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REV 1.13 – 30 JUN 2012

**REQUEST FOR PROPOSAL
EAB Barracks- Unaccompanied Personnel Housing (UEPH)
Fort Stewart**

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1.0 OVERVIEW

1.1. This is a “Best Value” solicitation for the Design and Construction of a EAB Barracks- Unaccompanied Personnel Housing (UEPH) located at Fort Stewart. The Government will evaluate the proposals in accordance with the criteria described herein, and award a firm fixed price task order to the responsible firm, whose proposal conforms with all the terms and conditions of the solicitation and whose proposal is determined to represent the overall best value to the Government.

General Description of Work: Construct 61,488 SF of UEPH facilities. Provide support facilities to include fire alarm detection, reporting systems, mass notification system, building information systems, automatic building sprinklers and AT/FP measures. Supporting facilities will include utilities, service roads, paving, walks, storm drainage and site improvements.

2.0 BASIS OF AWARD

2.1. The Contracting Officer will award a firm fixed-price task order to that responsible Firm whose proposal the Task Order Selection Authority has determined conforms to the solicitation, is fair and reasonable, and offers the best overall value to the Government, considering all non-price factors described herein, and price. **All evaluation factors, other than price, when combined, are considered significantly more important than the price.** However, firms are reminded that the Contract award shall not exceed the cost limitation described in Section 00 73 10 **Supplemental Contract Requirements** for this project. The intent of this solicitation is to obtain the best proposal within the cost limitation. There is no obligation to approach or match the cost limitation in the offer. After the Government individually evaluates and rates each proposal, the Contracting Officer/Task Order Selection Authority will compare proposals to determine which proposal represents the best value. The Government reserves the right to accept other than the lowest priced offer or to reject all offers. The Government will not award a contract to an Firm whose proposal contains a deficiency, as defined in FAR 15.001. If there is a lower priced, conforming offer(s), the Contracting Officer must determine that the added value of a more expensive proposal (within the cost limitation) would justify award to that firm.

2.2. As part of the evaluation, the Government will evaluate betterments in proposals relative to the minimum standards in the RFP to determine if they offer additional value to the Government. In addition, innovations in proposals will be evaluated to determine if creative ideas of the Firm are a better value to the Government compared to the minimum criteria.

3.0 GENERAL INSTRUCTIONS

3.1. Submit proposals initially on the most favorable terms from a price and technical standpoint. Do not assume that firms will be contacted or afforded an opportunity to clarify, discuss or revise their proposals. Submit proposals in tabbed, three-ring binders. Note that the Government will not evaluate any material that exceeds the page limits, where indicated below.

4.0 PROPOSAL CONTENTS AND RELATED EVALUATION FACTORS AND SUBFACTORS

(VOLUME 1 – DESIGN TECHNICAL)

<u>Factor/Sub Factor</u>	<u>Location</u>	<u>Description</u>	<u>Relative Importance</u>
FACTOR 1		DESIGN TECHNICAL	Most Important Factor
Subfactor 1	Vol. 1 TAB A	Building Functional and Aesthetics	Equally important with Subfactor 2

<u>Factor/Sub Factor</u>	<u>Location</u>	<u>Description</u>	<u>Relative Importance</u>
Subfactor 2	Vol. 1 TAB B	Quality of Building Systems and Materials	Equally Important with Subfactor 1
Subfactor 3	Vol. 1 TAB C	Site Design	3rd Most Important Subfactor (less important than Subfactors 1 and 2, which are equal in importance.)
Subfactor 4	Vol. 1 TAB D	Sustainability Requirements	4th Most Important Subfactor (less important than Subfactor 3)

VOLUME 2 –PERFORMANCE CAPABILITY-

<u>Factor/Sub Factor</u>	<u>Location</u>	<u>Description</u>	<u>Relative Importance</u>
FACTOR 2		PERFORMANCE CAPABILITY	2nd Most Important Factor (less important than Factor 1)
Subfactor 1	Vol. 2 TAB A	Proposed Contract Duration and Summary Schedule	Most Important Subfactor
Subfactor 2	Vol. 2 TAB B	Key Subcontractors	2nd Most Important Subfactor (less important than Subfactor 1)
Subfactor 3	Vol. 2 TAB C	Past Performance	2nd Most Important Subfactor (equally important as Subfactor 2)

VOLUME 3 – PRICE AND PRO FORMA INFORMATION)

<u>Factor/Sub Factor</u>	<u>Location</u>	<u>Description</u>	<u>Relative Importance</u>
FACTOR 3	Vol. 3 TAB A	Price (Standard Form 1442 and Proposal Bid Schedules)	3rd Most Important Factor (slightly less important than Factor 2)
N/A	Vol. 3 TAB B	Bid Guarantee	Not Rated
N/A	Vol. 3 TAB C	Required Pre-Award Information	Not Rated

5.0 VOLUME 1 – FACTOR 1 – DESIGN-TECHNICAL

5.1. GENERAL: The design-technical Factor consists of conceptual level presentation drawings, technical approach narratives and information regarding material and system quality. It must clearly define the proposed scope and quality levels that the design-build team is offering to the Government in enough detail for the Government and the Firm (proposer) to mutually understand whether or not the proposal meets or exceeds the minimum Solicitation requirements. **The use of BIM to prepare or submit proposals is NOT required. Fully developed drawings, details, or specifications are not required or desired. Unless, specifically stated, herein, the Government will not be performing a detailed engineering analysis or design review at the proposal stage.** The intent during the proposal

submission and review process is not to require detailed design effort or to perform a detailed design engineering review but to focus on the proposed quality levels of materials and systems. If the Government evaluators have actual knowledge or strong suspicion that a proposed product or solution is inappropriately sized, being used in the wrong application or otherwise does not meet the contract requirements, the Government will inform the proposer in the event that discussions are conducted with the firm. But the Government is not asking for design analyses in the proposal and is not obligated to perform an engineering design review at this stage. After, award, In the event of conflict between the contractor's accepted proposal and the requirements in the final, amended RFP, the order of precedence is indicated in Special Contract Requirement 1.2, DESIGN/BUILD CONTRACT – ORDER OF PRECEDENCE. The Firm shall identify what it considers to be Betterments in its proposal for Subfactors 1-3 (See Section 00 73 00, SCR "Proposed Betterments"). Note that the Government will not evaluate any material that exceeds the page limits, where indicated below. The final design must comply with the RFP requirements except that accepted betterments become the new contract minimum requirements.

5.2. VOLUME 1 - TAB A –SUBFACTOR 1 – BUILDING FUNCTIONAL, AESTHETICS AND SPACE

5.2.1. Submission Requirements:

5.2.1.1. Presentation Drawings:

- (a) Exterior Elevations of each facility clearly noting proposed materials and colors.
- (b) At least one (1) Exterior Perspective Rendering (may be CADD rendering) for each facility type included in the contract.
- (c) At least one building section demonstrating typical exterior wall sections, typical exterior construction materials, finished floor elevations, and ceiling heights.

NOTE: The Government will use this information to evaluate functional and aesthetic considerations, such as floor to ceiling heights and may use it to help evaluate exterior aesthetics and appearance. The Government may also use this information in conjunction with the submission information under the subfactor: QUALITY OF BUILDING SYSTEMS AND MATERIALS, below, to evaluate quality of wall finishes as well as looking at how the proposer has considered air barrier. **The Government is NOT evaluating the structural framing system or solution.**

- (d) Schematic floor plans for each floor of each facility. Not necessary if the Government provides the floor plans in the solicitation and the proposer proposes to use them, without change. In that event, the proposer must clearly acknowledge that it will provide the floor plan without change. If the proposer intends to change any Government provided floor plan, it must clearly identify any and all proposed changes to the floor plans, either on a floor plan or in a narrative.
- (e) A color board including primary interior and exterior finish materials.

5.2.1.2. Technical Approach Narratives

Provide technical approach narratives, both qualitative and quantitative, defining the elements of the proposal. Preface the narratives with a design concepts narrative, providing the design rationale and basis of the proposal.

- (a) Minimum Space and Facility Size. Describe the spaces provided for each facility, in accordance with Section 01 10 00, **Statement of Work**. As a minimum, include a tabulation of the net square footage for rooms, zones, or other areas, the total gross square footage for each floor of each facility, and the total gross square footage for each facility to clearly demonstrate compliance with the project requirements. See the sample spreadsheets at the end of this section attachments 8 and 9.
- (b) Architectural Theme and Materials. This narrative shall be no longer than three (3) typewritten pages. Describe the architectural themes of the various facilities and spaces which demonstrate how the proposal achieves the results desired by the **Statement of Work**. Narrative should address how the selection of materials and colors enhances the exterior and interior aesthetics of the facilities and

improves the living and/or working conditions for the soldier populations who will utilize the facilities. This narrative is not intended to be a material listing, but to explain/reflect how the selections were made and how they address the requirements.

5.2.2. Evaluation Criteria:

The following three areas are equal in importance.

5.2.2.1. Building Functional Arrangement: This subfactor considers the overall functional layout (Floor Plan) and interaction of the spaces in the facilities as well. This subfactor considers the planning and design of the spaces with respect to soldier working conditions and the operations of the facility.

The following criteria will be considered in the evaluation of the functional arrangement of the various facilities:

- (a) How well the floor plan responds to the Functional Relationship requirements described in the **Statement of Work**
- (b) How well the floor plan and space arrangement facilitate work flow and access necessary to successfully operate this facility in accordance with its mission.
- (c) Do the facilities provide acceptable life safety and fire safety measures?
- (d) Do the proposed plans demonstrate compliance with the mandatory requirements for circulation, furnishings (e.g., for UEPH's, will the required furniture fit in the rooms?), equipment, and other specifically identified items in the **Statement of Work**?

5.2.2.2. Building Aesthetics: This element considers the overall "appeal" of the facility and the desire that both the interior and exterior of the facilities present a professional, attractive appearance. The following two areas will be considered under this element and are equal in consideration (not separately rated):

- (a) Exterior Considerations:

To the extent possible within the government identified contract cost limitation (CCL), the proposal must comply with the look and feel of the Installation architectural theme identified in the Request for Proposals. The first priority in order of importance is how well the proposal provides comparable building mass, size, height, and configuration in comparison with the architectural theme expressed in the Solicitation. The second priority in order of importance is how well the proposal provides compatible exterior skin appearance based upon façade, architectural character (period or style), exterior detailing, matching the architectural theme expressed in the Solicitation.

- Proposals shall be evaluated on mass, size, height, and configuration in comparison with the architectural theme expressed in the Solicitation, design of facades, roof lines, delineation of entrances, proportions of fenestration in relation to elevations, shade and shadow effects, materials, textures, architectural character (period or style), exterior color schemes.
- How compatible is the proposed design with the installation architectural theme expressed in the RFP? If not an exact "copy" of the theme, how well does it harmonize or blend with the expressed theme?
- How well does the proposal provide comparable building mass, size, height, and configuration in comparison with the architectural theme expressed in the Solicitation?
- How well does the proposal provide compatible exterior skin appearance based upon façade, architectural character (period or style), exterior detailing, matching the architectural theme expressed in the Solicitation?
 - Is the building's scale and proportion complimentary of the adjacent structures?
 - Is the building an attractive addition to the Installation?
 - How well does the building harmonize with its environment, including surrounding facilities?
 - Has the proposer addressed/coordinated the arrangement of stacks, louvers, vents, and roof

mounted equipment, etc. to provide a visually attractive structure?

(b) Interior Considerations:

- Are the proposed colors and material finishes conducive to the working environment of the facility?
- For administrative areas, does the interior design provided establish a positive working environment?
- Has the proposal addressed/provided for natural and artificial light in the living and working spaces and is the arrangement of fenestration and lighting fixtures in the spaces conducive to furniture placement and space usage?
- Do the proposed ceiling material, elevation, and design enhance the environment?
- Has "support item" placement been considered and addressed in the proposal to enhance the environment? For example: placement of supply/exhaust devices, placement of electrical panels, placement of exhaust fans, etc.
- Does the proposal provide for acoustic control of noise from service/support spaces to administrative areas?
- Do the interior finishes and space layouts provided establish a residential environment?
- Has the proposal included considerations to reduce noise transmission between bedrooms and between living spaces and service/common areas?

5.2.2.3. Minimum Space and Facility Size

The proposal must include all the mandatory spaces in response to the requirements set forth in Section 01 10 00, **Statement of Work**. Proposals will be evaluated on compliance with these requirements. Proposals shall identify any individual areas which are less than the required areas and describe how such deviation would enhance the building function. Individual areas may slightly exceed the requirements, so long as building function is not compromised elsewhere and as long as the overall square footage is not greater than that as described in Section 01 10 00, as authorized by Congress

5.3. VOLUME 1- TAB B – SUBFACTOR 2 - QUALITY OF BUILDING SYSTEMS AND MATERIALS

5.3.1. **General.** As part of this Subfactor, the Government has identified certain items as desirable features or preferable items. Desirable features are identified below in the evaluation criteria. Preferable items are listed in order of priority, These items, along with any proposer-identified betterment, will be given additional consideration during the evaluation process, provided that they are included within the contract cost limitation (CCL) identified in the Solicitation.

1. Standing seam metal roof.
2. Brick or brick veneer exterior.
3. Campus should have the same "feel" as the barracks campus located near intersection of 6th and Essayons.
4. All roofs shall be pitched no less than 5 on 12.
5. No roof mounted equipment.

5.3.2. Submission Requirements:

5.3.2.1. Presentation Drawings

(a) There are no specific drawings requirements for this Subfactor. However, the firm has the option of providing concept level drawing information for specific materials and/or systems which the firm feels are necessary to describe the proposed systems or materials.

5.3.2.2. Technical Approach Narratives:

Provide technical approach narratives, both qualitative and quantitative, defining the elements of the proposal. It is acceptable to include all the sub-items shown below into a single combined narrative for the entire facility. It is the responsibility of the proposer to ensure that all aspects identified in the evaluation criteria below are addressed. Whether individual narratives or a single combined narrative is provided, the maximum total length for narratives shall be ten (10) typewritten pages.

(a) Architectural Finishes: Describe how the materials selected provide for a suitable environment for the expected population of the facility. Discuss how these selections provide value to the Government and how they address the minimum requirements of the solicitation. Narrative should focus on aesthetics, durability and maintenance of the finishes proposed.

(b) Not Used

(c) Mechanical Systems: Describe how the mechanical systems selected provide for a highly efficient environmental control system including information about provisions for indoor air quality maintenance. Discuss how these selections provide value to the Government and how they address the minimum requirements of the solicitation. Narrative should focus on maintenance considerations, limiting energy consumption, and suitability of the proposed systems for the expected usage.

(d) Plumbing Systems: Describe how the plumbing systems selected provide for a highly efficient domestic hot water system and an efficient piping system. Discuss how these selections provide value to the Government and how they address the minimum requirements of the solicitation. Narrative should focus on maintenance considerations, energy consumption, and suitability of the proposed systems for the expected usage.

(e) Electrical Systems: Describe how the electrical power and lighting systems, telephone, data, and cable television systems selected provide for a highly efficient electrical system. Discuss how these selections provide value to the Government and how they address the minimum requirements of the solicitation. Narrative should focus on maintenance considerations, energy consumption, and suitability of the proposed systems for the expected usage.

(f) ATFP Considerations: Describe how the proposed materials, systems, and designs address the mandatory building ATFP requirements included in the Statement of Work.

(g) Site Utilities and Site Systems: Describe how the site utility systems selected provide for an efficient piping system. Discuss how these selections provide value to the Government and how they address the minimum requirements of the solicitation. Narrative should focus on maintenance considerations and suitability of the proposed systems for the expected usage. Include information regarding coordination with privatized utility providers where applicable.

(h) Interoperability: Describe how systems integrated into the new facilities which require connection and interface with existing Installation wide systems will be accommodated in the proposed project. Narrative should address the following systems as minimum: Fire Alarm, Telephone, Cable Television, UMCS, and privatized utility companies where applicable.

(i) Solar Hot Water Heating: Include provisions to provide at least 30% of the domestic hot water requirements through solar heating methodologies, unless the results of a Life Cycle Cost Analysis (LCCA), developed utilizing the Building Life Cycle Cost Program (BLCC) demonstrates to the Government's satisfaction that the solar hot water system is not life cycle cost effective in comparison with other hot water heating systems. Discuss and outline proposer's strategy for this solar system including components, placement of collectors, and controls Include all applicable input data, assumptions, first cost, replacement cost, and maintenance and repair cost that were utilized in the calculations. If using the LCCA to justify non-selection of solar hot water heating, make all life cycle cost comparisons to a baseline system to provide domestic hot water without solar components. Analyze at

least two different solar hot water methodologies to compare against the baseline system. Use a study period of 25 years and use the Utility cost information in Appendix K.

5.3.2.3. Proposed Material Identifications: In order to evaluate and rate the quality of the materials being proposed, including any material or equipment warranties exceeding the one year warranty in the contract clause “Warranty of Construction”, the Firm shall include in the proposal material identification for major materials in each of the areas shown below. Provide this information in tabular form supported, if necessary to clearly identify level of proposed quality, by catalog information (may provide on CD-ROM). Table should include manufacturer’s name, model number if known or at least model series, length of warranty, size/capacity (where available), efficiency (where applicable), and any other notes or information selected by the Firm. The Government will evaluate and consider materials and equipment proposed by brand name and model series or number as a quality standard. Unless substitution of a manufacturer, brand name or model is otherwise specifically prohibited in the contract, if the successful Firm desires to substitute manufacturers, brand names or models after award, the substituted product must meet the contract requirements and be approved by the designer of record and the Government as equal in function, performance, quality and salient features to that initially proposed. Acceptance of the proposal is not a guaranty that the proposed products meet the contractual requirements. See below under Evaluation Criteria for more explanation.

- (a) Architectural Finishes
 - Interior Walls
 - Floors
 - Ceilings
 - Exterior Walls
 - Any Special Features
 - Hardware systems (not individual hardware sets)
 - Door systems/types (not individual doors)
 - Window systems/types (not individual windows)
 - Roofing Systems
- (b) Not Used
- (c) Mechanical Systems
 - Central Heating/Cooling Equipment
 - Pumps
 - Air Handling Equipment
 - HVAC System Control Equipment
 - Energy Conservation Features
- (d) Plumbing Systems
 - Fixtures
 - Domestic Hot Water Generator
- (e) Electrical Systems
 - Lighting Fixtures
 - Main Switchgear and Panels
 - Data, Telephone, Cable TV, Intercom, CCTV, or Other Special Systems as Identified in the SOW

5.3.2.4. Provide a list of quality improvements that are above the minimum stated with the performance specifications. Develop the following table, or similar, to identify quality betterments.

	Improved Quality	Concise description of improved quality	Feature is included within the Construction Cost Limitation – YES/NO
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Arch. Finishes	N/A	N/A	
Etc.			

5.3.3. Evaluation Criteria:

5.3.3.1. **General** It is the Army's objective that these buildings will have a 50 year useful life. The design and construction should provide an appropriate level of quality to ensure the continued use of the facility over that time period with the application of reasonable preventive maintenance and repairs that would be industry-acceptable to a major civilian sector project OWNER. The facility design should consider that the Army may repurpose the use of the facility over the 50 year life. The Army's intent is to install products and materials of good quality that meet industry standard average life that corresponds with the period of performance expected before a major renovation or repurpose. The design should be flexible and adaptable to possible future uses different than the current to the extent practical while still meeting the operational and functional requirements defined within. Flexibility is achieved through design of more flexible structural load-bearing wall and column system arrangements. The site infrastructure will have at least a 50-year life expectancy with industry-accepted maintenance and repair cycles. Develop the project site for efficiency and to convey a sense of unity or connectivity with the adjacent buildings and with the Installation as a whole. Building useful life is defined by the length of service of the structural systems; concrete, masonry, steel, and wood in any combination. These structural systems last a lifetime when properly constructed and maintained. The building systems; electrical, mechanical, interior finishes etc. vary in useful life based on quality of the products and materials. Generally speaking these systems will last an average of 20-30 years. Historically the Army has often performed a major renovation or changed the use of the facility once in the first 25 years. Within that overriding theme the Government will evaluate the firm selected systems and components proposed in terms of extended warranties provided, maintenance considerations (frequency, estimated cost, access, equipment locations), operability (ease of use, placement of control features, simplicity), durability (withstand troop usage, ease of cleaning), sustainability, and energy consumption (HVAC, lighting, power). The minimum acceptable level of quality for finishes and materials for these buildings are those materials suitable for the expected population and usage. Residential or similar grade finishes and materials are not acceptable for inclusion in these buildings, unless otherwise specifically stated as allowed in Section 01 10 00. Acceptance of the proposal is not a guaranty that the proposed products meet the contractual requirements or that they are the appropriate size or application for the design which will be developed after award. The intent during the proposal submission and review process is not to require detailed design effort or to perform a detailed design engineering review but to focus on the proposed quality levels of materials and systems. If the Government evaluators have actual knowledge or strong suspicion that a proposed product or solution is inappropriately sized, being used in the wrong application or otherwise wont meet the contract requirements, the Government will inform the proposer in the event that discussions are conducted with the firm. But the Government is not asking for design analyses in the proposal and is not obligated to perform an engineering design review at this stage. After, award, In the event of conflict between the contractor's accepted proposal and the requirements in the final, amended RFP, the order of precedence is indicated in Special Contract Requirement 1.2, DESIGN/BUILD CONTRACT – ORDER OF PRECEDENCE.

5.3.3.2. The Government encourages the Firm to place emphasis on those design features which optimize and emphasize functional/operational requirements; interior/exterior finishes and systems; and life cycle/ energy efficiency. The Firm may choose the most economical "Type of Construction" allowed by the Building Code for this occupancy/project and put the money into durable finishes and efficient systems. **The features that the Government has identified below as desirable features will be given additional consideration in the evaluation. The items that the Government identified in paragraph 5.3.1 as preferable will be also be given additional consideration during the evaluation process, provided that they are included within the contract cost limitation identified in the Solicitation.**

Proposer-identified betterments may also be given additional consideration during the evaluation process, provided that they are included within the contract cost limitation identified in the solicitation. Desirable features, Government identified preferences, and Proposer identified betterments that are evaluated as true betterments and that are acceptable to the Government are all considered “betterments”, if they are included within the contract cost limitation. The Government will identify those Proposer identified betterments that are not desired or are otherwise objectionable or unacceptable, if discussions are conducted with that Proposer. The order of importance for proposed betterments for rating purposes is as follows: desirable features, preferable items (identified in paragraph 5.3.1) and other Proposer identified betterments. Unsubstantiated claims or narrative information will not be given evaluation credit during the evaluations. The following elements (not rated separately) will be considered in the evaluation of the building systems and materials of the various facilities:

(a) Architectural Finishes, Components and Systems:

Acceptable proposals include finishes, components and systems which provide usable spaces for the intended purposes and that provide the basic function necessary. Proposals will receive additional consideration for materials, and systems offered that include extended warranties, longer life expectancies, sustainability, durability (stand up to troop usage), have low maintenance requirements, and enhance the overall life cycle cost efficiency of the facility.

Specific examples of desirable features: solid wood cabinetry; solid surface counter tops; ceramic tile; 25 year non-pro-rated, no-leak roof warranty; high efficiency windows and doors; indoor boot rinsing stations in UEPH facilities

(b) Furniture Systems: Not Used

(c) Mechanical Components and Systems:

Acceptable proposals include components and systems that provide the basic environmental control function necessary. Proposals will receive additional consideration for components and systems offered that include extended warranties, longer life expectancies, reduce energy consumption, sustainability, maintainability (cyclical maintenance, access, equipment placement), and enhance the overall life cycle cost efficiency of the facility.

