERDC/HPSB Checklist and Sustainable Notebook to Project Manager to finalize eProjects record.

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## APPENDIX A REFERENCES

### AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS

<http://www.ashrae.org/>

ASHRAE 90.1, *Energy Standards for Buildings, Except Low-Rise Residential Buildings*

### ASTM

<http://www.astm.org>

ASTM D1452, *Standard Practice for Soil Exploration and Sampling by Auger Borings*

ASTM D1586, *Standard Test Method for Standard Penetration Test and Split-Barrel Sampling of Soils*

ASTM D2487, *Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)*

ASTM D2488, *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*

ASTM D3740, *Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction*

ASTM D5778, *Standard Test Method for Electronic Friction Cone and Piezocone Penetration Testing of Soils*

### FM GLOBAL

<http://www.fmglobal.com>

Property Loss Prevention Data Sheet 3-0, *Hydraulics of Fire Protection Systems*

### GENERAL SERVICES ADMINISTRATION

FAR 52-236-21, *Specifications and Drawings for Construction*,  
[http://acquisition.gov/far/current/html/52\\_233\\_240.html#wp1113494](http://acquisition.gov/far/current/html/52_233_240.html#wp1113494)

FAR 52-236-25, *Requirements for Registration of Designers*,  
[http://acquisition.gov/far/current/html/52\\_233\\_240.html#wp1113529](http://acquisition.gov/far/current/html/52_233_240.html#wp1113529)

Standard Form (SF) 30, *Amendment of Solicitation/ Modification of Contract*,  
<http://www.gsa.gov/portal/forms/download/116158>

**INTERNATIONAL CODE COUNCIL**

<http://www.iccsafe.org>

*International Building Code (IBC)*

**UNITED STATES ARMY**

*A/E/C CAD Standard*, <https://cadbim.usace.army.mil/>

**UNITED STATES DEPARTMENT OF DEFENSE**

DFAR 227.71, *Rights in Technical Data*,  
<http://www.acq.osd.mil/dpap/dars/dfarspgi/current/index.html>

DFAR 227.72, *Rights in Computer Software and Computer Software Documentation*,  
<http://www.acq.osd.mil/dpap/dars/dfarspgi/current/index.html>

DFAR 252.227-7023, *Drawings and Other Data to Become Property of Government*,  
<http://www.acq.osd.mil/dpap/dars/dfarspgi/current/index.html>

DoD 5200.2R, *Personnel Security Program*, January 1987,  
<http://www.dtic.mil/whs/directives/corres/pdf/520002r.pdf>

DoD Directive 4270.5, *Military Construction*, 5 February, 2005,  
<http://www.dtic.mil/whs/directives/corres/pdf/427005p.pdf>

MIL-STD-3007, *Standard Practice for Unified Facilities Criteria and Unified Facilities Guide Specifications*, <http://www.wbdg.org/ccb/FEDMIL/std3007f.pdf>

Public Law 106-229, *Electronic Signatures in Global and National Commerce Act*,  
<http://www.gpo.gov/fdsys/pkg/PLAW-106publ229/pdf/PLAW-106publ229.pdf>

Public Law 94-168, *Metric Conversion Act*, <http://www.gpo.gov/fdsys/pkg/STATUTE-89/pdf/STATUTE-89-Pg1007.pdf>

Federal Leadership in High-performance and Sustainable Buildings Memorandum of Understanding (MOU), January 24, 2006, <http://www.wbdg.org/references/mou.php>