(d) Plumbing Components and Systems:

Acceptable proposals include components and systems that provide the basic function necessary. Proposals will receive additional consideration for components and systems offered that include extended warranties, longer life expectancies, sustainability, durability (stand up to troop usage), have low maintenance requirements, and enhance the overall life cycle cost efficiency of the facility.

Specific examples of desirable features: lifetime domestic hot water storage tank warranty; high efficiency equipment; easy/local availability of replacement/repair parts; zoned/valved sub-systems to allow repair without building shutdown; shower heads on hoses; seamless tub surrounds in UEPH facilities

(e) Electrical Components and Systems:

Acceptable proposals include components and systems that provide the basic function necessary. Proposals will receive additional consideration for components and systems offered that include extended warranties, longer life expectancies, sustainability, durability (stand up to troop usage), have low maintenance requirements, and enhance the overall life cycle cost efficiency of the facility.

Specific examples of desirable features: all copper conductors; additional telephone/data/cable TV outlets; ceiling fans in the bedrooms of UEPH buildings

(f) **ATFP Considerations:** This consideration verifies the inclusion/compliance with the building related (laminated windows, design for progressive collapse, etc.) ATFP minimum standard constraints included in the Statement of Work. All proposals must be compliant with the ATFP requirements of the Statement of Work to be considered for award. Acceptable proposals are compliant with all ATFP requirements. Acceptance of the successful proposal does not constitute acceptance of a design that does not conform to ATFP requirements. Final designs must comply with the ATFP requirements.

(g) **Site Utilities Components and Site Systems:**

Acceptable proposals include components and systems that provide the basic function necessary. Proposals will receive additional consideration for components and systems offered that include extended warranties, longer life expectancies, sustainability considerations, have low maintenance requirements, and enhance the overall life cycle cost efficiency of the facility.

Specific examples of desirable features: enhanced parking/roadway construction/surfaces; sidewalks above the minimum size and construction required; corrosion resistance; valves for isolation/repair of fluid systems; low impact development considerations that exceed the minimum contract requirements, utility placement to allow future replacement/maintenance without significant impact to other systems or access to facilities.

(h) **Interoperability:** Fire Alarm, Telephone, Cable Television, UMCS, and privatized utility systems (where applicable) must be integrated into the new facilities which require connection and interface with existing installation-wide systems must be accommodated in the proposed project.

(i) **Solar Hot Water Heating:** The Government will evaluate the systems and materials proposed for use in the solar domestic hot water system. Proposals that demonstrate solar hot water provisions above 30% will receive additional consideration during the evaluation, provided that it does not increase first cost beyond the contract cost limitation (CCL). No additional consideration will be given for proposals providing for more than 30% solar hot water if the proposed price exceeds the CCL. If the proposer has provided life cycle cost analyses documenting the non-feasibility of the solar system provision, the Government will verify as reasonable and complete. Errors or inconsistencies in the calculations will be considered deficiencies during evaluations.

5.4. VOLUME 1 - TAB C – SUBFACTOR 3 – SITE DESIGN

5.4.1. **Submission Requirements:**

5.4.1.1. **Presentation Drawings:**

(a) Schematic/Conceptual Site Plans showing site improvements for drainage, buildings, paving, walks, and landscaping. Indicate all building setbacks and separations, which must meet antiterrorism design requirements. Delineate vehicle circulation and pedestrian access to allow evaluation of the integration of this new development into the existing surrounding infrastructure. Select the format of the drawings provided to best illustrate compliance with the requirements of the Statement of Work.

5.4.1.2. **Technical Approach Narrative:**

Provide technical approach narrative, both qualitative and quantitative, defining the elements of the proposal. The narrative may include simple sketches or drawings to help illustrate the Proposer's solutions to the Statement of Work Requirements. Begin the narrative with a preface concerning the design concepts. It is acceptable to include all the sub-items shown below into a single combined narrative for the entire project. It is the responsibility of the proposer to ensure that all aspects identified in the evaluation criteria below are addressed. Whether individual narratives or a single combined narrative is provided, the narratives shall not exceed ten (10) typewritten pages.

(a) Grading

- Cut/Fill Considerations

- (b) Landscaping
 - Plant Material Selection
 - Other Feature Selection
 - Site Lighting Considerations
- (c) Pedestrian Circulation
 - Development of Circulation Patterns
 - Way Finding Between Facilities
 - Separation from Vehicular Circulation
- (d) Vehicle Circulation
 - Development of Circulation Patterns
 - Parking Locations and Quantities
 - Interface with Existing Street/Roadway Systems
- (e) Anti-Terrorism/Force Protection
 - Compliance with the *Statement of Work* Requirements.

5.4.2. Evaluation Criteria:

5.4.2.1. This Subfactor considers the overall layout of the site and the various specialties which define a workable, pleasing environment for the soldiers. The proposed site development plan must incorporate all the specific requirements from the *Statement of Work* as well as comply with all statutory and regulatory requirements outlined therein. All site related Anti-Terrorism/Force Protection (ATFP) considerations must be included and/or addressed in the proposal.

Elements one (1) and two (2) below are equal in importance and are not separately rated. Element (3) is not separately rated but the proposal must meet the Solicitation requirements to be rated acceptable.

(1) Grading and Landscaping: Acceptable proposals include reasonable amounts of cut/fill and regarding as necessary to ensure proper must meet be the minimums required by the *Statement of Work*. Proposals which include innovative solutions to storm water management, landscaping to enhance the complex environment, or other similar improvements beyond the basic requirements will receive additional consideration during the proposal evaluation process.

(2) Pedestrian and Vehicle Circulation and Storage: Acceptable proposals address and include all the specific requirements of the *Statement of Work*.

The following items will be considered with respect to pedestrian and vehicle circulation and storage. These are not sub-factors.

Pedestrian Considerations:

- Are all parking areas served by sidewalks?
- Are all facility entrances/exits served by a paved sidewalk system?
- Does the proposed sidewalk system provide direct, convenient access to all facilities?
- Is the new sidewalk system an extension of the existing adjacent sidewalk system?
- Are sidewalk systems enhanced by appropriate landscaping?
- Is site lighting provided to enhance the security and usability of the site by pedestrians?

Vehicle Considerations:

- Are the vehicle entrance/exit ways pathways clear?
- Have a sufficient number of parking spaces for privately owned vehicles (POV) been provided?
- Do the new vehicle roadways and access points tie into the existing roadway network in an efficient manner?

- Does the proposal provide for a separation of parking area entrance/exits from street intersections?
- Is lighting provided to enhance the security and usability of the parking and roadway areas?
- Internal circulation patterns within the parking areas.

(3) ATFP Considerations: This element verifies the proposal's inclusion/compliance with the site related (setbacks, etc.) ATFP constraints included in the **Statement of Work**. The proposal must be compliant with the ATFP requirements of the **Statement of Work** to be considered for award. Acceptable proposals are compliant with all ATFP requirements. Acceptance of the successful proposal does not constitute acceptance of design that does not conform to ATFP requirements. The final design must comply with the ATFP requirements.

5.5. VOLUME 1 - TAB D – SUBFACTOR 4 – SUSTAINABILITY REQUIREMENTS

5.5.1. Submission Requirements:

The Firm shall acknowledge that it understands the contract requirements for sustainable design and construction and that the final project will achieve a Silver level. The Firm shall submit LEED-NC Version 2.2 Project Checklist for each non-exempt facility demonstrating how it will achieve the Silver level. One checklist may be provided for multiple identical facilities. If the firm proposes a higher LEED rating than silver, the proposal shall describe whether or not it involves additional costs and clearly indicate if such costs would detract from higher rated factors herein, such as functionality, quality of materials and systems, site work, etc.

5.5.2. Evaluation Criteria:

All requirements identified as mandatory in Section 01 10 00 or elsewhere in the Solicitation must be included and the proposal must meet the requirements of the LEED-NC Version 2.2 requirements for a Silver level. The Government will provide additional evaluation consideration for proposals which include LEED points identified as preferred. The Government does not desire to pay more to obtain a higher LEED rating, such as Gold, if the additional cost would detract from the higher rated factors, herein.

6.0 VOLUME 2 - FACTOR 2 – PERFORMANCE CAPABILITY VOLUME 2

6.1. VOLUME 2 - TAB A – SUBFACTOR 1– PROPOSED CONTRACT DURATION AND SUMMARY SCHEDULE

6.1.1. Submission Requirements:

6.1.1.1. The firm shall propose the contract duration in the appropriate Contract Line Item Number in the CLIN Schedule, not to exceed the maximum contract duration specified in the CLIN.

6.1.1.2. Submit a summary level schedule for integrated design and construction. Schedules or diagrams may be provided separately in a size that is easily read, but shall be bound and clearly labeled as Tab B. This summary schedule will, after contract award, be replaced with a project schedule as required by Section 01 32 01.00 10: *Project Schedule*. The summary schedule shall be task oriented, indicating the number of calendar days, after notice to proceed, by which milestones are to be achieved. Firm may use a critical path or other method of his choice; however, schedules shall be graphically represented. The proposed project schedule shall reflect the proposed contract duration Give attention to the following features:

(a) Provide a narrative, describing the design packaging plan for separate design packages, based on the firm's plan for fast tracking. Describe all design and construction to be "fast-tracked" (See section 01 33 16: *Design After Award*). If long lead item equipment must be ordered prior to completion of a design phase, describe the requirement in the narrative and show the required ordering date in the schedule.

- (b) Show the design phase, including events associated with coordinating the interim and final design submittals for each package and the proper handling of the review comments for each design package (See section 01 33 16).
- (c) Show the overall construction phase for each facility, for the site work, and for utilities. Show fast track starts for design packages but it isn't necessary to show the detailed breakdown construction (e.g., by trades) of each facility, site work and utilities.
- (d) Show turnover of each facility. Identify any proposed phased turnovers. The time to complete the facility and turnover to the Government must consider the requirement for the Contractor's CQC completion inspection and the subsequent joint Contractor-Government turnover inspection.
- (e) Show as-built submissions (See section 01 78 02.00 10).
- (f) Constraints: Firm must demonstrate the capability and flexibility to plan and schedule the complete project to meet the proposed contract completion period. Clearly identify any constraints on the schedules presented (e.g., labor or material availability, permits, weather, etc.). Indicate the anticipated overall critical path on the schedule.

6.1.2. Evaluation Criteria:

6.1.2.1. Proposed Contract Duration: This duration will become the contractually binding completion period. The Government will evaluate the contract duration, as proposed by the Firm in the Contract Line Item Schedule, not to exceed the maximum allowed duration of 540 days. In assessing the reasonableness of the proposed contract duration, the Government may take into account how well the proposed summary schedule supports the proposed duration, as well as use other information, such as but not limited to independent judgment concerning logic, constraints and typical construction durations. A proposed contract duration matching the maximum allowed contract duration is "acceptable" A proposed contract duration shorter than the maximum allowed duration will receive additional rating consideration, provided it is realistic and deemed to be achievable. The Government will consider an unreasonably condensed contract duration, which places additional cost or schedule risk on the Government or which may create a risk of contract or performance failure, as a significant weakness or a deficiency, depending upon the evaluators' judgment. During the subsequent comparison between proposals, differences between proposed contract durations of at least three weeks (differences of 21 calendar days between proposals) will be considered an advantage to the Government, with greater differences also considered, accordingly. No advantage will be considered between proposals for differences less than 21 calendar days.

6.1.2.2. Summary Schedule: In addition to the proposed contract duration, the Government will evaluate the summary schedule for integrated design and construction. The length of the schedule must match the proposed contract duration. If it is shorter than the proposed contract duration, it offers no advantage to the Government because it is non-binding, only representing a preliminary planned schedule. A Schedule shorter than the proposed contract duration may indicate the Firm is placing additional risk on the Government for any delays between the scheduled completion date and the required contract completion period. Both parties shall assume field overhead costs are included in the contract price for the full proposed contract duration. Therefore, the Government believes that there is no valid need to shorten the schedule less than the full proposed contract duration. The Government will evaluate the schedule to assess the strength of understanding of the project scope, restrictions which must be considered in the schedule e.g., permitting (see Section 01 10 00), long lead items, etc. The Government will evaluate the strength of understanding of events associated with coordinating design submittals, reviews and incorporating review comments, the firm's capability to schedule the complete project within the proposed contract duration and the realism of the schedule. The Government will evaluate the design packaging plan for logic, reasonableness, how it facilitates meeting the proposed contract duration and how it facilitates the Government's ability to timely perform its design reviews. The packaging plan should minimize risk to the Contractor and to the Government for tear-out and coordination for reviews. For example, is the footing and foundation plan based on adequate design for building loads; etc.? A schedule that offers advantage(s) to the Government over one that merely indicates an adequate

understanding of the scope, restrictions, major milestones and general understanding of the various events that can affect start and completion of construction will receive additional consideration.

6.2. VOLUME 2 - TAB B– SUBFACTOR 2– KEY SUBCONTRACTORS

6.2.1. **Submission Requirements:**

Identify the Key Subcontractors chosen for mechanical and electrical installation for the initial task order, describing the extent of their involvement in the project. If the project includes multiple facility types or multiple facilities, also identify any subcontractor(s) that will act as a general contractor on one or more of the facilities or facility types and describe their involvement in the project. Submit no more than five (5) Specialized Experience forms (attachment 10) for each Key Subcontractor, using the same requirements as described in the Phase 1 Specialized Experience submission requirements, including past performance ratings. The ratings may be from either the owner or the prime contractor, if the firms were subcontractors on the cited projects. The Firm shall document unequivocal teaming arrangements with its key subcontractors. Use the Letter of Commitment (attachment 11) at the end of this section.

6.2.2. Evaluation Criteria:

6.2.2.1. This Subfactor is composed of two equal elements (not separately rated): Specialized Experience and Past Performance.

6.2.2.2. The Government will evaluate the specialized experience and past performance of the Key Subcontractors for electrical and mechanical installation, using the same criteria as in the Phase 1 evaluation, as applicable to their role on this project. After award, the section 00 73 00 Special Contract Requirement *Key Personnel, Subcontractors and Outside Consultants* will apply to the selection, which establishes the minimum quality standard. No substitution will be allowed without adequate reason and possible consideration to the Government.

6.3. VOLUME 2 - TAB C– SUBFACTOR 3 – PAST PERFORMANCE

6.3.1. **Submission Requirements:**

There are no submission requirements for past performance for this task order. See the evaluation criteria, below.

6.3.2. **Evaluation Criteria:**

The Government will evaluate the firm's current performance on on-going task orders under this contract, if any, as well as the firm's past performance record for contracts or task orders underway or completed within the past three years of the date of the solicitation for this task order. The Government will perform a **confidence** assessment with respect to Past Performance. The Government will consider the currency and relevance of the information, source of the information, context of the data, and general trends in contractor performance. **With respect to relevancy, past performance on projects with more relevance will typically be a stronger predictor of future success and have more influence on the past performance confidence assessment rating than past performance on projects of lesser relevance.** If any firm has multiple functions or divisions, the Government will only evaluate past performance of the division or unit submitting the proposal. If interviews are used, Government references on other task orders or contracts may be asked to comment on items such as quality of design or construction, timeliness, management of the work subcontractor management, including timely payment to subs or suppliers, safety, relations between owner and designer or contractor, level of support for such things as as-built documentation, O&M manuals, training, correcting design or construction errors, warranty work, etc. The Government will not release Past Performance Evaluation or telephone interview forms to the Firm at any time, in order for the Government to solicit candid, unbiased interview comments. The Government also places a higher value on performance, which document successful outcomes and are supported by outside source

confirmation, for example, but not limited to CCASS/ACASS or other agency performance databases or personal knowledge. The Government's evaluation is not limited to past performance information on the cited example projects.

Each entity (firm) will be rated on its own performance or that of its predecessor, if relevant. An entity may not establish past performance based on the past performance of proposed key personnel, apart from that of the entity. If the Government does not obtain past performance information and cannot establish a past performance record for the Firm through other sources, past performance will be rated neither favorably nor unfavorably. The performance risk will be considered "unknown".

7.0 VOLUME 3 – PRICE AND PRO FORMA INFORMATION

7.1. GENERAL

Submit the Pro Forma information in a separate envelope labeled: "Volume 3 – Pro Forma Requirements."

7.2. TAB A – FACTOR 3 – PRICE (STANDARD FORM 1442 AND CONTRACT LINE ITEM SCHEDULE).

7.2.1. Submission Requirements:

Submit the properly filled out and executed SF 1442, along with the CLIN Schedule, containing proposed line item and total pricing, as well as the proposed contract duration. See instructions in Section 00 21 00, "*Instructions to Offerors*".

7.2.1.1. Supplemental Price Breakdown. If deemed necessary to evaluate the price proposals, the Government's will request a price breakdown of the Contract Line items in a sealed envelope marked "Price Breakdown Information", in Excel format. The Government will provide details on where and how to send the breakdown. This information will not be needed sooner than three working days after the proposal submission due date. This information may be required for the initial Task Order proposal and, if requested, for any revised proposals. This information is not an opportunity for a firm to revise its non-price or price proposal.

7.2.2. Evaluation Criteria:

7.2.2.1. Price will not be rated or scored, but will be evaluated for fairness and reasonableness through the use of a price analysis. The price evaluators will also check for appearance of unbalanced line item prices. Firms are cautioned to distribute direct costs, such as material, labor, equipment, subcontracts, etc. and to evenly distribute indirect costs, such as job overhead, home office overhead, bond, etc., to the appropriate contract line items.

7.2.2.2. If deemed necessary, the supplemental price breakdown information will be used to assist the Government in performing the price evaluations described above.

7.2.2.3. Award cannot be made for project cost for design and construction exceeding the cost limitation described herein.

7.3. TAB B – BID GUARANTEE

7.3.1. Submission Requirements

Submit the Bid Bond in accordance with the task order request for proposals.

7.3.2. Evaluation requirements:

This item is not rated. The Government will review the Bid Bond for legal sufficiency. The Bond must be legally sufficient.

7.4. TAB C – SELF- PERFORMED WORK

7.4.1. **Submission Requirements:**

7.4.1.1. The Firm shall confirm that it understands and that it shall perform the amount of work required to be self-performed, in accordance with the appropriate clause in Section 00 72 00 (see Base ID/IQ contract) that applies to the contract performance (see Base ID/IQ contract Section 00 73 00 for a description of the applicable clause for self-performance of work).

7.4.2. **Evaluation Requirements:**

7.4.2.1. This is a GO/NO-GO requirement. In order to assure adequate interest in and supervision of all work, the Contractor shall be required to perform a significant part of the contract with its own forces. This public policy is expressed in various Statutes, as well as in the Federal Acquisition Regulations and in the Small Business Administration Code of Federal Regulations. The Firm must confirm that it understands the amount of work performed, based on the status of the firm, and that it will self perform the required amount of work with its own forces. This is also a statutory requirement for any set-aside for Small Business or Small Disadvantaged Business or Hubzone firms before contract award can be made.

7.5. NOT USED

7.6. NOT USED

8.0 **EVALUATION PROCEDURES**

8.1. TASK ORDER SELECTION EVALUATION BOARD (TOSEB)

8.1.1. The TOSEB will be established to conduct the evaluation of proposals received in response to this solicitation. The evaluation will be based on the content of the proposal and any subsequent discussions required, as well as information obtained from other sources, e.g. past performance information. The TOSEB will not consider any information incorporated by reference, except as expressly allowed by this solicitation.

8.2. EVALUATION

8.2.1. The TOSEB will evaluate the proposals and assign a consensus rating for each evaluation factor and subfactor, except that performance risk ratings are assigned to past performance (see below).

8.2.2. The Government intends to award without discussions. Firms are cautioned to put forth their best efforts, and to furnish all information clearly to allow the Government to evaluate proposals. Firms should not assume that they will have an opportunity to clarify or correct anything in their proposal after submitting it.

8.2.3. A "Competitive Range" is a subjective determination of the most highly rated proposals in the event that the Government decides that discussions with competing firms are required or are considered to be in the Government's best interests. In such an event, the Contracting Officer will establish a competitive range of all the most highly rated proposals.

8.2.4. If discussions are held, the Government may engage in a broad give and take with those firms in the competitive range, in accordance with FAR 15.306 (d). The Government will provide the Firm an advance agenda for the discussions. During discussions, the Government may ask the Firm to further explain its proposal and to answer questions about it.

8.2.5. Upon conclusion of discussions, those firms still considered the most highly rated, will be afforded an opportunity to submit their proposal revisions for final evaluation and selection.

8.3. DEFINITIONS

8.3.1. **Deficiency:** A material failure of a proposal to meet a Government requirement or a combination of significant weaknesses in a proposal that increases the risk of unsuccessful contract performance to an unacceptable level.

8.3.2. **Weakness:** A flaw in the proposal that increases the risk of unsuccessful contract performance

8.3.3. **Significant Weakness:** A flaw in the proposal that appreciably increases the risk of unsuccessful contract performance

8.3.4. **Strength:** Any aspect of a proposal that, when judged against a stated evaluation criterion, enhances the merit of the proposal or increases the probability of successful performance of the contract.

8.3.5. **Significant Strength:** A significant strength appreciably enhances the merit of a proposal or appreciably enhances the probability of successful contract performance.

8.3.6. **Deviation:** Proposal implies or specifically offers a deviation below the specified criteria. The firm may or may not have called the deviation to the Government's attention. **A deviation is a deficiency.** The proposal must conform to the solicitation requirements for award.

8.4. EVALUATION RATING SYSTEM

8.4.1. **General:** The Government will review the proposals and rate the quality of each evaluation factor and subfactor (if any). The TOSEB will rate each proposal against the specified evaluation criteria in the Solicitation requirements. They will not compare proposals at this time. After all proposals are rated, the Government will compare the ratings and relative advantages and disadvantages of proposals against each other.

8.4.2. **Review Write-up:** The Government will support each rating with a narrative, separately listing all strengths or advantages, weaknesses or disadvantages, deficiencies, and required clarifications.

8.4.3. **Rating System:** After listing proposal strengths, weaknesses and deficiencies, the TOSEB will assign an adjective rating of "Outstanding", "Good", "Acceptable", "Marginal", or "Unacceptable" to each factor and subfactor (except those factors rated as GO/NO-GO and Past Performance), which reflect the Government's confidence in each firm's ability, as demonstrated in its proposal, to perform the requirements stated in the RFP. The adjectival ratings shall be assigned, using the following criteria, which incorporate a proposal risk assessment:

8.4.3.1. **Outstanding:** Proposal meets requirements and indicates an exceptional approach and understanding of the requirements. Strengths far outweigh any weaknesses. Risk of unsuccessful performance is very low.

8.4.3.2. **Good:** Proposal meets requirements and indicates a thorough approach and understanding of the requirements. Proposal contains strengths which outweigh any weaknesses. Risk of unsuccessful performance is low.

8.4.4. **Acceptable:** Proposal meets requirements and indicates an adequate approach and understanding of the requirements. Strengths and weaknesses are offsetting or will have little or no impact on contract performance. Risk of unsuccessful performance is no worse than moderate.

8.4.5. **Marginal:** Proposal does not clearly meet requirements and has not demonstrated an adequate approach and understanding of the requirements. The proposal has one or more weaknesses which are not offset by strengths. Risk of unsuccessful performance is high.

8.4.6. **Unacceptable.** Proposal does not meet requirements and contains one or more deficiencies. Proposal is unawardable.

8.5. PAST PERFORMANCE **RISK-CONFIDENCE ASSESSMENT RATINGS**

8.5.1. Past Performance Risk Ratings assess the risks associated with an offeror's likelihood of success in performing the requirements stated in the RFP based on the offeror's demonstrated performance on recent, relevant contracts.

8.5.2. Performance Confidence Assessment (Overall) Rating System:

8.5.2.1. **Unknown Confidence:** No recent/relevant performance record is available or the offeror's performance record is so sparse that no meaningful confidence assessment rating can be reasonably assigned.

8.5.2.2. **Satisfactory Confidence:** Based on the offeror's recent/relevant performance record, the Government has a reasonable expectation that the offeror will successfully perform the required effort.

8.5.2.3. **Limited Confidence:** Based on the offeror's recent/relevant performance record, the Government has a low expectation that the offeror will successfully perform the required effort.

No Confidence: Based on the offeror's recent/relevant performance record, the Government has no expectation that the offeror will be able to successfully perform the required effort.

**FORMAT FOR TABLE OF SPACES
SECTION 00 22 30 - ATTACHMENT 9**

FACILITY: _____

SPACE DESIGNATION (1)	SOLICITATION REQUIREMENTS MIN REQUIRED (2) SF	PROPOSAL PROVIDED (3) SF	DIFFERENCE (+/-) (4) SF	NOTES/REMARKS (5)

Notes:

- (1) The proposer shall list all spaces within the identified facility in this column.
- (2) The proposer shall complete this column by taking the information directly from the solicitation **Statement of Work**. Where a particular space does not have a specific solicitation requirement, this column may be left blank.
- (3) The proposer shall complete this column directly from the information contained in the proposal.
- (4) This column represents the mathematical difference between the proposal and the solicitation requirements. + differences represent areas above the solicitation requirements and - differences represent areas below the solicitation requirements.
- (5) This column is provided to allow the proposers to place additional relevant information with respect to spaces provided.
- (6) Where multiple facilities of the same type (e.g. Dining Facility, UEPH, etc) are included in a single contract, each facility shall be identified in a separate table.

**COMPANY SPECIALIZED EXPERIENCE
KEY SUBCONTRACTOR (OR PRIME IF WORK NOT TO BE SUBCONTRACTED)
SECTION 00 22 30 - ATTACHMENT 10**

Provide the following information to show examples of projects your company constructed within the last **five** years indicating experience with projects of similar type and scope. Use one form per project.

(a) Type of BCT Facility Represented

(b) Your Firm's Name

(c) Name of project

(d) Owner

(e) General Scope of Construction Project

(f) Your Role (Prime, Joint Venture, or Subcontractor, etc.) and Work Your Company Self-Performed
:

(g) Your Contract or Subcontract Amount

(h) Detailed Description of Your Self-Performed Work

(i) Describe any Work You Subcontract to Others

(j) Dates Your (sub) contract: Started _____ Completed _____

(k) Your Performance Evaluation by Owner, if any

By Prime:

(l) Were You Terminated or Assessed Liquidated Damages?

(If either is "Yes", attach an Explanation)

(m) Name and Company of Point of Contact (POC) for reference (If you were a subcontractor, also list the firm you were hired by):

(n) Current Telephone Number of Reference POC

**LETTER OF COMMITMENT OF KEY SUBCONTRACTOR
(USE SUBCONTRACTOR'S COMPANY LETTERHEAD)
SECTION 00 22 30 - ATTACHMENT 11**

TO: Contracting Officer

SUBJECT: Letter of Commitment for Proposed Contract for _____

Dear Sir or Madam:

I hereby make the unequivocal commitment that, in the event of an award of a contract to (Fill in name of Proposer), that (insert name of design firm) will fulfill the duties of (state role on a project)

Sincerely, (Authorized Official)

Date: _____

End of Section 00 22 30

**SECTION 00 73 10 (TASK ORDER
REV 1.4 – 31 JUL 2011
SUPPLEMENTAL CONTRACT REQUIREMENTS**

1.0 GENERAL

- 1.1. COST LIMITATION
- 1.2. 52.211-10 COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK (APR 1984).
- 1.3. 52.211-12 LIQUIDATED DAMAGES – CONSTRUCTION (SEP 2000).
- 1.4. 252.236-7001 CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (AUG 2000).
- 1.5. TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (ER 415-1-15) (OCT 1989).
- 1.6. PHYSICAL DATA (FAR 52.236-4) (APR 1984).
- 1.7. IDENTIFICATION OF GOVERNMENT-FURNISHED PROPERTY.
- 1.8. PAYMENT FOR MATERIALS DELIVERED OFF-SITE (EFARS 52.232-5000) (MAR 1995).
- 1.9. TASK ORDER SITE SAFETY AND HEALTH OFFICER REQUIREMENTS AND QUALIFICATIONS (APR 10)
- 1.10. **CONTRACTOR SUPPLY AND USE OF ELECTRONIC SOFTWARE FOR PROCESSING DAVIS-BACON ACT CERTIFIED LABOR PAYROLLS (JULY 2011)**
- 1.11. BASE ID/IQ CONTRACT
- 1.12. IDENTIFICATION OF CONTRACTOR EMPLOYEES IN THE FEDERAL WORKPLACE (Sep 2008)
- 1.13. STREET CLOSINGS
- 1.14. CONTRACTOR VERIFICATION OF CONTRACT SURVEY DATA
- 1.15. DEFINITIONS
- 1.16. TEMPORARY PROJECT SAFETY FENCING
- 1.17. BACKFLOW PREVENTERS CERTIFICATE
- 1.18. CLEANUP
- 1.19. REAL PROPERTY MAINTENANCE RECORDS
- 1.20. TERMINOLOGY
- 1.21. WEB-BASED DESIGN SUBMITTALS
- 1.22. SAFETY REQUIREMENTS

1.23 REQUIRED INSURANCE

1.24 UTILITIES

1.25 SECURITY REQUIREMENTS

1.26 HAZARDOUS MATERIALS

1.27 CONTRACTOR PAYROLL RECORD

1.28 CORRESPONDENCE IDENTIFICATION

1.29 U.S. ARMY CORPS OF ENGINEERS SAFETY AND HEALTH REQUIREMENTS MANUAL, EM
385-I-I

1.0 GENERAL

1.1. COST LIMITATION

The cost limitation for this task order is \$14,000,000.00

1.2. 52.211-10 COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK (APR 1984).

The Contractor shall be required to (a) commence work under this contract within ten (10) calendar days after the date the Contractor receives notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than the number of calendar days specified below. The time stated for completion shall include final cleanup of the premises.

a. Complete the Design and Construction of the UEPH Facilities, including turfing and landscaping, no later than 540 calendar days from receipt of the notice to proceed.

b. Commencement and Completion of Turfing: Turfing work shall be accomplished during the first planting season, or portion thereof (but not less than 15 days), following substantial completion of building construction. Maintenance of turfing work shall commence immediately after completion of initial watering and shall continue for a period of not less than 45 calendar days. Refertilizing shall commence not earlier than 5 weeks after commencement of maintenance and shall be completed not later than 3 days after commencement. No payment will be made for establishment of turf until all requirements for turfing are adequately performed and accepted as determined by the contracting officer.

c. Commencement and Completion of Landscaping: Planting of trees, shrubs, and vines shall be accomplished during the first planting season, or portion thereof (but not less than 15 days), following substantial completion of building construction. Maintenance and replacement of trees, shrubs, and vines shall commence immediately after each plant is planted, mulched, and staked and shall continue for a period of 120 calendar days after all plants are planted, mulched, and staked.

Notes:

(1) If the Offeror proposes a shorter duration than what is shown above, the Offeror's duration will become the contractually binding completion period, inclusive of all review periods and Government phasing requirements specified. If the Government accepts a proposal for a completion period of lesser duration, and such proposal alters the time periods for review and phasing, the Contract shall be read to include the original periods for review and phasing.

(2) As-Built Drawings. The Contractor shall complete work on the final as-built drawings upon his receipt of the approved working as-built drawings. The Contractor shall provide final as-built drawings as specified in Contract Section 01 78 02.00 10 Design Build Project Closeout. Upon satisfactory completion of this work the Contractor shall have earned the the withholding amount shown for Final As-Built Drawings in Contract Section 01 78 02.00 10 Design Build Project Closeout.

(3) O & M Manuals. O & M Manuals shall be developed and submitted in accordance with Contract Section 01 78 02.00 10 Design Build Project Closeout, at least 60 calendar days prior to the scheduled contract completion date. Upon approval of fully developed O & M Manuals, the Contractor shall have

earned the withholding amount shown for "Operations and Maintenance Manuals" in Contract Section 01 78 02.00 10 Design Build Project Closeout.

(4) In the event the Heating and/or Air Conditioning Systems cannot be tested at or near design temperatures during the above period, beneficial occupancy and use of the facilities may be accepted and final testing and adjustments of the heating and/or air conditioning deferred as specified in the appropriate testing clauses of the Technical Provisions. The HVAC Testing that the Contractor schedules after substantial completion has a value to the Government of 10 percent of the value of the equipment to be tested. The Contractor shall reserve that amount to be paid on any equipment that will require testing after substantial completion pursuant to the above referenced specification paragraph.

1.3. 52.211-12 LIQUIDATED DAMAGES – CONSTRUCTION (SEP 2000).

(a) If the Contractor fails to complete the work within the time specified in the contract, the Contractor shall pay liquidated damages to the Government in the amount of \$1478 for each calendar day of delay until the work is completed or accepted. In the event that the completion date for the work covered by two or more items of work becomes delinquent concurrently, the liquidated damages will not be the sum of the liquidated damages for each item of work which becomes delinquent in the amounts stated.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is completed. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

1.4. 252.236-7001 CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (AUG 2000).

(a) The Government -

(1) The Contract shall consist of the documents enumerated in Section 00 73 00 SPECIAL CONTRACT REQUIREMENTS' clause DESIGN-BUILD CONTRACT-ORDER OF PRECEDENCE. It is the Contractor's responsibility to reproduce a set of contract drawings and specifications from the solicitation, including amendments. The Government will not provide the Contractor contract drawings or specifications beyond the documents provided during the solicitation stage. The Government will not provide the Contractor any hard copy paper drawings or specifications for any contract resulting from this solicitation. Publications incorporated into the technical provisions by reference will not be provided except as chosen by the Contracting Officer.

(b) The Contractor shall -

(1) Check all drawings furnished immediately upon receipt;

(2) Compare all drawings and verify the figures before laying out the work;

(3) Promptly notify the Contracting Officer of any discrepancies;

(4) Be responsible for any errors that might have been avoided by complying with this paragraph (b); and

(5) Reproduce and print contract drawings and specifications as needed.

(c) In general -

(1) Large-scale drawings shall govern small-scale drawings.

(2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work which are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. The Contractor shall perform such details as if fully and correctly set forth and described in the drawings and specifications.

1.5. TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (ER 415-1-15) (OCT 1989).

(a) This provision specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the Contract Clause entitled "DEFAULT (FIXED PRICE CONSTRUCTION)". In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

1. The weather experienced at the project site during the contract period must be found to be unusually severe. Unusually severe weather is defined as hurricanes, floods, tornados, or earthquakes.
2. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.
3. The contractor's progress schedule must reflect completion of the project within the specified contract duration including all weather except that as defined as unusually severe in (a)(1).

(b) Upon acknowledgement of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor will record on the daily CQC report, the weather experienced each day, including the occurrence of unusually severe weather as defined in (a)(1). For a time extension to be granted under this clause, unusually severe weather must prevent work on critical path activities for 50-percent or more of the contractor's scheduled workday. The contracting officer will convert any qualifying delays to calendar days and issue a modification in accordance with the contract clause entitled DEFAULT (FIXED PRICE CONSTRUCTION).

1.6. PHYSICAL DATA (FAR 52.236-4) (APR 1984).

Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

(a) The indications of physical conditions on the drawings and in the specifications are the result of site investigations by surveys and borings.

(b) Ground water levels: It has been observed that ground water levels in heavily timbered or grassed areas quite often undergo a significant temporary rise when the area is cleared and/or stripped. This increase in water level can hinder traffic and construction progress in the affected areas. The duration of the ground water rise varies considerably, depending on prevailing weather and/or climatic conditions.

1.7. IDENTIFICATION OF GOVERNMENT-FURNISHED PROPERTY.

(a) The Government will furnish to the Contractor the property identified in the Schedule to be incorporated or installed into the work or used in performing the contract. If the property will be furnished from storage at Fort Stewart, GA. The Contractor will be required to load and transport the property to the job site at its own

expense. If the listed property will be furnished f.o.b. railroad cars at the place specified in the contract schedule or f.o.b. truck at the project site, the Contractor is required to accept delivery, pay any demurrage or detention charges, and unload and transport the property to the job site at its own expense. When the property is delivered, the Contractor shall verify its quantity and condition and acknowledge receipt in writing to the Contracting Officer. The Contractor shall also report in writing to the Contracting Officer within 24 hours of delivery any damage to or shortage of the property as received. All such property shall be installed or incorporated into the work at the expense of the Contractor, unless otherwise indicated in this Contract.

(b) Each item of property to be furnished under this clause shall be identified in subparagraph (d).

(c) The Government will deliver the listed property between the dates shown. The Contractor will be responsible for the proper storage and maintenance of the property from the time of acceptance until such time as it is returned to the Government.

(d) Government-Furnished/Contractor-Installed Property: None [or list the items]

1.8. PAYMENT FOR MATERIALS DELIVERED OFF-SITE (EFARS 52.232-5000) (MAR 1995).

(a) Pursuant to FAR clause 52.232-5, "PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS", materials delivered to the Contractor at locations other than the site of the work may be taken into consideration in making payments if included in payment estimates and if all the conditions of the General Provisions are fulfilled. Payment for items delivered to locations other than the work site will be limited to: (1) materials required by the Technical Provisions; or (2) materials that have been fabricated to the point where they are identifiable to an item of work required under this contract.

(b) Such payments will be made only after receipt of paid or receipted invoices or invoices with canceled check showing title to the items in the prime contractor and including the value of material and labor incorporated into the item. In addition to petroleum products, payment for materials delivered off-site is limited to the following items: None.

1.9. TASK ORDER SITE SAFETY AND HEALTH OFFICER REQUIREMENTS AND QUALIFICATIONS (APR 10)

(a) The Contractor shall employ a competent person at each project to function as the Site Safety and Health Officer (SSHO) in accordance with EM 385-1-1, Section 01.A.17. The SSHO shall report to the senior project official or to a senior corporate official. Submit the qualifications of the proposed SSHO for Government Approval.

(b) The SSHO may be a collateral duty responsibility.

1.10. CONTRACTOR SUPPLY AND USE OF ELECTRONIC SOFTWARE FOR PROCESSING DAVIS-BACON ACT CERTIFIED LABOR PAYROLLS (JULY 2011)

(a) The Contractor is encouraged to use a commercially-available electronic system to process and submit certified payrolls electronically to the Government. The Davis-Bacon Act (DBA) establishes requirements for preparing, processing and providing certified payrolls, as stated in FAR 52.222-8, PAYROLLS AND BASIC RECORDS and FAR 52.222-13, COMPLIANCE WITH DAVIS-BACON AND RELATED REGULATIONS.

(b) If the Contractor elects to use an electronic DBA payroll processing system, obtain and provide all access, licenses, and other services required to provide for receipt, processing, certifying, electronically

transmitting to the Government, and storing all payrolls and other data required to comply with DBA and related Act regulations. An electronic DBA payroll system shall use the electronic payroll service to prepare, process, and maintain the relevant payrolls and basic records during all work under the contract. The electronic payroll service shall be capable of preserving these payrolls and related records for the required three years after contract completion. Obtain and provide electronic system access to the Government, as required to comply with the DBA and related Act regulations over the duration of the contract. Access shall include electronic review access by the Government contract administration office to the Contractor's electronic processing system.

(c) The provision and use of an electronic payroll system shall meet the following functional criteria: commercially available; compliant with appropriate DBA payroll provisions in the FAR; able to accommodate the required number of employees and subcontractors planned to be employed under the contract; capable of producing an Excel spreadsheet-compatible electronic output of weekly payroll records (format at <http://www.mssupport.com/guides.aspx>) for export in an excel spreadsheet to be imported into the Contractor's Quality Control System (QCS) version of Resident Management System (RMS), that in turn shall export payroll data to the Government's Resident Management System (RMS); demonstrated security of data and data entry rights; ability to produce Contractor-certified electronic versions of weekly payroll data; ability to identify erroneous data entries and track the data/time of all versions of the certified DBA payrolls submitted to the Government over the life of the contract; capable of generating a durable record copy, that is, a CD or DVD and PDF file record of data from the system database at end of the contract closeout. Provide the durable record copy to the Government during contract closeout.

(d) Include all Contractor-incurred costs related to the provision and use of an electronic payroll processing service in the contract price for the overall work under the contract. There will be no separate line item for or payment of costs for DBA compliance or the use of electronic payroll processing services.

1.11 BASE ID/IQ CONTRACT

The requirements of the Base ID/IQ Contract Division 00 PROCUREMENT AND CONTRACTING REQUIREMENTS sections and documents and Division 01 GENERAL REQUIREMENTS sections apply to this task order except as otherwise specified in the task order documents.

1.12 IDENTIFICATION OF CONTRACTOR EMPLOYEES IN THE FEDERAL WORKPLACE (Sep 2008)

(a) The contractor shall provide each of its employees who will be involved in the performance of the contract, on a Government facility, with an identification (ID) badge. The ID badge shall clearly display the contractor's name and the employee's name and color photograph. The Contracting Officer or his/her designee shall approve the ID badge before the commencement of contract performance. It is the contractor's responsibility to ensure that all contractor personnel wear the ID badge at all times when performing work under this contract at a Government facility. Unless otherwise specified in the contract, each contractor employee shall wear the ID badge in a conspicuous place on the front of their clothing and above their waist, except when safety or health reasons prohibit such placement. This requirement is in addition to any Government facility security provisions that require that a Government-issued security badge also be worn.

(b) Contractor personnel shall clearly identify themselves to all attendees as a contractor employee before the commencement of meetings with Government or other contractor personnel. Contractor personnel shall clearly and immediately identify themselves as a contractor employee when placing, answering or participating in telephone/VTC conversations with Government or other contractor personnel.

(c) When contractor personnel send e-mail messages from or to a Government-owned computer, they shall include a signature block that includes their employer's name and the employee's full name and e-mail address.

(d) Each of the requirements set forth in paragraphs a-c above, must be included in all subcontracts at any tier.

1.13 STREET CLOSINGS

The Contractor shall coordinate all requests for street closings with the Contracting Officer in writing 14 days prior to date of requested outage:

a. One lane traffic shall be maintained at all times

b. The final street repair shall be completed within 14 days after the start of any street crossing. Any part of the street returned to service prior to final repair shall be maintained smooth with hot-mix cold-lay surface course.

1.14 CONTRACTOR VERIFICATION OF CONTRACT SURVEY DATA

During initial site layout and before existing conditions are disturbed the Contractor shall verify, in writing, the basic survey data provided on the contract drawings. Verification shall be initiated from the point shown on the contract drawings or from the contract drawing reference point designated by the Contracting Officer's Authorized Representative and shall include, as a minimum, benchmark elevations, horizontal control points, and sufficient spot checks of critical elevations to ensure that the survey data adequately reflects existing conditions. The Contractor shall not proceed with construction until survey verification is provided to the Contracting Officer's Authorized Representative. Before an existing benchmark referenced on the contract drawings is disturbed the Contractor shall establish a new benchmark which has been approved by the Contracting Officer's Authorized Representative. Benchmarks which are destroyed without authorization from the Contracting Officer's Authorized Representative must be replaced at the Contractor's expense as prescribed in Section 00 72 00 Contract Clause, "Layout of Work." The Contractor shall refer to Contract Clauses, "Differing Site Conditions" and "Site Investigation and Conditions Affecting the Work," for additional requirements.

Data and information furnished or referred to below is for the Contractor's information. The Government shall not be responsible for any interpretation of or conclusion drawn from the data or information by the Contractor.

1.15 DEFINITIONS

References to "Offeror", "Bidder", "Design-Build Contractor", "DB Contractor", "D/B Contractor", "Design-Builder", "DB", "D-B", "Architect", "Engineer", or simply the "Contractor" in this Contract or in the commercially available guide specifications used for the technical specifications for this Contract shall refer to the contractor who is the signatory to this Contract. References to "Contracting Officer" and "owner" refer to the Government.

1.16 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, furnish and erect temporary project safety fencing around the construction site . The safety fencing shall be a 9 ga. chain link fencing, a minimum of 72 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers, constructed at the approved location. Maintain the safety fencing during the life of the contract and, upon completion and acceptance of the work, will become the property of the Contractor and be removed from the work site.

1.17 BACKFLOW PREVENTERS CERTIFICATE

Certificate of Full Approval from FCCCHR List, University of Southern California, attesting that the design, size and make of each backflow preventer has satisfactorily passed the complete sequence of performance testing and evaluation for the respective level of approval. Certificate of Provisional Approval will not be acceptable.

a. Backflow Tester Certificate: Prior to testing, submit to the Contracting Officer certification issued by the State or local regulatory agency attesting that the backflow tester has successfully completed a certification course sponsored by the regulatory agency. Tester must not be affiliated with any company participating in any other phase of this Contract.

b. Backflow Prevention Training Certificate: Submit a certificate recognized by the State or local authority that states the Contractor has completed at least 10 hours of training in backflow preventer installations. The certificate must be current.

1.18 CLEANUP

Remove construction debris, waste materials, packaging material and the like from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways must be cleaned away. Store within the fenced area described above or at the supplemental storage area any materials resulting from demolition activities which are salvageable. Neatly stacked stored materials not in trailers, whether new or salvaged.

1.19 REAL PROPERTY MAINTENANCE RECORDS

DD Form 1354, TRANSFER AND ACCEPTANCE OF MILITARY REAL PROPERTY, is the formal document that the Corps of Engineers uses to transfer project ownership to the installation. In accordance with Section 01 33 16 DESIGN AFTER AWARD requirements for this form, complete the Excel files "Contractor Template for DD1354 .xls" and "Contractor Template for Appendix D.xls" and submit with the interim final design(s). These Excel forms, completed examples, and a list of the category codes are included in the solicitation files. The DD Form 1354 and appendix D documents identify project design information to support additional Real Property records and installation life safety requirements. Break the data down by applicable Category Codes necessary for the Government to use in updating the DD Form 1354 data in RMS. Expand list as applicable. The required data includes:

- (1) A description of the item
- (2) The applicable Category Code
- (3) The quantity and unit of measure
- (4) The item's contract cost to the Government

During project construction, the contractor is responsible for keeping the DD1354 data current by updating the approved Excel spreadsheet submitted during design with any new and/or changed construction data caused by field changes. This assistance will be necessary whenever a construction modification is issued and/or the Contractor elects to modify the original design. The updated Excel spreadsheet shall be provided at the Red Zone meeting or no later than 60 days prior to anticipated BOD or project completion. Data shall be provided to the Contracting Officer Representative.

1.20 TERMINOLOGY

The identified terms and phrases used in the plans and specifications shall be edited and interpreted as listed in the following:

ENGINEER – All references to the engineer shall be replaced with the Contracting Officer.

ARCHITECT – All references to the architect shall be replaced with the Contracting Officer.

The terms DESIGN-BUILD CONTRACTOR and CONTRACTOR shall be synonymous.

THE OWNER and OWNER'S REPRESENTATIVE – All references to the owner shall be coordinated with and approved by the Contracting Officer.

LANDSCAPE ARCHITECT – All references to the landscape architect shall be replaced with the Contracting Officer.

SUBMITTALS – All references to Section 01 33 00 shall be replaced with Section 01330 SUBMITTAL PROCEDURES. All submittals shall be made to the Contracting Officer. No other agent shall receive submittals defined in the Technical Specifications.

QUALITY ASSURANCE – All paragraphs entitled QUALITY ASSURANCE shall be replaced with the title QUALITY CONTROL BY THE CONTRACTOR and shall be performed as defined in Section 01 45 04.00 10 Contractor Quality Control. Quality assurance will be performed by the Government.