**UNITED STATES DEPARTMENT OF DEFENSE, UNIFIED FACILITIES CRITERIA PROGRAM**

<http://dod.wbdg.org> unless otherwise noted

FC 4-721-10N, *Navy and Marine Corps Unaccompanied Housing*

FC 4-722-01N, *Navy and Marine Corps Dining Facilities*

FC 4-740-02N, *Navy and Marine Corps Fitness Centers*

- UFC 1-200-01, *General Building Requirements*
- UFC 1-200-02 *High Performance and Sustainable Building Requirements*
- UFC 1-300-02, *Unified Facilities Guide Specifications (UFGS) Format Standard*
- UFC 3-101-01, *Architecture*
- UFC 3-210-10, *Low Impact Development*
- UFC 3-220-01, *Geotechnical Engineering*
- UFC 3-250-01FA, *Pavement Design for Roads, Streets, Walks, and Open Storage Areas*
- UFC 3-260-02, *Pavement Design for Airfields*
- UFC 3-260-03, *Airfield Pavement Evaluation*
- UFC 3-340-01, *Design and Analysis of Hardened Structures to Conventional Weapons Effects (FOUO)*
- UFC 3-410-01, *Heating, Ventilating, and Air Conditioning Systems*
- UFC 3-420-01, *Plumbing Systems*
- UFC 3-501-01, *Electrical Engineering*
- UFC 3-600-10N (DRAFT), *Fire Protection*, <http://www.wbdg.org/ndbm>
- UFC 3-701-01, *DoD Facilities Pricing Guide*
- UFC 3-730-01, *Programming Cost Estimates for Military Construction*
- UFC 3-740-05, *Handbook: Construction Cost Estimating*
- UFC 3-800-10N (DRAFT), *Environmental Engineering for Facility Construction*, <http://www.wbdg.org/ndbm>
- UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*
- UFC 4-010-05, *Sensitive Compartmented Information Facilities Planning, Design, and Construction*
- UFC 4-020-01, *Security Engineering Facilities Planning Manual*
- UFC 4-023-03, *Design of Buildings to Resist Progressive Collapse*
- UFC 4-510-01, *Design: Medical Military Facilities*

UFC 4-610-01, *Administrative Facilities*

UFGS 00 01 15, *List of Drawing*

UFGS 00 22 13.00 20, *Supplementary Instructions to Offerors*

UFGS 01 11 00, *Summary of Work*

UFGS 01 33 00, *Submittal Procedures*

UFGS 01 33 00.05 20, *Construction Submittal Procedures*, <http://dod.wbdg.org/ndbm>

UFGS 01 33 10.05 20, *Design Submittal Procedures*, <http://www.wbdg.org/ndbm>

UFGS 01 33 29.00 20, *Sustainable Requirements*

UFGS 01 45 00.00 20, *Quality Control*

UFGS 01 45 00.05 20, *Design and Construction Quality Control*,  
<http://www.wbdg.org/ndbm>

UFGS 02 82 16.00 20, *Engineering Control of Asbestos Containing Materials*

UFGS 10 14 00.20, *Interior Signage*

## **UNITED STATES NATIONAL CAD STANDARD**

<http://www.nationalcadstandard.org/>

United States National CAD Standard for Architecture, Engineering, & Construction  
(A/E/C)

## **UNITED STATES NAVY**

*Electronic Project Generator* (EPG), Naval Facilities Engineering Command. Contact  
Government administrator for Intranet address and access.

NAVFAC P-Pub 442, *Economic Analysis Handbook*,  
<http://wbdg.org/ccb/NAVFAC/PPUBB/p442.pdf>

NAVFAC Acquisition Supplement, (NFAS) Part 6.304,  
[https://www.navfac.navy.mil/content/dam/navfac/Small%20Business/PDFs/Contracting\\_with\\_NAVFAC/SB-NAVFAC\\_Naval\\_Facilities\\_ACQ\\_Supplement\\_NOV2012.pdf](https://www.navfac.navy.mil/content/dam/navfac/Small%20Business/PDFs/Contracting_with_NAVFAC/SB-NAVFAC_Naval_Facilities_ACQ_Supplement_NOV2012.pdf)

NAVFAC Cost Engineering Policy and Procedures2,  
<http://www.uscost.net/costengineering>

## **NAVFAC DESIGN-BUILD MASTER WEBSITE**

<http://www.wbdg.org/ndbm>

NAVFAC Instruction 11012.119, En-(Fac 04t) Preparation of Concept Plans and Final Working Drawings and Specifications for Medical/Dental Facilities

OPNAVINST 11010.20G, Facilities Project Instruction Manual, Public Law 94-168,  
<http://doni.daps.dla.mil/Directives/11000%20Facilities%20and%20Land%20Management%20Ashore/11-00%20Facilities%20and%20Activities%20Ashore%20Support/11010.20G%20w%20CH-1.pdf>