1.21 WEB-BASED DESIGN SUBMITTALS

Web-based Design Submittals, as permitted in Section 01 33 16 DESIGN AFTER AWARD, paragraph 3.9.2, are not allowed. Submit paper copies as shown in the Submittal Distribution and Quantities Table for design submittals.

1.22 SAFETY REQUIREMENTS

The Contractor shall comply with the Contract FAR clause 52.236-13, Accident Prevention, and with all pertinent provisions of the latest version of U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, in effect on the date of the solicitation. the Contractor's Accident Prevention Plan shall follow the format shown in COE EM 385-1-1, Appendix A - Minimum Basic Outline for Accident Prevention Plan.

a. Language

For each work group that has employees who do not speak English, the Contractor will provide a bilingual foreman who is fluent in English and in the language of the workers. The Contractor will implement the requirements of COE EM 385-1-1, paragraphs 01.B.01, 01.B.02, and 01.C.02 through these foremen.

1.23 REQUIRED INSURANCE

Pursuant to FAR 28.307-2, the Contractor shall procure and maintain during the entire period of his performance under this contract the following minimum insurance:

a. Workers' compensation and employers' liability insurance in compliance with applicable state statutes, with a minimum employers' liability coverage of \$100,000.

b. Comprehensive general liability insurance for bodily injury in the minimum limits of \$500,000 per occurrence. No property damage liability insurance is required.

c. Comprehensive automobile liability insurance covering the operation of all automobiles used in connection with the performance of the contract in the minimum limits of \$200,000 per person and \$500,000 per occurrence for bodily injury and \$20,000 per occurrence for property damage. (See Contract Clause entitled Insurance--Work on a Government Installation)

1.24 UTILITIES

In lieu of the requirements specified in Section 01 50 02 TEMPORARY CONSTRUCTION FACILITIES, water, gas, and electricity are available from Government-owned and Canooche EMC operated electrical power systems and will be charged to the Contractor at rates as provided in Contract Clause 52.236-14 AVAILABILITY AND USE OF UTILITY SERVICES. Refer to section 01 10 00 paragraph 6.4.6.1 for clarification.

a) The Contractor, at its expense and in a manner satisfactory to the Contracting Officer, shall provide and maintain necessary temporary connections, distribution lines, and meter bases required to measure the amount of each utility used for the purpose of determining charges. The Contractor shall notify the Contracting Officer, in writing, 5 working days before utility (gas and water) connection is desired so that a utilities contract can be established. The Contractor is responsible for contacting Canooche EMC to set up a temporary power Utility contract. The CEMC contact is Ricky Simons at (912) 290-1949. Note: The Contractor shall not expect CEMC to provide temporary power via the permanent power transformers which will eventually be delivered to the site for the completed building. These transformers will be delivered and installed when the project is substantially complete and, therefore, will not be available for the initial phase of construction. Refer to section 01 10 00, paragraph 6.4.6.1 and 6.4.9.2 for clarification. The Contractor will provide a meter and make the final hot connection after inspection and approval of the Contractor's temporary wiring installation. Refer to EM385-1-1 for temporary power approval and inspection criteria.

b) Advance Deposit

An advance deposit for utilities consisting of an estimated month's usage or a minimum of \$50.00 will be required. The last monthly bills for the fiscal year will normally be offset by the deposit and adjustments will be billed or returned as appropriate. Services to be rendered for the next fiscal year, beginning 1 October, will require a new deposit. Notification of the due date for this deposit will be mailed to the Contractor prior to the end of the current fiscal year.

c) Final Meter Reading

Before completion of the work and final acceptance of the work by the Government, the Contractor shall notify the Contracting Officer, in writing, 5 working days before termination is desired. The Government will take a final meter reading. Upon notification, the Contractor shall disconnect service and remove the

meters. The Contractor shall then remove (only) all of the temporary distribution lines, meter bases, and associated paraphernalia which they previously installed. The Contractor shall provide payment to Canooche EMC for removal of systems and wiring previously installed by the Contractor. The Contractor shall pay all outstanding utility bills before final acceptance of the work by the Government. Refer to section 01 10 00, paragraph 6.4.6.1 for further clarification.

1.25 SECURITY REQUIREMENTS

In addition to the Fort Stewart access requirements and for the duration of this Contract, access to Fort Stewart may be delayed between 5 minutes to 30 minutes or more due to increased security precautions, including the checking of vehicle occupants' IDs, vehicle manifests, and the searching of all vehicles. Any general or specific threat to the safety of those working or living at Fort Stewart could result in longer waiting times at the access points to Fort Stewart.

a. The following are requirements for contractor employees entering Fort Stewart:

(1) One form of picture ID.

(2) A memo from the construction company on their letterhead stating the reason for entry, contract number, and the location at Fort Stewart where the jobsite is located.

(3) All delivery trucks must have a bill of lading and delivery truck drivers must have a picture ID.

b. Identification of Employees

The Contractor shall be responsible for furnishing to each employee, and for requiring each employee engaged on the work to display, identification as approved and directed by the Contracting Officer. Prescribed identification shall immediately be delivered to the Contracting Officer for cancellation upon release of any employee. When required, the Contractor shall obtain and provide fingerprints of persons employed on the project. Contractor and subcontractor personnel shall wear identifying markings on hard hats clearly identifying the company for whom the employee works.

Contractor personnel shall wear visible Contractor-furnished employee identification badges while physically on the Installation. Each badge shall include, as a minimum, the company name, employee name, photograph, Contract Title, Contract Number, and the expiration date of the badge.

1.26 HAZARDOUS MATERIALS

Construction material shall be free of lead, mercury, chromate, and other hazardous and toxic material. Prior to the final inspection of the project, or with the appropriate submittals, furnish Material Safety Data Sheets (MSDS) for caulking, sealant, surfacing material (i.e. glazing material and drywall texture), wallboard, drywall texture, paint, roofing and sealant materials, floor tiles, mastic, and other materials indicating that the materials are non-asbestos containing materials. Also furnish an Asbestos Free Construction Material Certification certifying that the project is asbestos-free.

1.27 CONTRACTOR PAYROLL RECORD

Contractor shall be required to log payrolls for all their own employees and subcontractors utilizing ENG Form 3180. Each subcontractor requires a separate ENG 3180 for their payrolls. The Contractor shall maintain the ENG 3180, along with the payrolls, on site and available for review by the Contracting Officer's Representative. The ENG 3180's shall be updated weekly as payrolls are submitted. After making copies for their files, the Contractor is required to submit the originals of each week's payrolls to

the Resident Office. Before final payment, the Contractor shall provide the completed ENG 3180's to the Contracting Officer's Representatives.

1.28 CORRESPONDENCE IDENTIFICATION

a. The Contractor shall use a serial numbering system on all formal correspondence sent to the Contracting Officer or his representative. The Contractor will provide one original and two duplicate copies of all correspondence.

b. The Contractor may use a Request for Information (RFI) system for drawing/specification clarifications, subject to the following conditions:

(1) The Contractor shall use a sequential numbering system for all RFI's separate and apart from the correspondence numbering system.

(2) The Contractor shall provide one original and two copies of all RFI's.

(3) The Contractor shall designate ONE individual responsible person, subject to approval by the Contracting Officer, for reviewing and issuing RFI's.

(4) For projects requiring Network Analysis Systems (NAS), all RFI's shall identify the NAS activities directly or indirectly affected by the RFI on the progress schedule. The Contractor should anticipate a minimum of 10 calendar days for Government review and response.

(5) No requests for deviations or variations from the contract by RFI will be allowed. Deviations/variations are to be submitted on ENG Form 4025 as described in Section 01330 Submittal Procedures.

(6) The use of RFI's does not relieve the Contractor of the responsibility for reviewing the contract documents and coordinating the work to be performed. If the Contracting Officer determines that the RFI system is being used for other than its intended purpose, the Contracting Officer has the authority to discontinue the use of the RFI's for the remainder of the contract.

1.29 U.S. ARMY CORPS OF ENGINEERS SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385-I-I

Reference Federal Acquisition Regulation (FAR) Clause 52.236-13, Accident Prevention. Engineer Manual (EM) 385-I-I and its changes are no longer available as part of this solicitation/contract but rather is available at <http://www.hq.usace.army.mil> (select Safety and Occupational Health). Consequently, the Contractor shall be responsible for complying with the current edition and all changes posted on the web as of the effective date of this solicitation.

End of Section 00 73 10

SECTION 01 10 00.0004

REV 3.4 – 31 OCT 2012

TASK ORDER STATEMENT OF WORK

1.0 PROJECT OBJECTIVES

1.1. SECTION ORGANIZATION

2.0 SCOPE

2.1. UNACCOMPANIED ENLISTED PERSONNEL HOUSING

2.2. SITE

2.3. GOVERNMENT-FURNISHED GOVERNMENT INSTALL EQUIPMENT (GFGI)

2.4. FURNITURE REQUIREMENTS

3.0 UNACCOMPANIED ENLISTED PERSONNEL HOUSING

3.1. GENERAL REQUIREMENTS

3.1.1. FACILITY DESCRIPTION

3.1.2. FACILITY RELATIONSHIPS: (NOT USED)

3.1.3. ACCESSIBILITY REQUIREMENTS

3.1.4. BUILDING AREAS

3.1.5. ADAPT BUILD MODEL: (NOT USED)

3.2. FUNCTIONAL AND AREA REQUIREMENTS

3.2.1. FUNCTIONAL SPACES

3.3. SITE FUNCTIONAL REQUIREMENTS

3.4. SITE AND LANDSCAPE REQUIREMENTS

3.5. ARCHITECTURAL REQUIREMENTS

3.5.1. FINISHES AND INTERIOR SPECIALITIES

3.6. STRUCTURAL REQUIREMENTS

3.7. SEE PARAGRAPH 6.7 THERMAL PERFORMANCE – NOT USED

3.8. PLUMBING REQUIREMENTS

3.9. COMMUNICATIONS AND SECURITY SYSTEMS

3.10. ELECTRICAL REQUIREMENTS

- 3.11. HEATING VENTILATING AND AIR CONDITIONING (HVAC) REQUIREMENTS
- 3.12. ENERGY CONSERVATION REQUIREMENTS
- 3.13. FIRE PROTECTION REQUIREMENTS
- 3.14. SEE PARAGRAPH 6.14 SUSTAINABLE DESIGN – NOT USED
- 3.15. SEE PARAGRAPH 6.15 ENVIRONMENTAL – NOT USED
- 3.16. SEE PARAGRAPH 6.16 PERMITS – NOT USED
- 3.17. SEE PARAGRAPH 6.17 DEMOLITION – NOT USED
- 3.18. SEE PARAGRAPH 6.18 – NOT USED
- 3.19. EQUIPMENT AND FURNITURE REQUIREMENTS
 - 3.19.1. FURNISHINGS
 - 3.19.2. EQUIPMENT
- 3.20. FACILITY SPECIFIC REFERENCES: (NOT USED)

4.0 APPLICABLE CRITERIA

- 4.1. INDUSTRY CRITERIA
- 4.2. MILITARY CRITERIA

5.0 GENERAL TECHNICAL REQUIREMENTS

- 5.1. SITE PLANNING AND DESIGN
- 5.2. SITE ENGINEERING
- 5.3. COMMISSIONING
- 5.4. ARCHITECTURE AND INTERIOR DESIGN
- 5.5. STRUCTURAL DESIGN
- 5.6. THERMAL PERFORMANCE
- 5.7. PLUMBING AND WATER CONSUMING EQUIPMENT
- 5.8. ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS
- 5.9. HEATING, VENTILATING AND AIR CONDITIONING
- 5.10. ENERGY CONSERVATION
- 5.11. FIRE PROTECTION
- 5.12. SUSTAINABLE DESIGN

5.13. SECURITY (ANTI-TERRORISM STANDARDS)

6.0 PROJECT SPECIFIC REQUIREMENTS

6.1. GENERAL

6.2. APPROVED DEVIATIONS

6.3. SITE PLANNING AND DESIGN

6.4. SITE ENGINEERING

6.5. ARCHITECTURE

6.6. STRUCTURAL DESIGN

6.7. THERMAL PERFORMANCE

6.8. PLUMBING

6.9. SITE ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.10. FACILITY ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.11. HEATING, VENTILATING AND AIR CONDITIONING

6.12. ENERGY CONSERVATION

6.13. FIRE PROTECTION

6.14. SUSTAINABLE DESIGN

6.15. ENVIRONMENTAL

6.16. PERMITS

6.17. DEMOLITION

6.18. ADDITIONAL FACILITIES

1.0 PROJECT OBJECTIVES

1.0.1 The project objective is to design and construct facilities for the military that are consistent with the design and construction practices used for civilian sector projects that perform similar functions to the military projects. For example, a Company Operations Facility has the similar function as an office/warehouse in the civilian sector; therefore the design and construction practices for a company operations facility should be consistent with the design and construction of an office/warehouse building.

Comparison of Military Facilities to Civilian Facilities

Military Facility	Civilian Facility
Unaccompanied Enlisted Personnel Housing (UEPH)	Apartment

1.0.2 It is the Army's objective that these buildings will have a 50 year useful life. The design and construction should provide an appropriate level of quality to ensure the continued use of the facility over that time period with the application of reasonable preventive maintenance and repairs that would be industry-acceptable to a major civilian sector project OWNER. The facility design should consider that the Army may repurpose the use of the facility over the 50 year life. The Army's intent is to install products and materials of good quality that meet industry standard average life that corresponds with the period of performance expected before a major renovation or repurpose. The design should be flexible and adaptable to possible future uses different than the current to the extent practical while still meeting the operational and functional requirements defined within. Flexibility is achieved through design of more flexible structural load-bearing wall and column system arrangements. The site infrastructure will have at least a 50-year life expectancy with industry-accepted maintenance and repair cycles. Develop the project site for efficiency and to convey a sense of unity or connectivity with the adjacent buildings and with the Installation as a whole.

1.0.3 Requirements stated in this contract are minimums. Innovative, creative, and life cycle cost effective solutions, which meet or exceed these requirements are encouraged. Further, the OFFEROR is encouraged to seek solutions that will expedite construction (panelization, pre-engineered, etc.) and shorten the schedule. **The intent of the Government is to emphasize the placement of funds into functional/operational requirements. Materials and methods should reflect this by choosing the most economical Type of Construction allowed by code for this occupancy/project allowing the funding to be reflected in the quality of interior/exterior finishes and systems selected.**

1.1. SECTION ORGANIZATION

This Section is organized under 6 major "paragraphs".

- (1) Paragraph 1 is intended to define the project objectives and to provide a comparison between the military facility(ies) and comparable "civilian" type buildings.
- (2) Paragraph 2 describes the scope of the project.
- (3) Paragraph 3 provides the functional, operational and facility specific design criteria for the specific facility type(s) included in this contract or task order.
- (4) Paragraph 4 lists applicable industry and government design criteria, generally applicable to all facility types, unless otherwise indicated in the Section. It is not intended to be all-inclusive. Other industry and government standards may also be used, where necessary to produce professional designs, unless they conflict with those listed.
- (5) Paragraph 5 contains Army Standard Design Criteria, generally applicable to all facility types, unless otherwise indicated in the Section.
- (6) Paragraph 6 contains installation and project specific criteria supplementing the other 5 paragraphs.

2.2. SITE:

Provide all site improvements necessary to support the new building facilities. Refer to Paragraph 6.

Approximate area available 10.00 acres

2.3. GOVERNMENT-FURNISHED GOVERNMENT-INSTALLED EQUIPMENT (GFGI)

Coordinate with Government on GFGI item requirements and provide suitable structural support, brackets for projectors/VCRs/TVs, all utility connections and space with required clearances for all GFGI items. Fire extinguishers are GF/GI personal property, while fire extinguisher brackets and cabinets are Contractor furnished and installed CF/CI. All Computers and related hardware, copiers, faxes, printers, video projectors, VCRs and TVs are GFGI.

The following are also GFGI items: There is no additional GFGI equipment beyond that specified herein in Section 01 10 00 of the RFP.

2.4. FURNITURE REQUIREMENTS

A Furniture, Fixtures & Equip design and package is NOT required for this project. However, Structural Interior Design (SID) is required for all facility types regardless of the requirements for the FF&E design and package. The basic space planning for the anticipated FF&E requirements in conjunction with the functional layout of the building and design issues such as life safety, privacy, acoustics, lighting, ventilation, and accessibility is still required as part of the SID submittal.

3.0 UNACCOMPANIED ENLISTED PERSONNEL HOUSING (UEPH) (REV 3.1 – 30 JUN 2012)

3.1. GENERAL REQUIREMENTS:

3.1.1. FACILITY DESCRIPTION: The Army requires an apartment complex of two-bedroom, one-bath dwelling units with kitchen (1+1E module) similar in features, standards and layout to apartment complexes in the surrounding community. Maximize the space inside the individual dwelling units versus providing additional spaces not listed in the functional requirements. Building circulation is required to be through the use of interior corridors/breezeways or garden style apartments, where circulation is minimized. Exterior egress balconies are prohibited; this does not preclude apartments designed with exterior entry landings. Predicate the choice of breezeways and exterior entry landings upon the weather criteria of the specific geographic area. Design breezeways and exterior entry landings to preclude snow and ice infiltration/accumulation. Building spaces and areas are as indicated in the text below. Coordinate the site design with the building described in this Section. Specific site requirements that affect the design and construction of the site appear in 01 10 00-6.0

~~The Army requires an apartment complex of two-bedroom, one-bath dwelling units with kitchen (1+1E module) similar in features, standards and layout to apartment complexes in the surrounding community. Maximize the space inside the individual dwelling units versus providing additional spaces not listed in the functional requirements in this section. Building circulation is required to be through the use of interior corridors/breezeways or garden style apartments, where circulation is minimized. Exterior egress balconies are prohibited; this does not preclude apartments designed with exterior entry landings. Choice of breezeways and exterior entry landings shall be predicated upon the weather criteria of the specific geographic area. Breezeways and exterior entry landings shall be designed to preclude snow and ice infiltration/accumulation. Building spaces and areas are as indicated in the text below. Coordinate the site design with the building described in this Section. Specific site requirements that affect the design and construction of the site appear in 01 10 00-6.0.~~

3.1.2. FACILITY RELATIONSHIPS: (NOT USED)

3.1.3. ACCESSIBILITY REQUIREMENTS:

A. GENERAL: Able-bodied soldiers occupy and manage UEPH facilities. The Architectural Barriers Act (ABA) requirements does not apply to UEPH facilities, except as follows:

B. SITE PLAN DESIGN AND CONSTRUCTION

- 1) Provide ABA compliant access from the parking lot to the building.
- 2) Provide two (2) ABA compliant vehicle parking stalls for each barracks building for visitor parking.
- 3) Provide handicapped vehicle parking signage and pavement markings.

C. FACILITY DESIGN AND CONSTRUCTION

- 1) The main building entrance on the ground level and at least one emergency egress, designed per applicable code, shall be handicapped accessible. Electronic exterior door openers with push button control are required for handicapped accessibility.
- 2) Provide ABA clearances and door accesses in the building main entry/vestibule being used by visitors.
- 3) If a lobby is required by the RFP, provide a handicapped accessible drinking fountain and public toilet(s), which may be unisex, in the lobby area.:
 - a) ~~Provide a handicapped accessible drinking fountain in the lobby.~~
 - b) ~~Provide handicapped accessible public toilet(s), which may be unisex, in the lobby area.~~

3.1.4. BUILDING AREAS:

A. **GENERAL:** The overall building gross area is based on allocating each occupant 366 gross square feet for buildings up to three stories or 388 gross square feet for buildings over three stories. For Installations in Alaska the overall building gross area is based on allocating each occupant 388 gross square feet for all barracks building, irrespective of building height. The gross square feet per occupant includes the total area of all functional areas required in the building, including all dwelling units, common areas, canopies, and support areas, e.g. stairways, elevators, foyers, corridors, public toilets, janitor's closets, utility room spaces.

B. **GROSS AREA:** Calculate gross building area in accordance with Appendix Q, with the following exceptions in accordance with TI 800-01 Design Criteria – Appendix B, UEPH

1) **Definition:** Gross building area is measured to the outside face of exterior enclosure walls. Gross area includes floor areas, penthouses, mezzanines, and other spaces as follows:

2) **Limitations:** Maximum authorized gross building areas for each facility is included in this paragraph. Proposals that exceed authorized gross area limitations may be considered non-conforming.

C. **HALF SPACE:** All stairs and elevator shafts count as half space for each floor they serve. Areas calculated as half space. Gross building area shall be calculated in accordance with Appendix Q, with the following exceptions in accordance with TI 800-01 Design Criteria – Appendix B, UEPH:

~~1) All stairs and elevator shafts count as half space for each floor they serve.~~

D. **EXCLUDED SPACE:** The following spaces are excluded from gross area calculations: Attic areas where average clear height does not exceed 7 feet, normal roof overhangs and soffits for weather protection, mechanical equipment platforms and catwalks.

E. **NET AREA :**

1) **Definition:** Net area is measured to the inside face of the room or finish walls.

2) **Net Area Requirements:** Net area requirements for programmed spaces are included in this chapter. If net area requirements are not specified, the space shall be sized to accommodate the required function and to comply with code requirements, overall gross area limitations, and any other requirement of this RFP (for example, area requirements for corridors, stairs, and mechanical rooms will typically be left to the discretion of the offeror).

3.1.5. ADAPT BUILD MODEL: (NOT USED)**3.2. FUNCTIONAL AND OPERATIONAL REQUIREMENTS:****3.2.1. FUNCTIONAL SPACES****A. PRIMARY SPACES****1) Dwelling Units:**

a) **Bedrooms:** Each dwelling unit shall have two bedrooms, each with a minimum net area of 140 square feet and a maximum net area of 183 square feet. Bedrooms shall be equal in size and similar in configuration. Provide a minimum width of 10'-0" in the living/bedroom. The recommended minimum width is 11'-0". Configure the living/bedroom area and the walk-in closet to maximum the amount of usable space in the living/bedroom area. Bedroom shall be able to accommodate one bed, entertainment center, chest of drawers, nightstand, desk and chair with adequate circulation for one occupant: See Section 3.19.1 Furniture List/Charts for more details. Each bedroom and shall have a walk-in closet directly adjacent.

(1) **Walk-in-Closets:** Provide each walk-in closet with a net area of 32 square feet, and furnish with hanger rods and shelves, ~~see paragraph 3.5.1 Storage Shelving for more details.~~ Furnish and install each closet door with a robe hook and full length mirror. ~~Each walk-in closet shall have a net area of 32 square feet, and shall be furnished with hanger rods and shelves see paragraph 3.5.1 Storage Shelving for more details. Each closet door shall be furnished with a robe hook and full length mirror.~~

b) **Kitchen:** Each dwelling unit shall have a full kitchen with adequate space and circulation to accommodate a full size refrigerator 28 inches wide, a electric oven/range, with a built-in combination vent hood and microwave oven, centered above, wall cabinet system and countertops for food storage and preparation. Provide utility connections and casework to accommodate future installation of a dishwasher and appliances listed in 3.19.2 Residential Appliances. Provide area for recyclables receptacle and kitchen waste receptacle. ~~Provided a minimum of twelve (12) linear feet of standard height base, wall cabinet systems, and countertops for food storage and preparation, linear feet includes required sink. In addition to the twelve (12) linear feet of standard height counter, kitchen layout shall accommodate counter style seating and dining for two people, or provide space for a dining area outside of the kitchen.~~

c) **Bathroom:** Each dwelling unit shall have one full bath. Including a ~~t~~ub/shower enclosure and separate vanity with storage below. The tub/shower enclosure shall include a water closet and tub/shower combo. ~~Configure the vanity area to provide a wing wall on each side of the vanity. Provide one recessed mounted medicine cabinet on each wing wall of the vanity, and one full-width mirror on the back wall. When only one light fixture is provided; c~~Center the lavatory and light fixture between the two recessed mounted medicine cabinets. ~~See 3.8 Plumbing Fixtures for details and 3.5.1 Interior Specialties for required toilet accessories.~~

d) **Dwelling Laundry:** ~~Provide dwelling unit laundry area in the kitchen and size to accommodate full-size residential washers and dryers. Dwelling unit laundry area shall be in the kitchen area and shall be sized to accommodate full size residential washers and dryers as specified in 3.19.2 Residential Appliances. Provide required power, water, drain, and ventilation connections.~~

B. COMMON AREAS

1) **Lobby:** Not Used

a) CQ Station: Not Used

2) **Toilet(s):** Not Used

3) **Vestibule:** Provide an enclosed transition space between the exterior and the lobby or building interior. Provide a minimum of 7 feet clearance between interior and exterior doors.

4) **Corridors:** Corridors shall have a minimum width ~~th~~ no less than 5'-0".

5) **Janitor's Closet:** Provide a minimum of one Janitor's Closet per floor. ~~Each Janitor's Closet shall have, with~~ a minimum area of 30 square feet. ~~Provide Each each~~ Janitor closet ~~shall havewith~~ a mop sink, mop rack, and space for buckets, vacuum and storage for janitorial supplies. ~~See 3.5.1 Interior Specialties for shelving details.~~

6) **Mechanical, Electrical, and Telecommunications Rooms:** ~~Mechanical rooms shall accommodate space for equipment maintenance/repair access without having to remove other equipment. Size corridor HVAC access doors for ease of service and maintenance of HVAC units. Filter changes and preventative maintenance shall be performed without requiring access to the dwelling units. First floor exterior access is required for centralized mechanical and electrical rooms. Mechanical rooms shall accommodate space for equipment maintenance/repair access without having to remove other equipment. Mechanical, electrical and telecommunications rooms shall be keyed separately for access by Installation maintenance personnel. Filter changes and preventative maintenance shall be performed without requiring access to the dwelling units. First floor exterior access is required for centralized mechanical and electrical rooms. Telecommunications rooms shall comply with the requirements of ANSI/TIA/EIA-569-B. Refer to Mechanical and Electrical Sections for additional information.~~

- 7) **Mail Access Area:** ~~Design and construct a mail access area as part of this project. A mail access area shall be designed and constructed as a part of this project.~~ Mail access area shall include one USPS-approved combination lock type mailbox per resident, and a minimum of one USPS-approved two-key parcel locker per 40 residents. ~~Coordinate The-the numbering sequence shall be coordinated~~ with the user.
- 8) **Vending Area:** Not Used
- 9) **Recyclables Storage:** Provide one recyclables storage per building. Locate the recyclables storage on the first floor with access to the complex trash/recyclables dumpster area. Recyclables Storage shall be fully enclosed and ventilated. ~~Size Recyclables Storage shall be sized~~ to accommodate a minimum of six (6) fifty-gallon barrel sized recyclable containers, with adequate circulation space to allow access to move each container in and out of the Recyclable Storage with a dolly, without having to move the other containers.
- 10) **Mudroom/Bootwash:— Mudroom:** Provide an enclosed centralized location close to main building entry, with direct exterior access for soldiers to rinse mud off field gear, boots and clothing before laundering. Provide one rinsing station per 30 persons. ~~Furnish each rinsing station with a utility sink and a hosed hot and cold running water faucet.Each rinsing station shall be furnished with a utility sink and a hosed hot and cold running water faucet.~~
- 11) **Centralized Laundry:** Not Used
- 12) **Activity Room:** Not Used

3.3. SITE FUNCTIONAL REQUIREMENTS

A. PARKING

- 1) **Privately Owned Vehicle (POV) Parking:** ~~Design and construct the POV parking, within the designated construction area. Base the location and design of the POV parking area(s) on the Installation's site constraints. Ensure that the location of parking complies with UFC 4-010-01. See paragraph 5.2.3, "VEHICLE PAVEMENTS", for additional information. Provide POV parking spaces for 70 percent of the personnel. The Contractor shall design and construct the POV parking, within the designated construction area. Base the location and design of the POV parking area(s) on the Installation's site constraints. The Contractor shall ensure that the location of parking complies with UFC 4-010-01. See paragraph 5.2.3, "VEHICLE PAVEMENTS", for additional information. Provide POV parking spaces for 70 percent of the personnel.~~

B. ACCESS DRIVES AND LANES

- 1) **Services Access Drives:** ~~Provide service access drives to each building. Locate the drives in accordance with UFC 4-010-01. Restrict access to the drives, where applicable, as required by UFC 4-010-01. Design the pavements as required by paragraph 5.2.3, "VEHICLE PAVEMENTS". The with a minimum access drive width shall be of 10 feet. Design and construct drives with curb and gutter when necessary for drainage purposes. The Contractor shall provide service drives to each building. Locate the drives in accordance with UFC 4-010-01. Restrict access to the drives, where applicable, as required by UFC 4-010-01. Design the pavements as required by paragraph 5.2.3, "VEHICLE PAVEMENTS". The minimum access drive width shall be 10 feet. The Contractor shall design and construct drives with curb and gutter when necessary for drainage purposes.~~
- 2) **Emergency Vehicle/Fire Access Lanes:** Provide fire access lanes. Drives designed to support emergency vehicle traffic shall be a minimum of 20 feet wide per NFPA requirements. ~~Provide access to three sides, minimum, within 33 feet of a building's entrance. Design the fire access lanes in accordance with NFPA 1, UFC-3-600-01, and the installation's requirements. The Contractor shall provide fire access lanes. Drives designed to support emergency vehicle traffic shall be a minimum of 20 feet wide per NFPA requirements. Access must be provided to three sides, minimum and must be within 33 feet of a building's entrance. Design the fire access lanes in accordance with NFPA 1, UFC-3-600-01, and the installation's requirements.~~

3.4. SITE AND LANDSCAPE REQUIREMENTS

A. SITE STRUCTURES

1) **Dumpster Area:** Locate, design, and construct the dumpster enclosure area(s) and screening. Dumpster screening shall be aesthetically and architecturally compatible with the building it serves and shall be designed in accordance with the Installation's guidelines. ~~Locate the dumpster areas in accordance with UFC 4-010-01 "DoD Minimum Antiterrorism Standards for Buildings". Position the GFGI dumpsters outside of restricted areas to allow for servicing activities. The Contractor shall locate, design, and construct the dumpster enclosure area(s) and screening. Dumpster screening shall be aesthetically and architecturally compatible with the building it serves and shall be designed in accordance with the Installation's guidelines. Locate the dumpster areas in accordance with UFC 4-010-01 "DoD Minimum Antiterrorism Standards for Buildings". Position the GFGI dumpsters outside of restricted areas to allow for servicing activities.~~

B. LANDSCAPING/HARDSCAPING

1) **Non-Vehicular Walks:** Construct non-vehicular pedestrian sidewalks of Portland cement concrete having a minimum nominal thickness of 4 inches. Design joint patterns uniformly, symmetrical, and in accordance with the American Association of State Highway and Transportation Officials (AASHTO) standards. For joints, do not exceed the length to width ratio of 1.25 for non-reinforced pavements. ~~Construct pedestrian walks within the designated construction area and connect to existing sidewalks, where applicable.~~ Construct walks paralleling buildings beyond the eave drip line and at least 5 feet from the foundation.

a) **Pedestrian Sidewalks:** Provide pedestrian walks within the designated construction area and connect to existing sidewalks, where applicable. Sidewalks shall be a minimum of 6 feet wide. ~~Restrict vehicular access to the sidewalks, as required by UFC 4-010-01.~~

2) **Shared Troop and Vehicular Walks Roadway Pavement:** Sidewalks designed to support emergency and service vehicle traffic will be considered roadway pavements and shall be designed to meet the AASHTO standards. Construct vehicular supported walks of Portland cement concrete having a minimum nominal thickness of 7 inches. Design joints uniformly, symmetrical, and in accordance with AASHTO standards. Do not exceed the length to width ratio of 1.25 for non-reinforced pavements. Sidewalks designed to support emergency and service vehicle traffic shall have minimum widths as stated in 3.3 Access Drives and Lanes.

3.5. ARCHITECTURAL REQUIREMENTS

A. **GENERAL:** ~~Provide durable and easily maintainable materials.~~ Do not use exterior materials that require periodic repainting or similar refinishing processes. Material exposed to weather shall be factory pre-finished, integrally colored or provided with intrinsic weathering finish.

B. WALLS:

1) **Exterior Walls:** Where Exterior Insulation and Finish Systems (EIFS), or any other material except CMU or other Masonry material is used as exterior finish material, it shall be in conjunction with a Masonry wainscot. EIFS shall be "high-impact" type and shall be "drainable" type. Masonry units shall be tested for efflorescence. Efflorescence testing shall conform to the provisions of ASTM C 67. CMU construction shall comply with the provisions of ASTM C 1400.

C. **MOLD AND MILDEW Mold and Mildew:** The Designer of Record shall provide details in the design analysis and design showing steps taken to mitigate the potential growth of mold and mildew in the facility. ~~Perform a wall and/or roof construction moisture analysis to verify appropriate thermal insulation and vapor permeability retardant assemblies to prevent condensation with the wall and/or roof under all foreseeable climate conditions. All gypsum board shall achieve a score of 10, the highest level of performance for mold resistance under the ASTM D 3273 test method. All gypsum board shall be transported, handled, stored and installed in accordance with the GYPSUM ASSOCIATION – Guidelines for Prevention of Mold Growth on Gypsum Board (GA-238-03).~~

D. **ROOF SYSTEMS:** For membrane roof systems provide a minimum slope of 1/4 inch per foot and roof crickets with a minimum 1/2 inch per foot slope. Membrane roof systems shall be fully adhered. Provide pitched roof systems with a minimum slope of 3 inches per foot. ~~Roof pitch shall also comply with applicable Area Design Guideline and Installation Design Guideline if conflict exists design roof in accordance with most stringent slope.~~ Structural standing seam metal roofs shall comply with the requirements of ASTM E 1592. Roof system shall be Underwriters Laboratory (UL 580 Class 90) rated or Factory Mutual Global (FM) I-90 rated and comply with applicable criteria for fire rating. ~~Minimum roof slope for membrane roof systems shall be 1/4 inch per foot. Minimum roof slope for pitched roof systems shall be 3 inches per foot. Membrane roof systems shall be fully adhered. Structural standing seam metal roofs shall comply with the requirements of ASTM E 1592. Roof system shall be Underwriters Laboratory (UL 580 Class 90) rated or Factory Mutual Global (FM) I-90 rated. Roof system shall comply with applicable criteria for fire rating.~~

- 1) **Roof Mounted Equipment:** For roof mounted equipment, provide permanent access walkways and platforms to protect roof. Roof mounted equipment on pitched roof systems is **generally unacceptable; exceptions must have prior government approval.** Roof mounted equipment on membrane roof systems shall be completely screened by the roof parapet **to a distance of 400 feet .**
- 2) **Roof Access:** Roof access from building exterior is prohibited.
- 3) **Trim and Flashing:** Gutters, downspouts, and fascia shall be factory pre-finished metal and shall comply with SMACNA Architectural Sheet Metal Manual.

E. **OPENINGS:**

1) **Storefronts/Curtain Walls & Entrances:**

a) **Storefronts (Main Entrance Doors):** Provide aluminum storefront doors and frames with Architectural Class 1 anodized finish, fully glazed, with medium or wide stile for entry into lobbies or corridors. Provide doors complete with frames, framing members, subframes, transoms, sidelights, trim, applied muntins, and accessories. **Provide framing systems with thermal-break design.** ~~Framing systems shall have thermal-break design.~~ Storefront systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria.

b) **Curtain Wall Systems:** Curtain wall systems shall be capable of withstanding area wind loads, thermal and structural movement required by location and project requirements, and shall comply with applicable codes and criteria.

2) **Windows:** Material and installation shall comply with applicable codes and criteria.

a) **Exterior Windows:** Provide insulated, high efficiency window systems, with thermally broken frames complying with applicable codes and criteria. **Provide each bedroom with at least one exterior window which meets the egress requirements of NFPA 101 and the International Building Code. Design window sills to discourage bird nesting.** ~~Each bedroom shall have at least one exterior window. Window shall meet egress requirements of NFPA 101 and International Building Code. Window sills shall be designed to discourage bird nesting.~~ All bedroom windows shall be fixed windows. Windows shall not open to corridor, balcony or landing.

b) **Interior Windows:**

(1) **Centralized Laundry:** Picture window glazing shall be laminated glass. An alternate solution to provide visual monitoring of the laundry room in-lieu of using a picture window may be proposed. **Laminated Glass:**

(a) ~~Centralized Laundry:~~ **Centralized Laundry:** Picture window glazing shall be laminated glass. ~~Design-Build Contractor may propose an alternate solution that will provide visual monitoring of the laundry room in-lieu of using a picture window.~~

2) **Doors and Frames:** ~~Fire-rated, smoke-control doors and frames and non-fire-rated~~ All doors and frames ~~and~~ installation shall comply with applicable codes, criteria and requirements of labeling authority.

~~Fire-rated and Smoke Control Doors and Frames: Comply with applicable codes, criteria and requirements of labeling authority.~~ STC ratings shall be of the sound classification required and shall include the entire door and frame assembly.

a) **Exterior Insulated Hollow Metal Doors & Frames:** Provide insulated hollow metal exterior doors for entry to all spaces other than corridors, lobbies, or reception/waiting rooms. ~~Doors and frames shall comply with applicable codes and criteria.~~ Doors shall be minimum Level 3, physical performance Level A, Model 2. Frames shall be minimum 12-gauge, with continuously welded mitered corners and seamless face joints. Doors and frames shall be A60 galvanized, shall comply with ASTM A653 and shall be factory primed. ~~Use tamperproof screws for the attachment of all door accessories. Fire-rated openings shall comply with applicable codes, and the requirements of the labeling authority. Door and frame installation shall comply with applicable codes and criteria.~~

b) **Interior Insulated Metal Doors:** ~~Shall comply with applicable codes and criteria.~~ Doors shall be minimum Level 3, physical performance Level A, Model 2; factory primed.

(1) Provide insulated metal doors at utility rooms, janitor closets, and stairwell doors.

(2) Not Used

c) **Solid Core Wood Doors:** Provide flush solid core wood doors with Grade A hardwood face veneer for transparent finish. Stile edges shall be non-finger jointed hardwood compatible with face veneer.

(1) Provide flush solid core wood doors at doors within dwelling unit.

(2) Provide flush solid core wood doors at dwelling unit entry.

d) **Interior Hollow Metal Frames:** Comply with ANSI A250.8/SDI 100. Frames shall be minimum Level 3, 16 gauge, with continuously welded mitered corners and seamless face joints; factory primed. ~~Contractors have the option to furnish knockdown frames for closet and bathroom doors in the dwelling units. Continuously welded frames with mitered corners and seamless face joints at closets and bathroom doors in the dwelling units shall be considered betterments.~~

~~(1) — Contractor's Option: — Contractors have the option to furnish knockdown frames for closet and bathroom doors in the dwelling units. — Continuously welded frames with mitered corners and seamless face joints at closets and bathroom doors in the dwelling units shall be considered betterments.~~

4) **Hardware:**

a) **Door Hardware:** All hardware shall be consistent and shall conform to ANSI/BMHA standards for Grade 1. Provide closers for all exterior doors, all doors opening to corridors and as required by codes. ~~Install Exit devices shall be installed on all building egress doors.~~

(1) **Finish Hardware (Master Keying System/Cores):** ~~Coordinate all requirements for hardware keying with the Contracting Officer. Provide extension of the existing Installation keying system, the Installation keying system is All requirements for hardware keying shall be coordinated with the Contracting Officer. Extension of the existing Installation keying system shall be provided, the Installation keying system is Best lock.~~ Provide key-removable type cylinder cores with not less than seven pins. Disassembly of knob or lockset to remove core from lockset is not permitted. Locksets for mechanical, electrical and communications rooms only shall be keyed to the existing Installation Master Keying System. Provide HVAC terminal units that are accessed from a central corridor with a deadbolt to minimize protrusion into corridor. ~~Cores shall have not less than seven pins; cylinders shall have key-removable type cores. — Disassembly of knob or lockset shall not be required to remove core from lockset. Locksets for mechanical, electrical and communications rooms only shall be keyed to the existing Installation Master Keying System. — HVAC terminal units that are accessed from a central corridor shall have a deadbolt to minimize protrusion into corridor. — Plastic cores are unacceptable.~~

(2) **Fire and Exit Door Labeling:** ~~Install hardware for fire doors in accordance with the requirements of applicable codes. Hardware for fire doors shall be installed in accordance with the requirements of applicable codes.~~ Exit devices installed on fire doors shall have a visible label bearing the marking "Fire Exit Hardware". Other hardware installed on fire doors, such as locksets, closers, and hinges shall have a

visible label or stamp indicating that the hardware items have been approved by an approved testing agency for installation on fire-rated doors. Hardware for smoke-control door assemblies shall be installed in accordance with applicable codes.

(3) **Auxiliary Hardware:** Provide other hardware as necessary for a complete installation.

(a) **Door Stops:** Provide wall or floor stops for all exterior doors that do not have overhead holder/stops.

(b) **Peep Holes:** ~~Each dwelling unit entry door shall be furnished~~ with a brass peephole door viewer with a viewing angle of 200 degrees minimum.

(c) **Door Latches:** Provide each closet door with a Function (F75), Grade 1 closet latch, and with padlock eyes so the occupant can provide his/her own padlock. One padlock eye shall be mortised into and screw attached flush with door edge on the latch side of the door and the second padlock eye shall be mortised and welded flush into the inside face of the door frame jamb. Fabricate padlock eye to accommodate padlock shackle up to 1/4" diameter. Padlock eye color shall match door frame color. Locate padlock eye at between 4'-6" and 5'-6" AFF at the same height in all modules. ~~Each closet door shall have a Function (F75), Grade 1 closet latch, and be equipped with padlock eyes so the occupant can provide his/her own padlock. One padlock eye shall be mortised into and screw attached flush with door edge on the latch side of the door and the second padlock eye shall be mortised and welded flush into the inside face of the door frame jamb. Padlock eye shall be fabricated to accommodate padlock shackle up to 1/4" diameter. Padlock eye color shall match door frame color. Locate padlock eye at between 4'-6" and 5'-6" AFF. Location of padlock eyes shall be at the same height in all modules.~~

(d) **Thresholds & Door-sweeps:** Furnish dwelling unit entry doors and exterior doors with thresholds and aluminum/rubber door-sweeps for a tight seal between door and threshold. Provide door-sweep with an aluminum anodized finish, color shall match door frame.

(e) **Robe Hooks:**

1. **Closet Doors:** Each closet door shall have a Type 304 satin finished, stainless steel, robe hook mounted on the closet side of the door.

2. **Dwelling Bathroom Doors:** Each bathroom door shall have a Type 304 satin finished, stainless steel double robe hook mounted on inside face of bathroom door.

b) **Electronic Key Card Access System:** A Programmable Electronic Key Card Access System shall be provided on all exterior entry/egress doors, dwelling unit doors, bedroom doors and centralized laundry doors (if centralized laundries are required by RFP). ~~Extension~~ Provide extension of the existing Installation key card access system shall be provided, the existing Installation key card access system is Saflok. ~~The minimum operability requirement is a key card access system that provides a single key card for the individual soldier, programmable to open all exterior entry/egress doors, the laundry room (if a centralized laundry is provided), the soldier's dwelling unit door, and the soldier's bedroom door. A Programmable Electronic Key Card Access System Manufacturer's Representative shall install all hardware and software necessary for the operation of the Electronic Key Card Access System and program all locksets. Provide six (6) blank key cards for each personnel each building is designed to accommodate. All blank key cards shall be serially numbered and each key card shall have its number permanently inscribed on it. Furnish in three-ring binders, one full set of the system manufacturer's system training manual, system maintenance manual, and one training video (in format provided by the system manufacturer), with each system installed. The Programmable Electronic Key Card Access System Manufacturer's Representative shall provide two (2) separate 4-hour classes of training for the user on software use, programming locks, encoding cards and printing reports. Furnish each building with a complete stand-alone key card system package. System shall be capable of being compartmentalized so that each building has only the capability to produce key cards for that building. Provide a two (2) year warranty on the system and all components and locksets. Furnish all special tools, software, connecting cables and proprietary equipment necessary for the maintenance, testing, and reprogramming of the system.~~ ~~The minimum operability requirement is a key card access system that provides a single key card for the individual soldier, programmable to open all exterior entry/egress doors, the laundry room (if a centralized laundry is provided), the soldier's dwelling unit door, and the soldier's bedroom door. A~~

~~Programmable Electronic Key Card Access System Manufacturer's Representative shall install all hardware and software necessary for the operation of the Electronic Key Card Access System and program all locksets. Provide six (6) blank key cards for each personnel each building is designed to accommodate. All blank key cards shall be serially numbered and each key card shall have its number permanently inscribed on it. The Design-Build Contractor shall furnish in three-ring binders, one full set of the system manufacturer's system training manual, system maintenance manual, and one training video (in format provided by the system manufacturer), with each system installed. The Programmable Electronic Key Card Access System Manufacturer's Representative shall provide two (2) separate 4-hour classes of training for the user on software use, programming locks, encoding cards and printing reports. Each building shall be furnished with a complete stand-alone key card system package. System shall be capable of being compartmentalized so that each building has only the capability to produce key cards for that building. Provide a two (2) year warranty on the system and all components and locksets. All special tools, software, connecting cables and proprietary equipment necessary for the maintenance, testing, and reprogramming of the system shall be furnished to the Contracting Officer Representative.~~

(1) **Key Card Access System Accessories:** Use of SafLok components are required.

c) **Non-Destructive Emergency Access System (KNOX Box):** Non-Destructive Emergency Access System Provide recessed key vault Knox 4400 for Fire Department use at exterior wall at each new facility. Locate key vault at entrance closest to fire alarm control panel. Purchase of key vault must be coordinated with Installation Fire Department.

5) **Glass and Glazing:** Material and installation shall comply with applicable codes and criteria.

a) **Mirrors:**

(1) **Walk-in Closets:** Each closet door shall have a 16 inches wide by 70 inches high by ¼ inch thick, select float glass, full length mirror, in a one piece ½ inch by ½ inch by ½ inch Type 304 satin finished, stainless steel frame, with mitered corners, mounted on the bedroom side of the door. ~~Locate bottom of mirror 6 inches above finish floor. Bottom of mirror shall be located at 6 inches above finish floor.~~

6) **Louvers and Vents:**

a) **Exterior:** Exterior louvers shall have bird screens and shall be designed to exclude wind-driven rain. Exterior louvers shall be made to withstand wind loads in accordance with the applicable codes. Wall louvers shall bear the Air Movement & Control Association (AMCA) International certified ratings program seal for air performance and water penetration in accordance with AMCA 500-D and AMCA 511. Louver finish shall be factory applied.

F. **EXTERIOR SPECIALITIES:**

1) **Bird Habitat Mitigation:** ~~The Contractor shall provide~~ Provide details in the design necessary to eliminate the congregating and nesting of birds at, on, and in the facility.