## **WHOLE BUILDING DESIGN GUIDE (WBDG)**

<http://www.wbdg.org>

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**APPENDIX B GLOSSARY OF ABBREVIATIONS**

A-E	Architect and Engineer
A/E/C	Architect/Engineer/Contractor
CAD	Computer Aided Design
CATEX	Categorical Exclusion
CCB	Construction Criteria Base
CD	Compact Disk
CFA	Commission of Fine Arts
CMC	Commandant, Marine Corps
CSI	Construction Specifications Institute™
CONUS	Continental United States
DB	Design-Build
DBB	Design-Bid-Build
DoD	Department of Defense
DOR	Designer of Record
DQC	Design Quality Control
DVD	Digital Video Disc
EA	Environmental Assessment
EBS	Electronic Bid Solicitation
EDD	Electronic Design Deliverables
EIS	Environmental Impact Statement
FACD	Facility Analysis Concept Design
FACP	Fire Alarm Control Panel
FF&E	Furniture, Fixtures, & Equipment
FOSSAC	Fitting Out and Supply Support Assistance Center
HPSB	High Performance and Sustainable Buildings

IFP	Installation Focus Plan
IP	Inch-Pound (English)
LCC	Life-Cycle Cost
LEED	Leadership in Energy and Environmental Design
NAVFAC	Naval Facilities Engineering Command
NSEDRC	NAVFAC Sustainable and Energy Data Record Card
NCPC	National Capitol Planning Commission
NEHC	Naval Environmental Health Center
NFPA	National Fire Prevention Agency
NIST	National Institute of Science and Technology
PBI	Pre-Bid Inquiry
PCAS	Post-Construction Award Services
PDF	Portable Document File
PIF	Project Information Form
PM	Project Manager
PPI	Pre-Proposal Inquiry
PROD	Permit Record of Design
PWD	Public Works Department
PTS	Performance Technical Specification
OSHA	Occupational Safety and Health Administration
OCONUS	Outside the Continental United States
RAC	Risk Assessment Code
RAMP	Requirements and Management Plan
RFI	Request For Information
RFP	Request For Proposal
ROICC	Resident Officer in Charge of Construction



RONA	Record of Non-Applicability
SAES	Statement of A-E Services
SHPO	State Historic Preservation Officer
SI	System International (Metric)
SPAWAR	Space and Naval Warfare Systems Command
TPC	Third Party Certification
UFC	Unified Facilities Criteria
UFGS	Unified Facilities Guide Specifications

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## APPENDIX C SAMPLE DELIVERABLES

## C-1 SAMPLE BID SCHEDULE FOR DESIGN-BID-BUILD PROJECT

DOCUMENT 00 22 13.00 20

## SUPPLEMENTARY INSTRUCTIONS TO OFFERORS

## 1.1 CONTRACT LINE ITEMS

The terms Offeror and Bidder and versions thereof (offer/bid) have the same definition as used within this contract.

Provide the Contract Line Item (CLIN) lump sum price for the following items:

CLIN 0001AA. Price for the entire work for the P136 TACAMO E-6B Hangar complete to the 5 foot line outside of the building, in accordance with the drawings and specifications, but excluding work described in CLIN 0001AB, 0001AC, 0001AD, 0002, and 0003.

CLIN	DESCRIPTION	PRICE
0001AA	P136 TACAMO E-6B Hangar to the 5 foot line.	\$_____

CLIN 0001AB. Price for the entire project Site Work, outside the 5 foot line of the E-6B Hangar facility complete in accordance with the drawings and specifications, but excluding work described in CLIN 0001AA, 0001AC, 0001AD, 0002 and 0003.