G. **ELEVATORS/CONVEYING SYSTEMS:**

1) **Elevators:** ~~Elevators:~~ Provide elevators for buildings that exceed three stories. Provide elevator system that complies with the most current editions of ASME A17.1 and ASME A17.2 in their entirety, and additional requirements specified herein. The first elevator shall be centrally located and shall have a minimum rated load capacity of 3500 lb (1588 kg), with center opening doors and interior dimensions sized to accommodate a fully extended Emergency Medical Services (EMS) gurney and four average size adults. Gurney size shall be based on the "STRYKER Power-PRO XT" gurney. An additional elevator as specified above shall be provided for every additional one hundred (100) persons or fraction thereof, over the first two hundred (200) persons the building is designed to accommodate, unless a traffic analysis determines otherwise. Such traffic analysis shall be included in the Design Analysis.

2) **Elevator Inspector:** ~~The~~ Elevator Inspector shall be certified in accordance with the requirements of the most current editions of ASME A17.1 and ASME QEI-1 and licensed in elevator inspection by the State where project is located. The Certified Elevator Inspector shall inspect the installation of the elevator(s) to assure that the installation conforms with all contract requirements. The

Elevator Inspector shall be directly employed by the Prime Contractor and shall be independent of the Elevator System Manufacturer and the Elevator System Installer. The Elevator Inspector shall witness the acceptance inspections and tests, approve all results and sign and certify the successful results. The Elevator Inspector, after completion of the acceptance inspections and tests, shall certify in writing that the installation is in accordance with the contract requirements. The Elevator Inspector shall bring any discrepancy, including any safety related deficiencies, to the attention of the Contracting Officer in writing, no later than three working days after the discrepancy is discovered.

H. POSTAL/MAIL BOX REQUIREMENTS:

1) **Exterior:** Mail access area shall be a mail kiosk separated from the main building with box access on outside, and rear (or front) loading. Location of mail kiosk shall conform to the requirements of ATFP UFC 4-010-01. Protect mail kiosk from the elements and design it to be architecturally compatible with the associated barracks building. ~~Mail access area shall be a mail kiosk separated from the main building with box access on outside, and rear (or front) loading. Location of mail kiosk shall conform to the requirements of ATFP UFC 4-010-01. Mail kiosk shall be protected from the elements and shall be architecturally compatible with the associated barracks building.~~

2) **Interior:** Not Used

I. ACOUSTICAL REQUIREMENTS: Design exterior walls and roof/floor/ceiling assemblies, doors, windows and interior partitions to provide for attenuation of external noise sources such as airfields in accordance with applicable criteria, but no less than the following. ~~Exterior walls and roof/floor/ceiling assemblies, doors, windows and interior partitions shall be designed to provide for attenuation of external noise sources such as airfields in accordance with applicable criteria, but no less than the following:~~

1) **Exterior Walls:** STC 49

2) **Interior Partitions:** STC 49

3) **Walls/Floors separating Module Spaces:** STC 50 / IIC 55

4) **Module Entry, Bedroom and Bathroom Doors:** STC 25

5) Sound conditions (and levels) for interior spaces, due to the operation of mechanical and electrical systems and devices, shall not exceed levels as recommended by ASHRAE handbook criteria. Provide acoustical treatment for drain lines and other utilities to prevent noise transmission into the interior of dwelling units

J. THERMAL REQUIREMENTS:

1) **Thermal Insulation:** Provide exterior wall, floor, and roof/ceiling assemblies with thermal transmittance (U-values) required to comply with the proposed energy calculations for the facilities conservation requirements. Insulation shall not be installed directly on top of suspended acoustical panel ceiling systems.

2) **Building Envelope Sealing Performance Requirement:** Requirements of Paragraph 5.6.2 are fully applicable except that envelope leakage test shall be maximum of 0.15 cfm/sf for measured area." Place emphasis on providing thermal envelope performance using continuous insulation components outside of the structural elements of the facility.

~~1) **Thermal Insulation:** Provide exterior wall, floor, and roof/ceiling assemblies with thermal transmittance (U-values) required to comply with the proposed energy calculations for the facilities. Insulation shall not be installed directly on top of suspended acoustical panel ceiling systems. See Paragraph 3.12 Energy Conservation for details.~~

3.5.1. FINISHES AND INTERIOR SPECIALITIES

A. **GENERAL:** Provide sustainable materials and furnishings that are easily maintained and replaced. Maximize use of day lighting. Provide interior surfaces that are easy to clean and light in color. Design barracks interior with a residential ambience.

B. **FINISHES:** Designers are not limited to the minimum finishes listed in this paragraph and are encouraged to offer higher quality finishes.

1) **Minimum Finish Requirements:** Wall, ceiling and floor finishes shall conform to the requirements of the IBC, NFPA and UFC 3-600-01. Where code requirements conflict, the most stringent code requirement shall apply.

a) **Walls:** All wall finish shall be minimum 5/8" painted gypsum board, except where stated otherwise. Use impact resistant gypsum board in corridors, storage rooms, stairwells and activity rooms and centralized laundries (if centralized laundries are required by RFP). Provide a Level 4 Finish with an orange peel texture in accordance with USG Handbook, latest edition. ~~All wall finish shall be minimum 5/8" painted gypsum board, except where stated otherwise. All gypsum board shall achieve a score of 10, the highest level of performance for mold resistance under the ASTM D 3273 test method. All gypsum board shall be transported, handled, stored and installed in accordance with the GYPSUM ASSOCIATION — Guidelines For Prevention Of Mold Growth On Gypsum Board (GA-238-03). Use impact resistant gypsum board in corridors, storage rooms, stairwells and activity rooms and centralized laundries (if centralized laundries are required by RFP).~~

b) **Ceilings:** All ceiling finishes shall be minimum 5/8" painted gypsum board, except where stated otherwise. ~~All gypsum board shall achieve a score of 10, the highest level of performance for mold resistance under the ASTM D 3273 test method. All gypsum board shall be transported, handled, stored and installed in accordance with the GYPSUM ASSOCIATION — Guidelines For Prevention Of Mold Growth On Gypsum Board (GA-238-03).~~

(1) **Acoustical Ceiling Tiles (ACT):** Shall be 24"x 24" Acoustical tile panels of 5/8 inch minimum thickness. Type as indicated, Class A. Light reflectance shall exceed 75 percent, color, texture and finish shall be as indicated. When not indicated provide white, fissured texture acoustical panels with a beveled tegular edge. NRC not less than 0.60, CAC not less than 35.

(2) **Ceiling Grid:** Provide a— 9a 9/16" suspension system - Type as indicated. Color, texture and finish shall be as indicated. When not indicated provide white, hot-dipped galvanized steel, exposed tee grid with hold down clips for ceiling tiles.

c) **Floors:**

(1) **Resilient Flooring):** Resilient flooring shall be a minimum 1/8 inch thick, conforming to ASTM F 1066, Class 2, through-pattern tile, Composition 1, asbestos free, with color and pattern uniformly distributed throughout the thickness of the tile. ~~Resilient flooring shall be a minimum 1/8 inch thick, conforming to ASTM F 1066, Class 2, through-pattern tile, Composition 1, asbestos free, with color and pattern uniformly distributed throughout the thickness of the tile.~~

~~(2) — Porcelain/Quarry Tile:~~

~~(3) — Ceramic Tile:~~

~~(4) — Sealed Concrete:~~

d) **Counter Tops:** Provide solid surfacing of either Solid Polymer or Solid Polyester Resin Composition to be used for countertops and backsplashes, 1/2-inch minimum thickness. Must meet ANSI/NEMA LD 3 and ASTM E 84. High-Pressure Laminate will not be allowed for countertops in restroom, toilet room, kitchen or break room applications. Provide countertops with waterfall front edge and integral covered backsplash, minimum 4" high. ~~Countertops shall have waterfall front edge. Bathroom, kitchen and public toilet countertops shall have integral covered backsplash.~~

(1) **Bathroom & Public Toilet(s):** Bathroom and public toilet (if required by RFP) vanity countertop shall be minimum 1/2 inch thick cast 100 percent acrylic polymer solid surfacing material with waterfall front edge and integral covered backsplash.

(2) Kitchens:

e) **Window Stools:** Provide solid surfacing of either Solid Polymer or Solid Polyester Resin Composition 1/2-inch minimum thickness for window stools. Must meet ANSI/NEMA LD 3 and ASTM E 84. ~~Window stools shall be minimum 1/2 inch thick cast 100 percent acrylic polymer solid surfacing material.~~

f) **Elevator(s) Finishes:** Elevator interior walls, ceiling, doors and fixtures shall have a satin No. 4 stainless steel finish. Floor finish shall be resilient flooring -as specified in Paragraph 3.5.1 above. All elevators shall be furnished with removable hanging protective pads and fixed hooks to facilitate conversion to use for moving freight.

2) **Minimum Paint Finish Requirements:** All paints used shall be listed on the "Approved product list" of the Master Painters Institute, (MPI). Follow application criteria recommended by MPI guide specifications for the substrate to be painted and the environmental conditions existing at the project site. Except factory pre-finished material, provide surfaces receiving paint with a minimum of one prime coat and two finish coats. Paints having a lead content over 0.06 percent by weight of nonvolatile content are unacceptable. Paints containing zinc-chromate, strontium-chromate, mercury or mercury compounds, confirmed or suspected human carcinogens shall not be used on this project. ~~All paints used shall be listed on the "Approved product list" of the Master Painters Institute, (MPI). Application criteria shall be as recommended by Master Painters Institute (MPI) guide specifications for the substrate to be painted and the environmental conditions existing at the project site.~~

a) **Exterior Surfaces:** Exterior paints and coating products shall be classified as containing low volatile organic compounds (VOCs) in accordance with MPI criteria. ~~Application criteria shall be as recommended by MPI guide specifications. Provide an MPI Gloss Level 5 Finish (Semi-gloss), unless otherwise specified. Except factory pre-finished material or exterior surfaces receiving other finishes shall be painted a minimum of one prime coat and two finish coats. Paints having a lead content over 0.06 percent by weight of nonvolatile content are unacceptable. Paints containing zinc-chromate, strontium-chromate, mercury or mercury compounds, confirmed or suspected human carcinogens shall not be used on this project. Exterior paints and coating products shall be classified as containing low volatile organic compounds (VOCs) in accordance with MPI criteria. Application criteria shall be as recommended by MPI guide specifications. Provide an MPI Gloss Level 5 Finish (Semi-gloss), unless otherwise specified.~~

b) **Interior Surfaces:** Interior paints and coating products shall contain a maximum level of 150 g/l (grams per liter) of VOCs for non-flat coatings and 50 g/l of VOCs for flat coatings. Provide an MPI Gloss Level 5 Finish (semi-gloss) in wet areas and an flategg-shell finish in all other areas. ~~Except factory pre-finished material or interior surfaces receiving other finishes shall be painted a minimum of one prime coat and two finish coats. Paints having a lead content over 0.06 percent by weight of nonvolatile content are unacceptable. Paints containing zinc-chromate, strontium-chromate, mercury or mercury compounds, confirmed or suspected human carcinogens shall not be used on this project. Interior paints and coating products shall contain a maximum level of 150 g/l (grams per liter) of volatile organic compounds (VOCs) for non-flat coatings and 50 g/l of VOCs for flat coatings. Provide an MPI Gloss Level 5 Finish (Semi-gloss) in wet areas and a flat finish in all other areas.~~

3) **Excluded Finishes:** Carpet shall not be used as a floor finish in the UEPH.

4) **Finish Table:**

MINIMUM INTERIOR FINISHES					
	FLOORS	BASE	WALLS	CEILING	REMARKS

	RESILIENT FLOORING	PORCELAIN OR QUARRY TILE	CERAMIC TILE	RECESSED ENTRY MAT	SEALED CONCRETE	RESILIENT BASE	SANITARY COVE CERAMIC BASE	PORCELAIN OR QUARRY TILE	GYPSUM BOARD PAINT	CERAMIC	GYPSUM BOARD PAINT	ACOUSTICAL CEILING TILE	MINIMUM HEIGHT	
COMMON AREAS														
LOBBY (IF REQUIRED BY RFP)		•						•	•		•	•	9'-0"	SEE NOTE 6
PUBLIC TOILET			•				•		•	•	•		8'-0"	SEE NOTES 2 & 3
VESTIBULES		•		•				•	•		•		9'-0"	
MUDROOM (IF REQUIRED BY RFP)			•				•		•	•	•		8'-0"	SEE NOTE 2
BOOT WASH (IF REQUIRED BY RFP)					•								-	
ACTIVITY ROOM (IF REQUIRED BY RFP)		•						•	•		•	•	9'-0"	SEE NOTE 6
INTERIOR MAIL ACCESS AREA		•						•	•		•		8'-0"	IF LOCATED- WITHIN BUILDING
EXTERIOR MAIL ACCESS AREA					•								8'-0"	IF LOCATED- OUTSIDE BUILDING SEE NOTE 10
STAIRS	•				•	•			•		•		8'-0"	SEE NOTE 4
CORRIDORS	•					•			•		•	•	9'-0"	SEE NOTE 6
VENDING											•		8'-0"	SEE NOTE 1
RECYCLABLES STORAGE	•					•			•		•		8'-0"	SEE NOTE 1
JANITOR CLOSETS			•				•		•	•	•		8'-0"	SEE NOTE 2
MECHANICAL					•	•			•		•		-	SEE NOTE 7
ELECTRICAL					•	•			•		•		-	
TELECOMMUNICATIONS					•	•			•		•			SEE NOTE 8
CENTRALIZED LAUNDRY (IF REQUIRED BY RFP)		•						•	•		•		8'-0"	
DWELLING UNITS														
KITCHEN	•					•			•		•		8'-0"	SEE NOTE 3
BATHROOM			•				•		•	•	•		8'-0"	SEE NOTES 2, 3 & 11
BEDROOM	•					•			•		•		9'-0"	SEE NOTE 9
CLOSET	•					•			•		•		8'-0"	
1. FINISHES IN VENDING OR RECYCLABLES STORAGE AREA SHALL MATCH FINISHES IN ADJACENT SPACE.														
2. ALL WET WALLS SHALL HAVE A 4'-0" HIGH CERAMIC TILE WAINSCOT.														
3. ALL KITCHEN AND BATHROOM COUNTERS SHALL HAVE A MINIMUM OF 4" HIGH BACKSPASH.														
4. STAIR LANDING SHALL BE RESILIENT FLOORING OR SEALED CONCRETE. TREADS SHALL BE RESILIENT FLOORING OR SEALED CONCRETE, PROVIDE SLIP RESISTANT NOSING. RISERS SHALL BE PAINTED STEEL OR RESILIENT FINISH AS REQUIRED FOR STAIR CONSTRUCTION TYPE.														
5. NOT USED														
6. UP TO 50% OF CEILING AREA MAY BE ACOUSTICAL CEILING TILE. ALL ACOUSTICAL CEILING TILE SHALL BE INSTALLED WITH HOLD DOWN CLIPS TO PREVENT UPWARD MOVEMENT. CEILING LAYOUT SHALL BE A BALANCED MIX OF GYPSUM BOARD AND ACOUSTICAL CEILING TILE, SUCH THAT ONE FINISH MATERIAL IS NOT CONCENTRATED IN OR RESTRICTED TO ONE AREA OF THE CEILING.														
7. CEILING MAYBE PAINTED EXPOSED STRUCTURE IF ALLOWED BY APPLICABLE CODE AND CRITERIA. THIS NOTE DOES NOT APPLY TO DWELLING UNIT MECHANICAL CLOSETS.														
8. COMPLY WITH THE REQUIREMENTS OF ANSI/TIA/EIA-569-B														
9. WHERE MASONRY WALLS ARE PROPOSED AS THE BEDROOM WALL FINISH SYSTEM, THE LONGEST WALL IN EACH BEDROOM SHALL BE FINISHED WITH A TACKABLE MATERIAL. TACKABLE MATERIAL SHALL BE GYPSUM BOARD AND SHALL COMPLY WITH THE REQUIREMENTS OF PARAGRAPH 3.5.1 MINIMAL FINISH REQUIREMENTS.														
10. CEILING SHALL BE PAINTED EXPOSED STRUCTURE														

11. TUB SURROUND SHALL BE FIBERGLASS OR ACRYLIC.														
MINIMUM INTERIOR FINISHES														
-	FLOORS					BASE			WALLS		CEILING			REMARKS
	RESILIENT FLOORING	PORCELAIN OR QUARRY TILE	CERAMIC TILE	RECESSED ENTRY MAT	SEALED CONCRETE	RESILIENT BASE	SANITARY COVE CERAMIC BASE	PORCELAIN OR QUARRY TILE	GYPSUM BOARD PAINT	CERAMIC	GYPSUM BOARD PAINT	ACOUSTICAL CEILING TILE	MINIMUM HEIGHT	
COMMON AREAS														
LOBBY (IF REQUIRED BY RFP)		•					•	•		•	•		9'-0"	SEE NOTE 6
PUBLIC TOILET			•				•	•	•	•			8'-0"	SEE NOTES 2, 3 & 5
VESTIBULES		•		•			•	•		•			9'-0"	-
MUDROOM (IF REQUIRED BY RFP)			•				•	•	•	•			8'-0"	SEE NOTES 2 & 5
BOOT WASH (IF REQUIRED BY RFP)					•								-	-
ACTIVITY ROOM (IF REQUIRED BY RFP)		•					•	•		•	•		9'-0"	SEE NOTE 6
MAIL ACCESS AREA		•					•	•		•			8'-0"	IF LOCATED WITHIN BUILDING
MAIL ACCESS AREA					•								8'-0"	IF LOCATED OUTSIDE BUILDING SEE NOTE 10
STAIRS	•				•	•		•		•			8'-0"	SEE NOTE 4
CORRIDORS	•					•		•		•	•		9'-0"	SEE NOTE 6
VENDING											•		8'-0"	SEE NOTE 1
RECYCLABLES STORAGE	•					•		•		•			8'-0"	SEE NOTE 1
JANITOR CLOSETS			•				•	•	•	•			8'-0"	SEE NOTES 2 AND 5
MECHANICAL					•	•		•		•			-	SEE NOTES 5 AND 7
ELECTRICAL					•	•		•		•			-	-
TELECOMMUNICATIONS					•	•		•		•				SEE NOTE 8
CENTRALIZED LAUNDRY (IF REQUIRED BY RFP)		•					•	•		•			8'-0"	SEE NOTE 5
DWELLING UNITS														
KITCHEN	•					•		•		•			8'-0"	SEE NOTE 3
BATHROOM			•				•	•	•	•			8'-0"	SEE NOTES 2, 3 & 11
BEDROOM	•					•		•		•			9'-0"	SEE NOTE 9
CLOSET	•					•		•		•			8'-0"	-
12. FINISHES IN VENDING OR RECYCLABLES STORAGE AREA SHALL MATCH FINISHES IN ADJACENT SPACE.														
13. ALL WET WALLS SHALL HAVE A 4'-0" HIGH CERAMIC TILE WAINSCOT.														
14. ALL KITCHEN AND BATHROOM COUNTERS SHALL HAVE A MINIMUM OF 4" HIGH BACKSPLASH.														
15. STAIR LANDING SHALL BE RESILIENT FLOORING OR SEALED CONCRETE. TREADS SHALL BE RESILIENT FLOORING OR SEALED CONCRETE, PROVIDE SLIP RESISTANT NOSING. RISERS SHALL BE PAINTED STEEL OR RESILIENT FINISH AS REQUIRED FOR STAIR CONSTRUCTION TYPE.														
16. PROVIDE FLOOR DRAIN IN CENTER OF ROOM. SLOPE FLOOR TO DRAIN IN ALL ROOMS WITH FLOOR DRAIN														
17. UP TO 50% OF CEILING AREA MAY BE ACOUSTICAL CEILING TILE. ALL ACOUSTICAL CEILING TILE SHALL BE INSTALLED WITH HOLD-DOWN CLIPS TO PREVENT UPWARD MOVEMENT. CEILING LAYOUT SHALL BE A BALANCED MIX OF GYPSUM BOARD AND ACOUSTICAL CEILING TILE, SUCH THAT ONE FINISH MATERIAL IS NOT CONCENTRATED IN OR RESTRICTED TO ONE AREA OF THE CEILING.														
18. PROVIDE FLOOR DRAIN IN CENTER OF ROOM. CEILING MAY BE PAINTED EXPOSED STRUCTURE IF ALLOWED BY APPLICABLE CODE AND CRITERIA. THIS NOTE DOES NOT APPLY TO DWELLING UNIT MECHANICAL CLOSETS.														
19. COMPLY WITH THE REQUIREMENTS OF ANSI/TIA/EIA-569-B														
20. WHERE MASONRY WALLS ARE PROPOSED AS THE BEDROOM WALL FINISH SYSTEM, THE LONGEST WALL IN EACH BEDROOM SHALL														

~~BE FINISHED WITH A TACKABLE MATERIAL. TACKABLE MATERIAL SHALL BE GYPSUM BOARD AND SHALL COMPLY WITH THE REQUIREMENTS OF PARAGRAPH 3.5.1 MINIMAL FINISH REQUIREMENTS.~~

~~21. CEILING SHALL BE PAINTED EXPOSED STRUCTURE~~

~~22. TUB SURROUND SHALL BE FIBERGLASS OR ACRYLIC.~~

~~23. CARPET SHALL NOT BE USED AS A FLOOR FINISH ON THIS PROJECT.~~

C. INTERIOR SPECIALTIES/SPECIALTIES:

1) **Signage & Directories:**

a) **Room Signage:** Room signage shall conform to the Housing Automated Management System, (HOMES4). At each dwelling unit, provide two (one on each side of entry door) dwelling unit/room number and changeable two-line message strip signage. Dwelling units and shall be sequentially numbered. For example, the first unit on the first floor shall be "101", first unit on the second floor shall be "201". Rooms shall be designated using the letters "A and B". The room designation is determined by standing in the corridor facing the entry door of the dwelling unit, the bedroom on the left is "A" and the one on the right is "B". The complete dwelling unit/room numbering shall be as in this example, first unit on the second floor "201A and 201B". Changeable message strip signs shall be of same construction as standard room signs to include a clear sleeve that will accept a paper or plastic insert with identifying changeable text. The insert shall be prepared typeset message photographically enlarged to size and mounted on paper card stock.

b) **Stair Exit Door Signage:** ~~Furnish the inside face of each stair exit door on the first floor with a photo-luminescent sign. Manufacture and test photo-luminescent signs in accordance with the most current versions of ASTM E 2072 and ASTM E 2073. Sign shall be minimum 14-inches wide by 10-inches high, and shall be made of anodized aluminum. Lettering shall be red text on a yellow background. Lettering shall be upper case, and shall read as follows: "EMERGENCY EXIT ONLY" (minimum 4-inches high letters) "SECURITY ALARM WILL SOUND IF DOOR IS OPENED" (minimum 3-inches high letters). Mount and center signs on interior face of door above exit device.~~ ~~The inside face of each stair exit door on the first floor shall be furnished with a photo-luminescent sign. Photo-luminescent signs shall be manufactured and tested in accordance with the most current versions of ASTM E 2072 and ASTM E 2073. Sign shall be minimum 14-inches wide by 10-inches high, and shall be made of anodized aluminum. Lettering shall be red text on a yellow background. Lettering shall be upper case, and shall read as follows: "EMERGENCY EXIT ONLY" (minimum 4-inches high letters) "SECURITY ALARM WILL SOUND IF DOOR IS OPENED" (minimum 3-inches high letters). Signs shall be mounted centered on interior face of door above exit device.~~

2) **Visual Display Units/Cases:**

a) **Bulletin Boards:** ~~Bulletin board shall be 4'-0" high and 6'-0" wide with a header panel and lockable, laminated, glazed doors. Provide one bulletin board centrally located on all floors. Bulletin board shall be 4'-0" high and 6'-0" wide. Bulletin boards shall have a header panel and shall have lockable, glazed doors. Glazing shall be laminated glass.~~

3) **Toilet Accessories:** Furnish and install the items listed below and all other toilet accessories necessary for a complete and usable facility. All toilet accessories shall be Type 304 stainless steel with satin finish.

a) **Public Toilet(s):** Public Toilets (IF REQUIRED BY THE RFP): Toilet accessories shall conform to the requirements of the ABA and shall include, but are not limited to the following:

- (1) Glass mirrors on stainless steel frame and shelf – at each lavatory
- (2) Liquid soap dispenser – at each lavatory
- (3) Combination recessed mounted paper-towel dispenser/waste receptacle
- (4) Sanitary napkin disposal at each female/unisex toilet
- (5) Recessed mounted lockable double toilet paper holder – at each water closet.
- (6) Sanitary toilet seat cover dispenser – a minimum of one per toilet room

- (7) Grab bars – as required by ABA
- b) **Dwelling Unit/Bedroom Toilet(s):** Shall at a minimum include:
- (1) Two heavy duty towel bars – minimum 24 inches wide each
- (2) Two recessed mounted mirrored medicine cabinets – at each lavatory.
- (a) A minimum of 16-inches wide by 24 inches high with adjustable shelves, mounted on the back wall of the vanity.
- (b) Medicine cabinet construction shall be heavy gauge steel, all welded, with a powder-coated finish.
- (c) Mirror shall be ¼ inch thick select float glass in a one piece ½ inch by ½ inch by ½ inch Type 304 satin finished, stainless steel frame, with mitered corners.
- (3) Two soap dish - at tub/shower
- (4) One wall mounted retractable clothesline – across tub/shower
- (5) Two combination tumbler holder/toothbrush holder – one at each medicine cabinet
- (6) Toilet paper holder – at each water closet.
- (7) Curved shower curtain rod - extra heavy duty.
- (8) Shower curtain – white anti-bacterial nylon/vinyl fabric shower curtain.
- (9) Two soap dish – one at each medicine cabinet.
- 4) **Wall Protection:**
- a) **Chair Rail:** ~~Install chair rails in areas prone to hi-impact use, such as corridors and lobby.~~ ~~Chair rails shall be installed in areas prone to hi-impact use, such as corridors and lobby.~~
- b) **Corner Guards:** Provide surface mounted, high impact resistant, integral color, snap-on type resilient corner guards, extending from floor to ceiling for wall/column outside corners in high traffic areas. ~~Furnish factory fabricated end closure caps for top and bottom of surface mounted corner guards.~~ ~~Factory-fabricated end closure caps shall be furnished for top and bottom of surface mounted corner guards.~~
- 5) **Storage Shelving:**
- a) **Janitor's Closet:** Provide a minimum of six linear feet of 18 inch deep, heavy duty, stainless steel shelving for storage of janitorial supplies.
- b) **Walk-in-Closets:** Closet shelf shall be capable of supporting a minimum of 30 pounds per linear foot. Closet shelf shall be 15 inches deep and top of shelf shall be set at 70 inches above closet finish floor. Closet rod and bracket system shall be capable of supporting a minimum of 30 pounds per linear foot. Provide a minimum of 78 linear inches of rod and shelf with no rod and shelf being less than 48 inches long.
- 6) **Fire Extinguishers, Cabinets & Mounting Brackets:** ~~Furnish a list of installed fire extinguisher cabinets and mounting brackets (including location, size and type) to the Contracting Office Representative. Provide a list of all required portable fire extinguishers, with descriptions (location, size, type, etc.) and total number per type. See also Section 01 33 16, Attachment D, "SAMPLE FIRE PROTECTION AND LIFE SAFETY CODE REVIEW", paragraph 1.14.~~ ~~**Fire Extinguisher Cabinets & Mounting Brackets:** Furnish and install fire extinguisher cabinets and fire extinguisher mounting brackets as required by applicable codes and criteria. Furnish a list of installed fire extinguisher cabinets and mounting brackets (including location, size and type) to the Contracting Office Representative.~~

3.6. STRUCTURAL REQUIREMENTS:

~~A. **GENERAL:** Design and construct as a complete system in accordance with APPLICABLE CRITERIA.~~

B. DESIGN LOADS:

- 1) **Live Loads:** Design live loads shall be per the IBC but not lower than the following minimums.
 - a) **Elevated floors:** 60 pounds per square foot (psf) minimum
 - b) **Slab on grade:** 150 psf minimum
 - c) **Centralized laundry area (if required by RFP):** Not Used

3.7. **SEE PARAGRAPH 6.7 THERMAL PERFORMANCE – NOT USED**3.8. **PLUMBING REQUIREMENTS:**A. DOMESTIC WATER:

- 1) **Heating System:** ~~Size the domestic water heating system based on 20 gallons of 110 deg F hot water consumption per occupant during morning peak period. Peak period duration shall be 30 minutes (10 minute duration for shower and lavatory use per occupant per dwelling unit plus a 10 minute transition period). Base hot water storage capacity on 75% usable storage and a storage temperature of 140 deg F. Domestic hot water distribution shall be at 120 deg F from a central system mixing valve. Design domestic hot water distribution piping to handle up to 180 deg F water temperatures. Domestic water heating system shall be sized based on 20 gallons of 110 deg. F hot water consumption per occupant during morning peak period. Peak period duration shall be 30 minutes (10 minute duration for shower and lavatory use per occupant per dwelling unit plus a 10 minute transition period). Hot water storage capacity shall be based on 75% usable storage and a storage temperature of 140 deg F. Domestic hot water distribution shall be at 120 deg F from a central system mixing valve. Domestic hot water distribution piping shall be designed to handle up to 180 deg F water temperatures.~~
- 2) **Pipe Sizing:** ~~For domestic hot water pipe sizing, base peak hot water flow rate on all showers flowing simultaneously at a rate of 2.0 gpm per shower. Size waste stacks, building waste drains, and lift stations (if required) with consideration of increased flow rates as well. For domestic hot water pipe sizing, peak hot water flow rate shall be based on all showers flowing simultaneously at a rate of 2.0 gpm per shower. Waste stacks, building waste drains, and lift stations (if required) shall be sized with consideration of increased flow rates as well.~~

B. FIXTURE FLOW RATES:

- 1) ~~**Water Closets:** Shall have a maximum flow rate of 1.28 gallons per flush or dual flush with an equivalent average flush volume of 1.28 gallons per flush.~~
- 2) **Shower heads:** Shall have a maximum flow rate not to exceed 1.5 gpm.
- 3) **Bathroom Sinks/faucets:** Shall have a maximum flow rate not to exceed 0.5 gpm.
- 4) **Kitchen Sinks/faucets:** Shall have a maximum flow rate not to exceed 1.0 gpm.
- 5) ~~**Janitor Mop Sinks:** Shall have a maximum flow rate not to exceed 2.0 gpm.~~

C. DRAINS, INTERCEPTORS SEPARATORS & CLEANOUTS:1) Interceptors:a) **Sand Interceptors:**

- (1) **Mudroom/Bootwash:** Provide sand interceptors in drains ~~from~~ for Mudroom and /Boot Wash areas.

b) **Solid Interceptors:**

- (1) **Centralized Laundry:** Not Used

2) Cleanouts:

a) **Centralized Laundry:** Not Used

3) **Drains:**

a) **Vending Area:** Not Used

b) **Centralized Laundry:** Not Used

D. **PLUMBING FIXTURES:**

1) **Residential Plumbing Fixtures:**

a) **Kitchen Fixtures (Dwelling Unit):** Furnish and install a stainless steel kitchen sink with minimum bowl inside dimensions of 16"x16"x7"deep.

~~(1) **Sink:** - Furnish and install a single bowl stainless steel kitchen sink. "Minimum bowl inside dimensions shall be 400mm x 400 mm x 180mm deep [16"x16"x7"deep]."~~

~~(2) **Faucet:**~~

b) **Bathroom Fixtures (Dwelling Unit):**

(1) **Water Closet:** Furnish and install an elongated floor mounted flush tank type vitreous china water closet.

(2) **Tub/Shower Head:** Shall be of porcelain enameled cast-iron or enameled steel. ~~Spray end of shower head shall be set at 78 inches above finish height of tub drain.~~

~~(3) **Vanity Fixture:**~~

~~2) **Commercial Plumbing Fixtures:**~~

~~a) **Mudroom/Bootwash:**~~

~~(1) **Utility Sink:**~~

~~(2) **Pedestal Mounted Faucet:**~~

~~(3) **Hosed Facet:**~~

3.9. **COMMUNICATIONS AND SECURITY SYSTEMS:**

A. **TELECOMMUNICATION SYSTEMS:** ~~Provide telecommunications outlets per the applicable criteria based on functional purpose of the space within the building. Telecommunications outlets shall be provided per the applicable criteria based on functional purpose of the space within the building.~~

1) **CATV:** All CATV outlet boxes, connectors, cabling, and cabinets shall conform to applicable criteria unless noted otherwise. All horizontal cabling shall be homerun from the CATV outlet to the nearest telecommunications room unless indicated otherwise. ~~See paragraph 6 for possible additional requirements.~~

B. **SECURITY INFRASTRUCTURE/SYSTEMS:**

1) **Door Status/Alarm Monitoring:**

a) **Stair Exit Doors:** Furnish each stair exit door on the first floor with a hard-wired contact switch connected to an alarm system. Alarm system shall sound an alarm (after a thirty-second delay if door is left open) at the door location and the CQ Desk (where provide) when a stair exit door is opened. Switching OFF activated alarm shall be by key at the specific door and remotely at the CQ Desk. ~~Each stair exit door on the first floor shall be furnished with a hard-wired contact switch connected to an alarm system. Alarm system shall sound an alarm at the door location and the CQ Desk when a stair exit door is opened. Switching OFF activated alarm shall be by key at the specific door and remotely at the CQ Desk.~~

C. **MASS NOTIFICATION SYSTEMS:** Not Used

3.10. ELECTRICAL REQUIREMENTS:

A. **GENERAL:** Select electrical characteristics of the power system to provide a safe, efficient, and economical distribution of power based upon the size and types of loads to be served. Use distribution and utilization voltages of the highest level that is practical for the load to be served. ~~Consider the effect of nonlinear loads such as computers, other electronic equipment and electronic ballasts and accommodate as necessary. The effect of nonlinear loads such as computers, other electronic equipment and electronic ballasts shall be considered and accommodated as necessary.~~ Voltage drop shall not exceed the maximum allowed per ASHRAE 90.1. ~~Provide T~~ transient voltage surge protection ~~shall be provided~~ on service equipment. Bedrooms shall be considered to be living and sleeping rooms, therefore they are to be considered to be part of a dwelling unit per NFPA 70 definition.

B. **POWER:** ~~Provide power for all installed equipment requiring power to include convenience receptacles and government furnished government installed equipment. Power shall be provided for all installed equipment requiring power to include convenience receptacles and government furnished government installed equipment.~~

1) **Panels:** —Panelboards located in accessible areas, shall be lockable and keyed to one master key.

2) **Outlets:**

a) **Dwelling Unit:** In addition to the requirements of NFPA 70 for dwelling units, a duplex receptacle shall be mounted adjacent to the CATV outlet.

b) **Lobby:** Not Used

(1) **Lobby—CQ Station:** Not Used

c) **Corridors:** Provide a minimum of one 125 volt duplex receptacle per corridor for housekeeping. No point along a corridor wall at 18" above finished floor shall be more than 25 feet from a receptacle.

d) **Mechanical & Electrical Room:** Provide a minimum of two 125 volt duplex receptacles in mechanical rooms in addition to those required by NFPA 70. This requirement does not apply to the small mechanical rooms used for individual dwelling units. In addition, provide a minimum of one 125 volt duplex receptacle in each electrical room.

e) **Vending Area:** Not Used

f) **Centralized Laundry:** Not Used

g) Electrical service shall be provided for electric dryers regardless of whether or not electric dryers are to be used.

C. **LIGHTING LEVELS, FIXTURES & CONTROLS:** ~~Provided lighting levels shall be within +/- 10% of required lighting levels. Interior lighting controls shall be provided in accordance with ASHRAE 90.1. Electronic ballasts for linear florescent lamps shall be the high efficiency programmed start type. Provided lighting levels shall be within +/- 10% of required lighting levels.~~

1) **Dwelling Units:**

a) **Bedrooms:** Lighting level in bedrooms shall be 15 foot-candles. Lighting shall utilize compact fluorescent fixtures with automatic occupancy sensor detection switching. Switching shall be manual-ON/Automatic OFF.

~~b) — Dining:—~~

c) **Kitchen:** Lighting level in kitchen areas shall be 30 foot-candles with automatic occupancy sensor detection switching. Switching shall be manual-ON/Automatic OFF. Counter top task lighting shall be installed under cabinets utilizing fixtures with 2 foot linear T8 fluorescent lamps with manual on/off switching. Task lighting switching shall be separate from general lighting switching.

- d) **Walk-in-Closet:** Provide automatic occupancy sensor detection switching in each walk-in closet. Switching shall be manual-ON/Automatic OFF.
- 2) **Lobby:** Not Used
- a) **Lobby-CQ Station:** Not Used
- 3) **Centralized Laundry:** Not Used
- 4) **Mechanical, Electrical, and Telecommunication Rooms:** Lighting level in mechanical and electrical rooms shall be 30 foot-candles. Lighting shall utilize fixtures with T8 fluorescent lamps with manual on/off switching.
- 5) **Mail Access Area:** If mail is distributed from an exterior kiosk or through an exterior wall provide a minimum illuminance level of 5-footcandles.
- 6) **Mudroom/Bootwash:** Provide an luminance level of 20-footcandles and automatic occupancy sensor detection switching to control fixture(s) in the mudroom ~~(if mudroom is provided)~~.

3.11. HEATING VENTILATING AND AIR CONDITIONING (HVAC) REQUIREMENTS:

A. HVAC DESIGN CRITERIA:

1) Unit Location and Access:

a) **Dwelling Unit:** ~~Locate all room/dwelling unit HVAC units in equipment closets accessible only through a corridor access door. Locate air filters in the equipment closet. All dwelling unit HVAC units shall have piping and duct connections that allow quick and easy removal and replacement of individual units. All room/dwelling unit HVAC units shall be located in equipment closets accessible only through a corridor access door with keyed deadbolt. Corridor HVAC access doors shall be sized for ease of service and maintenance of HVAC units. Access for maintenance shall not require entry into the dwelling unit. Air filters shall be located in the equipment closet. All dwelling unit HVAC units shall have piping and duct connections that allow quick and easy removal and replacement of individual units.~~

2) Ventilation:

a) **Dwelling Unit:** ~~Provide positive ventilation for each dwelling unit using dedicated outdoor air units. Dedicated outdoor air units (DOAUs) shall continuously supply dehumidified, tempered air ducted directly to each bedroom from DOAU. DOAU supply air ductwork shall not connect to dwelling unit heating/cooling unit. Supply air conditions from DOAU shall be between 68 and 75 degree F dry bulb and no greater than 48 degree F dew point. Supply quantity shall be 3045 cfm per bedroom for a total of 690 cfm per dwelling unit. (Note: This exceeds ASHRAE 62.1 but provides compliance with IMC chapter 4 and maintains slight building positive pressurization with respect to dwelling unit exhaust rate of 7545 cfm). DOAU unit shall be direct expansion (DX) type and cooling/dehumidification shall be available 24/7/365. DOAU units shall be minimum 14 SEER (3.52 COP) and equipped with hot gas reheat and auxiliary heat/reheat coil. Each dwelling unit shall be positively ventilated using dedicated outdoor air units. Dedicated outdoor air units (DOAUs) shall continuously supply dehumidified, tempered air ducted directly to each bedroom from DOAU. DOAU supply air ductwork shall not connect to dwelling unit heating/cooling unit. Supply air conditions from DOAU shall be between 68 and 75 degree F dry bulb and no greater than 48 degree F dew point. Supply quantity shall be 30 cfm per bedroom for a total of 60 cfm per dwelling unit.~~

b) **Corridors:** ~~Ventilate corridors per ASHRAE 62.1 by supply from the dedicated outdoor air unit. Corridors shall be ventilated per ASHRAE 62.1 by supply from the dedicated outdoor air unit.~~

c) **Vending Area:** Not Used

3) Exhaust:

a) **Dwelling unit:** ~~Dwelling unit exhaust shall be 45 cfm continuous through a bathroom exhaust. (Note: This exceeds ASHRAE 62.1 but provides compliance with IMC chapter 4 and maintains slight building positive pressurization with respect to dwelling unit exhaust rate of 45 cfm). DOAU unit shall be direct expansion (DX) type and cooling/dehumidification shall be available 24/7/365. DOAU units shall be~~

~~minimum 14 SEER (3.52 COP) and equipped with hot gas reheat and auxiliary heat/ reheat coil.— Refer to chapter 6 for site specific constraints.— Dwelling unit exhaust shall be 25 cfm continuous through a bathroom exhaust and 50 cfm continuous through a kitchen exhaust. Kitchen and bathroom exhausts shall be separate and make-up air to kitchen and bathroom shall be ducted from bedrooms to kitchen and bathroom spaces. Make-up air for bathroom exhaust shall not transfer from kitchen area. The number of exhaust fans and DOAUs shall be the same, and exhaust fans and DOAUs shall be arranged for and shall include exhaust air energy recovery. Provide exhaust and DOAU systems with variable frequency drives (VFDs) and a control logic that provides reduced ventilation rates during periods of low interior humidity and still meets minimum ASHRAE 62.1 requirements.— Dwelling unit exhaust shall be 45 cfm continuous through a bathroom exhaust.— (Note: This exceeds ASHRAE 62.1 but provides compliance with IMC chapter 4 and maintains slight building positive pressurization with respect to dwelling unit exhaust rate of 45 cfm).— DOAU unit shall be direct expansion (DX) type and cooling/dehumidification shall be available 24/7/365.— Refer to chapter 6 for site specific constraints.— The number of exhaust fans and DOAUs shall be the same, and exhaust fans and DOAUs shall be arranged for and shall include exhaust air energy recovery.— Exhaust and DOAU systems shall be provided with variable frequency drives (VFDs) and shall be provided with a control logic that provides reduced ventilation rates during periods of low interior humidity and still meet minimum ASHRAE 62.1 requirements.~~

b) **Centralized Laundry:** Not Used

4) **Ductwork:**

a) **Kitchen Range Hoods:** Kitchen range hoods shall be the U.L. listed ductless type. Not Used

B. **TEMPERATURE CONTROLS:**

1) **Dwelling Unit:** Dwelling unit room temperature control shall be through the direct digital control (DDC) system. Each dwelling unit shall have a heating/cooling unit with thermostat/temperature control sensor located in common area. Occupant control will include fan selection (on/off) and an occupant temperature set point adjustment mechanism that allows +/- 2 deg F of adjustment from the DDC programmed set points (70 deg F heating, 75 deg F cooling). Additionally, the DDC controls shall monitor each dwelling unit for sub-cooling. The DDC system shall record an alarm event if the space temperature drops below 71 degree F (adjustable) when the outside air is greater than 85 degree F (adjustable). Occupant control shall also include ability to select heating or cooling mode. HVAC system shall be able to provide for year round heating or cooling in individual dwelling units as selected by the occupants. Occupant controller shall not have any provisions for occupant adjustment to occupant controller beyond that stated in this paragraph. Any further adjustments beyond as described shall be by authorized personnel only.~~Dwelling unit room temperature control shall be through the direct digital control (DDC) system.— Each dwelling unit shall have a heating/cooling unit with thermostat/temperature control sensor located in common area.— Occupant control will include fan selection (on/off) and an occupant temperature set point adjustment mechanism that allows +/- 2 deg F of adjustment from the DDC programmed set points (70 deg F heating, 75 deg F cooling).— Additionally, the DDC controls shall monitor each dwelling unit for sub-cooling.— The DDC system shall record an alarm event if the space temperature drops below 71 degree F (adjustable) when the outside air is greater than 85 degree F (adjustable).— Occupant control shall also include ability to select heating or cooling mode.— HVAC system shall be able to provide for year round heating or cooling in individual dwelling units as selected by the occupants.— Occupant controller shall not have any provisions for occupant adjustment beyond that stated in this paragraph.— Any further adjustments beyond as described shall be by authorized personnel only.~~

3.12. ENERGY CONSERVATION REQUIREMENTS:

A. **ENERGY PERFORMANCE:** See Section 5.10.1 for energy performance requirements.~~Document compliance with the above energy performance utilizing the methodology described in ASHRAE 90.1, Appendix G as discussed in section 01 33 16 Design After Award. (see paragraph 5.9 Energy Conservation) (Note: Plug loads shall be included in building energy modeling but are subtracted in the final calculation of Energy Performance.— See section “Design After Award” for additional guidance.) Gas fired boilers and water heaters shall be minimum 90% efficient at operating conditions.— The building, including the building envelope, HVAC systems, service water heating, power,~~

and lighting systems shall be designed to achieve a non-plug load energy consumption that is at least 40% below the consumption of a baseline building meeting the minimum requirements of ANSI/ASHRAE/IESNA Standard 90.1-2007 (see paragraph 5.9 Energy Conservation). (Note: Plug loads shall be included in building energy modeling but are subtracted in the final calculation of Energy Performance. See section "Design-After Award" for additional guidance.)

1) ~~Solar Water Heating:~~

B. ~~REQUIRED ENERGY CONSERVATION FEATURES & TABLES:~~ All design features not described below will be in accordance with the minimum requirements of ANSI/ASHRAE/IESNA Standard 90.1-2007 including conformance with paragraph 5.9.2, which requires purchase of Energy Star and FEMP designated products. Additional energy conservation features may be required to meet the above energy performance. The contractor is responsible for determining and providing additional energy conservation features to meet the energy performance requirement.

1) ~~Energy Conservation Features Table:~~

Climate Zone 2A, Energy Conservation Features Table

Item	Component	Minimum Requirements
Roof	Attic	R-40
	Surface reflectance	0.27
Walls	Light-Weight Construction	R-20
Exposed Floors	Mass	R-10 c.i.
Slabs	Unheated	NR ⁽²⁾
Doors	Swinging	U-0.70
	Non-Swinging	U-1.45
Infiltration	-	0.25 cfm/ft ² @ 75 Pa ⁽³⁾
Vertical Glazing	Window to Wall Ratio (WWR)	10% - 20%
	Thermal transmittance	U-0.45
	Solar heat gain coefficient (SHGC)	0.31
Interior Lighting	Lighting Power Density (LPD)	- 0.9 W/ft ²
	Ballast	Electronic ballast
HVAC	Air-Conditioner	Energy Efficient Heating and Cooling System with Associated Heating and Reheat Coil DOAS with 14 SEER DX coil (3.52 COP), Hot Gas Reheat and Auxiliary Heat/ Reheat Coil
	Gas Furnace	none
	ERV	70% - 75% sensible effectiveness
Economizer	-	no
Ventilation	Outdoor Air Damper	Motorized control
	Demand Control	NR

	Laundry Room	Decoupled ⁽⁵⁾
Ducts	Friction Rate	0.08 in. w.c./100 feet
	Sealing	Seal class B
	Location	Interior only
	Insulation level	R-6 ⁽⁶⁾
Service- Water Heating	Gas storage	90%-E _t
	-	-

2) Table Notes:

(1) NOT USED

(2) NR means there is no requirement or recommendation for a component in this climate.

(3) Increased Building Air tightness. Building air leakage (measured in cfm/ft²) is the average volume of air (measured in cubic feet per minute) that passes through a unit area of the building envelope (measured in square feet) when the building is maintained at a specified internal pressure (measured in Pascals). Testing requirements are specified in Chapter 5.

(4) Dedicated Outdoor Air System. A central dedicated outdoor air system (DOAS) providing the following:

(a) Outside air for building indoor air quality and humidity control

(b) Make-up air for bathroom and kitchen exhausts

(c) Building pressurization to prevent infiltration which allows for reduction of heating/cooling and moisture loads on the system.