CLIN	DESCRIPTION	PRICE
0001AB	Site Work outside the E-6B Hangar 5 foot line.	\$_____

CLIN 0001AC. Price for drilled concrete pier foundation complete in accordance with drawings and specifications, and in accordance with the following schedule:

CLIN	ITEM	UNIT	UNIT PRICE	NO. UNITS	TOTAL PRICE FOR CLIN 0001AC
0001AC	Drilled Concrete Pier Foundation	Linear feet	\$_____	50	\$_____

**FC 1-300-09N**  
**1 May 2014**

CLIN 0001AD. Price for drilled concrete pier load test, complete in accordance with the drawings and specifications and in accordance with the following schedule:

CLIN	ITEM	UNIT	UNIT PRICE	NO. UNITS	TOTAL PRICE FOR CLIN 0001AD
0001AD	Pier Load Test	Each	\$ _____	50	\$ _____

CLIN 0002 Option Item No. 1 - Price includes the following:

Price for provision, design, installation, testing, and associated training for the Electronic Security System (ESS) equipment necessary for this facility. The ESS includes but not limited to Intrusion Detection System (IDS), Access Control System (ACS), and Closed Circuit Television (CCTV) complete in accordance with the drawings and specifications. Equipment includes items such as Premise Control Units (PCU), central processing units, field panels, sensors, card readers, keypads, cameras, switches, video recorders, workstations, and the communication cabling connecting these devices together.

Provide the supporting infrastructure associated with ESS, such as conduit, junction boxes, electronic door strikes, door hardware, mounting hardware, power connections, exterior ductbanks, manholes, utility poles, utility connections, and power connections in CLIN 0001 - BASE PRICE.

CLIN	DESCRIPTION	PRICE
0002	Electronic Security System (ESS) equipment	\$ _____

CLIN 0003 Planned Modification Item 1 - Price includes the following:

Price to procure and supervise installation of the Furniture, Fixtures and Equipment (FF&E) complete, in accordance with the plans and specifications and in accordance with the following schedule:

CLIN	ITEM	GOVERNMENT FF&E ESTIMATE	HAR (NTE 5%)	PRICE FOR ESTIMATED HAR AMOUNT (GOVT EST. x HAR%)	TOTAL FF&E ESTIMATED AMOUNT FOR CLIN 0003 (GOVERNMENT FF&E ESTIMATE + ESTIMATED HAR AMOUNT)
0003	FF&E	\$300,000	_____%	\$_____	\$_____

#### 1.2 GENERAL BID NOTES

- a. Award will be made on the total sum of Contract Line Items 0001AA, 0001AB, and the sum of the extensions under CLIN 0001AC and 0001AD. For CLIN 0001AC and 0001AD, enter unit prices and extended totals in spaces provided. If there is a difference between a unit price and the extended total, the unit price will be held to be the intended bid and the total recomputed accordingly. If an Offeror provides a total but fails to enter a unit price, the total divided by the specified quantity will be held to be the intended unit price.
- b. The Government reserves the unilateral right to award CLIN 0002 to the Contractor at the proposed price within 30 calendar days after the contract award. A firm fixed proposed price is required for CLIN 0001 and CLIN 0002. No provision is made for economic price adjustment. If Options are exercised, the contract completion date remains 420 days after award of the contract.
- d. Evaluation of Options (JUL 1990). Except when it is determined in accordance with FAR 17.206 (b) not to be in the Government's best interest, the Government will evaluate offers for award purposes by adding the price for the Option(s) to the total price for the Bid Item 0001. Evaluation of options will not obligate the Government to exercise the Option(s). (FAR 52.217-5).
- e. The Government may reject an offer as nonresponsive if it is materially unbalanced as to prices for the basic requirement and the option quantities. An offer is unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

#### 1.3 PLANNED MODIFICATION BID NOTES

These notes apply to Planned Modification CLINs.

- a. The total estimate amount for FF&E has been identified to provide the Offerors with the projected magnitude of effort for FF&E. The total estimate amount for the Furniture, Fixtures, and Equipment (FF&E) includes the actual cost of the FF&E including freight and installation charges. The Government FF&E Estimate is only an estimated amount.
- b. If awarded, line items will be funded separately after completion of FF&E design package review, by the Government and receipt of appropriate funding by the Government. Requirements and details are provided in UFGS 01 30 01.00 20 DESIGN PROCUREMENT AND INSTALLATION OF FURNITURE, FIXTURES, AND EQUIPMENT.
- c. Bonding is not required for the design, procurement and installation of FF&E.
- d. Offerors may propose a Handling and Administration Rate (HAR) for the FF&E not to exceed 5%. This fee will account for all administrative costs, overhead, bonding fees, administration of subcontracts, profit, and any other costs associated with and related to the coordination and processing of the procurement and installation of FF&E. The proposed HAR percentage will be incorporated into the contract award and will not be adjusted regardless of fluctuations from the estimate amount for the FF&E. The proposed HAR is a fixed rate.
- e. The Government is not obligated to award the Planned Modification line item. Should the Government choose to award the Planned Modification, the line item will be awarded as a negotiated modification to the contract/task order. The contractor's proposed HAR will be applied to all vendor/supplier costs for the FF&E.
- f. If awarded, the FF&E modification will be awarded at least six months prior to the contract completion date. A minimum of six months is required for the Contractor to purchase, deliver and install the FF&E without impacting the overall completion date of the project. The Contractor's schedule must assume the award of the FF&E as a modification. No schedule extensions will be granted if the modification is awarded at least six months prior to the contract completion date. If the Government decides to negotiate and award the furniture modification with less than six months prior to the contract completion date, the Contractor may be entitled to a contract extension and extended field overhead. A contract extension and extended field overhead will only be granted in those cases where the Contractor demonstrates that an accepted Final FF&E package was submitted within the approved schedule deadlines and sufficient lead time for the FF&E is not available and the Government's award of the modification is in the last six months of the contract.

C-2

**SAMPLE SYNOPSIS**

Synopsis for P236 FITNESS CENTER, CLDJ

THIS NOTICE IS PROVIDED FOR INFORMATION PURPOSES ONLY. THIS PROCUREMENT WILL BE SOLICITED ON AN UNRESTRICTED BASIS. SOLICITATION DOCUMENTS WILL NOT BE AVAILABLE FOR DOWNLOADING UNTIL APPROXIMATELY 17 DECEMBER 2012.

This is a one step design/bid/build construction project that will construct a two-story fitness center at Camp Lemonnier, Djibouti (CLDJ), Africa. The building is a pre-engineered metal building on reinforced concrete slab and foundations with insulated metal wall and roof panels, translucent wall panels, hydraulic elevator, interior concrete partitions, metal stud and gypsum board partitions, interior finishes, fire alarm and sprinkler system, plumbing, mechanical, electrical and incidental related work. Scope requirements include site preparation necessary for the construction of the fitness center also requiring installation of 75 new Containerized Living Units (CLUs), relocation of 75 existing CLUs encumbering the site, and replacing the artificial turf on the existing athletic field. Once the 75 new CLUs are constructed then the occupants of G-Block CLUs can relocate thus allowing those CLUs to be moved, triple stacked, and retrofitted with fire alarm and sprinkler systems.

Other scope requirements include the demolition of the existing fitness center after the new facility is constructed.

The period of performance is approximately 18 months after notice to proceed.

This project will be awarded as a firm-fixed price contract. The Government reserves the right to enter into negotiations or limit the competitive range. The construction range is between \$10,000,000 and \$25,000,000.

This contract will require a Performance Bond pursuant to FAR 52.228-15, through an approved surety under the United States Treasury Department Circular 570. Based on the feasibility of a contractor to furnish a Performance Bond, offerors may provide a 10% Performance Guarantee, in accordance with NFAS 5252.228-9306, in lieu of a Performance Bond.

The Request for Proposals (RFP) will be available for viewing and downloading on or about 17 December 2012. The proposal due date will be on or about January 31, 2013, 2:00 p.m. Eastern Standard Time North America.

The solicitation will be formatted as an RFP in accordance with the requirements designated by Federal Acquisition Regulation (FAR) 15.203 for a negotiated procurement utilizing procedures of FAR 36.2. This method permits evaluation of proposals based on price competition, technical merit and other factors; permits impartial and comprehensive evaluation of offerors' proposals; permits discussions if necessary; and ensures selection of the source whose performance provides the best value to the Government.