(d) NOTE: The Central DOAS does not provide sensible heating or cooling. Sensible loads are provided by a complementing heating and cooling system

(5) Decoupling exhaust and supply systems for laundry rooms. To reduce unneeded energy use for heating and cooling of the make-up air and for air transportation of supply and exhausted air from the dryers, laundry exhaust and supply systems are separated in the efficient building model from the rest of the building exhaust and supply systems. Laundry exhaust system and corresponding make-up systems operate only when dryers are operating.

(6) The duct and pipe insulation values are from the ASHRAE Advanced Energy Design Guide for Small Offices.

C. COMPLIANCE DOCUMENTATION: The required energy conservation features shown in the following tables contribute to the achievement of the above energy performance and are life cycle cost effective for a UEPH facility. Use of the required energy conservation features does not eliminate the requirement for energy analysis calculations documenting compliance. The D-B contractor must document compliance with the above energy performance utilizing the methodology described in ASHRAE 90.1, Appendix G as discussed in section 01 33 16 Design After Award.

B. LOAD & SET POINT SCHEDULES: The following facility schedules must be used in all facility energy simulations for purposes of documenting compliance with energy performance requirement. The peak values indicated for each schedule shall be used for the baseline energy calculation. The hourly peak fraction values for various load components for each schedule shall be used for both the baseline and proposed design energy calculations.

1) UEPH Common Area Internal Load Schedules

Hr	Occupancy			Lighting			Washer/Dryer Use 1			Washer SHW 1		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1-6	0.00	0.00	0.00	0.30	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00

Hr	Occupancy			Lighting			Washer/Dryer Use 1			Washer SHW 1		
7-10	0.20	0.20	0.20	0.30	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00
11-18	0.00	0.00	0.00	0.30	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.80	0.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00
20-21	0.20	0.20	0.20	0.80	0.80	0.80	0.50	0.50	0.50	0.50	0.50	0.50
22-23	0.40	0.40	0.40	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00
24	0.20	0.20	0.20	0.80	0.80	0.80	0.50	0.50	0.50	0.50	0.50	0.50
Peak	Bldg Occupancy/12			1.0 W/ft ²			0.16 kW/Bldg Occupant			1.5 gal/hr/Bldg Occupant @ 110 °F		

NOTES:

1. DATA IN COLUMNS ARE ONLY APPLICABLE WHEN CENTRALIZED LAUNDRY ROOM ARE PROVIDED.

Hr	Occupancy			Lighting			Washer/Dryer Use			Washer SHW		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
-												
1-6	0.00	0.00	0.00	0.30	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00
7-10	0.20	0.20	0.20	0.30	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00
11-18	0.00	0.00	0.00	0.30	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.80	0.80	0.80	0.00	0.00	0.00	0.00	0.00	0.00
20-21	0.20	0.20	0.20	0.80	0.80	0.80	0.50	0.50	0.50	0.50	0.50	0.50
22-23	0.40	0.40	0.40	0.80	0.80	0.80	1.00	1.00	1.00	1.00	1.00	1.00
24	0.20	0.20	0.20	0.80	0.80	0.80	0.50	0.50	0.50	0.50	0.50	0.50
Peak	5 occ/floor			1.0 W/ft ² (10.8 W/m ²)			8.4 kW/floor			53.3 gal/hr/flr (202-L/hr/flr)		

2) UEPH Apartment Unit Internal Load Schedules

Hr	Occupancy			Lighting			Plug Loads			Service Hot Water		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
1-5	0.80	0.75	0.75	0.20	0.20	0.20	0.20	0.20	0.20	0.00	0.00	0.00
6	0.70	0.65	0.75	0.40	0.30	0.20	0.20	0.20	0.20	0.10	0.10	0.10
7	0.60	0.60	0.70	0.70	0.50	0.30	0.40	0.35	0.20	0.40 (0.3) ¹	0.40 (0.3) ¹	0.40 (0.3) ¹
8	0.50	0.50	1.00	0.50	0.50	0.50	0.40	0.40	0.40	0.20	0.20	0.20
9	0.25	0.25	0.00	0.20	0.20	0.20	0.30	0.40	0.40	0.00	0.00	0.00
10-17	0.20	0.20	0.20	0.20	0.20	0.20	0.30	0.30	0.30	0.00	0.00	0.00
18	0.30	0.30	0.30	0.50	0.50	0.50	0.50	0.50	0.50	0.10	0.10	0.10
19	0.50	0.30	0.30	0.70	0.70	0.70	0.50	0.50	0.50	0.10 (0.2) ¹	0.10 (0.2) ¹	0.10 (0.2) ¹
20	0.50	0.50	0.50	0.70	0.70	0.70	0.60	0.50	0.50	0.10	0.10	0.10
21	0.70	0.50	0.50	0.70	0.70	0.70	0.60	0.50	0.50	0.00	0.00	0.00
22	0.70	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.00	0.00
23	0.80	0.75	0.75	0.40	0.40	0.40	0.40	0.50	0.50	0.00	0.00	0.00
24	0.80	0.75	0.75	0.20	0.20	0.20	0.20	0.20	0.20	0.00	0.00	0.00
Peak	2 occ/unit			1.1 W/ft ²			1.7 W/ft ² with common laundries 53.5 W/ft ² with individual washer/dryers			40 gal/hr/unit @ 110 °F with common laundries 63 gal/hr/unit @ 110 °F with individual washers		

NOTES:

1. FACTORS FOR UNITS WITH INDIVIDUAL WASHERS.

Hr	Occupancy			Lighting			Plug Loads			Service Hot Water		
	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun	Wk	Sat	Sun
-												

Hr	Occupancy			Lighting			Plug Loads			Service Hot Water		
1-5	0.80	0.75	0.75	0.20	0.20	0.20	0.20	0.20	0.20	0.00	0.00	0.00
6	0.70	0.65	0.75	0.40	0.30	0.20	0.20	0.20	0.20	0.10	0.10	0.10
7	0.60	0.60	0.70	0.70	0.50	0.30	0.40	0.35	0.20	0.40	0.40	0.40
8	0.50	0.50	1.00	0.50	0.50	0.50	0.40	0.40	0.40	0.20	0.20	0.20
9	0.25	0.25	0.00	0.20	0.20	0.20	0.30	0.40	0.40	0.00	0.00	0.00
10-17	0.20	0.20	0.20	0.20	0.20	0.20	0.30	0.30	0.30	0.00	0.00	0.00
18	0.30	0.30	0.30	0.50	0.50	0.50	0.50	0.50	0.50	0.10	0.10	0.10
19	0.50	0.30	0.30	0.70	0.70	0.70	0.50	0.50	0.50	0.10	0.10	0.10
20	0.50	0.50	0.50	0.70	0.70	0.70	0.60	0.50	0.50	0.10	0.10	0.10
21	0.70	0.50	0.50	0.70	0.70	0.70	0.60	0.50	0.50	0.00	0.00	0.00
22	0.70	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.00	0.00	0.00
23	0.80	0.75	0.75	0.40	0.40	0.40	0.40	0.50	0.50	0.00	0.00	0.00
24	0.80	0.75	0.75	0.20	0.20	0.20	0.20	0.20	0.20	0.00	0.00	0.00
Peak	2 occ/unit			1.1 W/ft ² (10.8 W/m ²)			1.7 W/ft ² (18 W/m ²)			40 gal/hr/person (114 L/hr/person)		

3) UEPH Apartment Unit Internal Load Schedules

Hr	Refrigerator			Range and Oven		
	Wk	Sat	Sun	Wk	Sat	Sun
1-6	1.00	1.00	1.00	0.01	0.01	0.01
7-16	1.00	1.00	1.00	0.04	0.04	0.04
17-18	1.00	1.00	1.00	0.05	0.05	0.05
19-20	1.00	1.00	1.00	0.11	0.11	0.11
21-23	1.00	1.00	1.00	0.10	0.10	0.10
24	1.00	1.00	1.00	0.03	0.03	0.03
Peak	76.36 W/unit			68.95 W/unit		

4) UEPH Apartment Unit Thermostat Set-Point Schedules

Hr	Heating (°F)			Cooling (°F)		
	Wk	Sat	Sun	Wk	Sat	Sun
>						
1-24	68	68	68	75	75	75

Hr	Heating (°F)			Heating (°C)			Cooling (°F)			Cooling (°C)		
	Wk	Sat	Sun									
>												
1-24	68	68	68	20	20	20	75	75	75	24	24	24

5) UEPH Unoccupied Zones (ie stairwells, mechanical rooms) Thermostat Set-Point Schedules

Hr	Heating (°F)		
	Wk	Sat	Sun
>			
1-24	55	55	55

Hr	Heating (°F)			Heating (°C)		
	Wk	Sat	Sun	Wk	Sat	Sun
>						
1-24	55	55	55	12.8	12.8	12.8

3.13. FIRE PROTECTION REQUIREMENTS

A. **FIRE DETECTION AND ALARM SYSTEMS:** ~~A National Institute for Certification of Engineering Technologies (NICET) Level 3 (minimum) technician shall supervise the fire alarm system installation. The fire alarm system installation shall be supervised by a National Institute for Certification of Engineering Technologies (NICET) Level 3 (minimum) technician.~~

1) **Software:** ~~All software, software locks, special tools and any other proprietary equipment required to maintain, add devices to or delete devices from the system, or test the Fire Alarm system shall become property of the Government and be furnished to the Contracting Officer's Representative prior to final inspection of the system. All software, software locks, special tools and any other proprietary equipment required to maintain, add devices to or delete devices from the system, or test the Fire Alarm system shall become property of the Government and be furnished to the Contracting Officer's Representative prior to final inspection of the system.~~

2) **Smoke Detectors:** ~~Provide smoke detectors in all bedrooms. Smoke detectors shall be provided in all bedrooms.~~ Smoke detectors in bedrooms shall be monitored. Tampering with a smoke detector shall send a trouble signal. Trouble signals shall be transmitted to the fire department.

3.14. **SEE PARAGRAPH 6.14 SUSTAINABLE DESIGN – NOT USED**

3.15. **SEE PARAGRAPH 6.15 ENVIRONMENTAL – NOT USED**

3.16. **SEE PARAGRAPH 6.16 PERMITS – NOT USED**

3.17. **SEE PARAGRAPH 6.17 DEMOLITION – NOT USED**

3.18. **SEE PARAGRAPH 6.18 ADDITIONAL FACILITIES – NOT USED**

3.19. **EQUIPMENT AND FURNITURE REQUIREMENTS**

3.19.1. **FURNISHINGS**

A. **FURNITURE LIST/CHARTS:**

1) **Dwelling Unit Furniture:**

a) **Bedrooms:** Bedroom shall be able to accommodate the following furniture with adequate circulation for one occupant:

(1) One twin bed with headboard and footboard 40" wide x 85 long".

(2) One entertainment center 36" wide x 25" deep x 76" high.

(3) One chest of drawers 36" wide x 20" deep.

(4) One nightstand 26" wide x 20" deep.

(5) One desk 60" wide x 26" deep with retractable keyboard tray and overhead study carrel.

(6) One desk chair 19 ½" wide by 18" deep.

b) **Kitchens:** If counter seating/dining is not provided, kitchen layout shall have a dining/seating space which can accommodate the furnishing listed below:

(1) One 36 inch diameter dining table.

(2) Two chairs for the dining table.

B. **CASEWORK:** Provide cabinets complying with AWI Quality Standards.

1) **Dwelling Unit Casework:**

a) **Kitchens:** Provided a minimum of twelve (12) linear feet of base cabinet systems with twelve (12) linear feet of standard height counter and twelve (12) linear feet of wall cabinet systems. Twelve (12) linear feet of standard height counter includes required sink. In addition to the twelve (12) linear feet of standard height counter, kitchen layout shall accommodate a minimum of 36 linear inches of counter style seating and dining for two people, or provide space for dining table outside of the kitchen area. Provide a minimum of two 18 inches wide drawer units in the kitchen base cabinet system. ~~Furnish Future-future~~ dishwasher space ~~shall be furnished~~ with a removable built-in full width shelf dividing it into two equal spaces, and a pair of removable swing doors matching the rest of the kitchen cabinetry.

~~b) **Vanities:**~~

C. **WINDOW TREATMENTS:** Provide horizontal mini blinds at all exterior windows. Uniformity of window covering color and material shall be maintained to the maximum extent possible throughout each building. Blinds in barracks bedrooms shall be room darkening mini blinds.

3.19.2. EQUIPMENT

A. RESIDENTIAL APPLIANCES:

1) **Kitchen Appliances:** Each dwelling unit shall have a full kitchen with adequate space and circulation to accommodate:

a) **Refrigerator:** A full size refrigerator 28 inches wide.

b) **Range/Cooktop:** Range shall be GFGI electric oven/range 30 inches wide, with a CFCI built-in combination 30 inch wide vent hood and microwave oven.

~~c) **Cooktop:** Cooktop shall be CFCI built-in two-burner electric cooktop with a CFCI built-in combination vent hood and convection/microwave oven. Cooktop shall be CFCI built-in four-burner electric cooktop with a CFCI built-in combination vent hood and convection/microwave oven.~~

d) **Garbage Disposer:** Furnish and install a garbage disposer at the kitchen sink.

2) **Dwelling Laundry:** Washer and dryer shall be GFGI full-size heavy duty residential side by side or stackable type.

B. COMMERCIAL EQUIPMENT:

1) **Laundry Equipment:** Not Used

2) **Vending and Ice Machine Equipment:** Not Used

3.20. FACILITY SPECIFIC REFERENCES: (NOT USED)

4.0 APPLICABLE CRITERIA (REV 2.34– 30 JUN 2012)

Unless a specific document version or date is indicated, use criteria from the most current references, including any applicable addenda, unless otherwise stated in the contract or task order, as of the date of the Contractor's latest accepted proposal or date of issue of the contract or task order solicitation, whichever is later. In the event of conflict between References and/or Applicable Military Criteria, apply the most stringent requirement, unless otherwise specifically noted in the contract or task order.

4.1. INDUSTRY CRITERIA

Applicable design and construction criteria references are listed in Table 1 below. This list is not intended to include all criteria that may apply or to restrict design and construction to only those references listed. See also Paragraph 3 for additional facility-specific applicable criteria.

Table 1: Industry Criteria

Air Conditioning and Refrigeration Institute (ARI)	
ARI 310/380	Packaged Terminal Air-Conditioners and Heat Pumps
ARI 440	Room Fan-Coil and Unit Ventilator
ANSI/ARI 430-99	Central Station Air Handling Units
ARI 445	Room Air-Induction Units
ARI 880	Air Terminals
Air Movement and Control Association (AMCA)	
AMCA 210	Laboratory Methods of Testing Fans for Rating
American Architectural Manufacturers Association (AAMA)	
AAMA 605	Voluntary Specification Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels
AAMA 607.1	Voluntary Guide Specifications and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum
AAMA 1503	Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors, and Glazed Wall Sections
American Association of State Highway and Transportation Officials (AASHTO)	

	Roadside Design Guide [guardrails, roadside safety devices]
	Standard Specifications for Transportation Materials and Methods of Sampling and Testing [Road Construction Materials]
	Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals
	Guide for Design of Pavement Structures, Volumes 1 and 2 [pavement design guide]
	A Policy of Geometric Design of Highways and Streets
American Bearing Manufacturers Association (AFBMA)	
AFBMA Std. 9	Load Ratings and Fatigue Life for Ball Bearings
AFBMA Std. 11	Load Ratings and Fatigue Life for Roller Bearings
American Boiler Manufacturers Association (ABMA)	
ABMA ISEI	Industry Standards and Engineering Information
American Concrete Institute	
ACI 302.2R	Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials
ACI 318	Building Code Requirements for Structural Concrete
ACI SP-66	ACI Detailing Manual
ACI 530	Building Code Requirements for Masonry Structures
ADA Standards for Accessible Design	
See US Access Board	ADA and ABA Accessibility Guidelines for Buildings and Facilities, Chapters 3-10.
American Institute of Steel Construction (AISC)	
	Manual of Steel Construction – 13 th Edition (or latest version)

American Iron and Steel Institute	
AISI S100	North American Specification for the Design of Cold-Formed Steel Structural Members
American National Standards Institute 11 (ANSI)	
ANSI Z21.10.1	Gas Water Heaters Vol. 1, Storage water Heaters with Input Ratings of 75,000 Btu per Hour or less
ANSI Z124.3	American National Standard for Plastic Lavatories
ANSI Z124.6	Plastic Sinks
ANSI Z21.45	Flexible Connectors of Other Than All-Metal Construction for Gas Appliances
ANSI/IEEE C2	National Electrical Safety Code
ANSI/AF&PA NDS	National Design Specification for Wood Construction
American Society of Civil Engineers (ASCE)	
ASCE 7	Minimum Design Loads for Buildings and Other Structures
ASCE 3777	Manual of Practice No. 77, Design and Construction of Urban Stormwater Management Systems Design and Construction of Sanitary and Storm Sewers, Manuals and Reports on Engineering Practice [sanitary sewer and storm drain design criteria]
ASCE 60	Gravity Sanitary Sewer Design and Construction (ASCE Manuals and Reports on Engineering Practice No. 60)
ASCE/SEI 31-03	Seismic Evaluation of Existing Buildings [Existing Building Alteration/Renovation]
ASCE/SEI 41-06	Seismic Rehabilitation of Existing Buildings [Existing Building Alteration/Renovation]
American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)	
ASHRAE 90.1	ANSI/ASHRAE/IESNA 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings

ASHRAE Guideline 0	The Commissioning Process
ASHRAE Guideline 1.1	The HVAC Commissioning Process
ASHRAE Handbooks	Fundamentals, HVAC Applications, Systems and Equipment, Refrigeration (Applicable, except as otherwise specified)
ASHRAE Standard 15	Safety Standard for Refrigeration Systems
ASHRAE Standard 62.1	Ventilation for Acceptable Indoor Air Quality
ASHRAE Standard 55	Thermal Environmental Conditions for Human Occupancy (Design portion is applicable, except where precluded by other project requirements.)
ASHRAE Standard 189.1-2009	Standard for the Design of High-Performance Green Buildings (ANSI Approved; USGBC and IES Co-sponsored) , - (APPLICABLE TO THE EXTENT SPECIFICALLY CALLED OUT IN THE CONTRACT)
American Society of Mechanical Engineers International (ASME)	
ASME BPVC SEC VII	Boiler and Pressure Vessel Code: Section VII Recommended Guidelines for the Care of Power Boilers
ASME A17.1	Safety Code for Elevators and Escalators
ASME B 31 (Series)	Piping Codes
American Water Works Association (AWWA)	
	Standards [standards for water line materials and construction]
American Welding Society	
	Welding Handbook
	Welding Codes and Specifications (as applicable to application, see International Building Code for example)
Architectural Woodwork Institute (AWI)	
Latest Version	AWI Quality Standards

Associated Air Balance Council (AABC)	
AABC MN-1	National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems
	AABC Associated Air Balance Council Testing and Balance Procedures
ASTM International	
ASTM C1060-90(Standard Practice for Thermographic Inspection of Insulation Installations in Envelope Cavities of Frame Buildings
ASTM E 779	Standard Test Method for Determining Air Leakage Rate by Fan Pressurization
ASTM E1827-96	Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door
Builders Hardware Manufacturers Association (BHMA)	
ANSI/BHMA	The Various BHMA American National Standards
Building Industry Consulting Service International	
	Telecommunications Distribution Methods Manual (TDMM)
	Customer-Owned Outside Plant Design Manual (CO-OSP)
Code of Federal Regulations (CFR)	
49 CFR 192	Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards
10 CFR 430	Energy Conservation Program for Consumer Products
Consumer Electronics Association	
CEA 709.1B	Control Network Protocol Specification
CEA 709.3	Free-Topology Twisted-Pair Channel Specification
CEA 852	Tunneling Component Network Protocols Over Internet Protocol Channels

Electronic Industries Association (EIA)	
ANSI/EIA/TIA 568	Structured Cabling Series
ANSI/EIA/TIA 569	Commercial Building Standard for Telecommunications Pathways and Spaces (includes ADDENDA)
ANSI/TIA/EIA-606	Administrative Standard for the Telecommunications Infrastructure of Commercial Buildings
J-STD EIA/TIA 607	Commercial Building Grounding and Bonding Requirements for Telecommunications
Federal Highway Administration (FHWA)	
	Manual on Uniform Traffic Control Devices for Streets and Highways [signage and pavement markings for streets and highways]
FHWA-NHI-01-021	Hydraulic Engineering Circular No. 22, Second Edition, URBAN DRAINAGE DESIGN MANUAL
Illuminating Engineering Society of North America (IESNA)	
IESNA RP-1	Office Lighting
IESNA RP-8	Roadway Lighting
IESNA Lighting Handbook	Reference and Application
Institute of Electrical and Electronics Engineers Inc. (IEEE)	
	Standard for Use of the International System of Units (SI): the Modern Metric System
Standard 1100	Recommended Practice for Powering and Grounding Sensitive Electronic Equipment
International Code Council (ICC)	
IBC 2009	International Building Code Note: All references in the International Building Code to the International Electrical Code shall be considered to be references to NFPA 70.

	<p>All references in the International Building Code to the International Fuel Gas Code shall be considered to be references to NFPA 54 and NFPA 58.</p> <p>All references in the International Building Code to the International Fire Code and Chapter 9 shall be considered to be references to Unified Facilities Criteria (UFC) 3-600-01.</p>
IMC	<p>International Mechanical Code –</p> <p>Note: For all references to “HEATING AND COOLING LOAD CALCULATIONS”, follow ASHRAE 90.1</p> <p>Note: For all references to “VENTILATION”, follow ASHRAE 62.1</p>
IRC	International Residential Code
IPC	International Plumbing Code
IEC	Energy Conservation Code (IEC) –Applicable only to the extent specifically referenced herein. Refer to Paragraph 5, ENERGY CONSERVATION requirements.
IGC	International Gas Code - not applicable. Follow NFPA 54, National Fuel Gas Code and NFPA 58, Liquefied Petroleum Gas Code.
International Organization for Standardization (ISO)	
ISO 6781:1983	Qualitative detection of thermal irregularities in building envelopes – infrared method
LonMark International (LonMark)	
LonMark Interoperability Guidelines	(available at www.lonmark.org), including: Application Layer Guidelines, Layer 1-6 Guidelines, and External Interface File (XIF) Reference Guide
LonMark Resource Files	(available at www.lonmark.org), including Standard Network Variable Type (SNVT) definitions
Metal Building Manufacturers Association (MBMA)	
	Metal Building Systems Manual
Midwest Insulation Contractors Association (MICA)	

	National Commercial and Industrial Insulation Standards Manual
National Association of Corrosion Engineers International (NACE)	
NACE RP0169	Control of External Corrosion on Underground or Submerged Metallic Piping Systems
NACE RP0185	Extruded, Polyolefin Resin Coating Systems with Adhesives for Underground or Submerged Pipe
NACE RP0285	Corrosion Control of Underground Storage Tank Systems by Cathodic Protection
NACE RP0286	Electrical Isolation of Cathodically Protected Pipelines
National Electrical Manufacturers Association (NEMA)	
National Environmental Balancing Bureau (NEBB)	
	Procedural Standards Procedural Standards for Testing Adjusting Balancing of Environmental Systems
National Fire Protection Association (NFPA)	
NFPA 10	Standard for Portable Fire Extinguishers
NFPA 13	Installation of Sprinkler Systems
NFPA 13R	Residential Occupancies up to and Including Four Stories in Height Sprinkler Systems
NFPA 14	Standard for the Installation of Standpipes and Hose Systems
NFPA 20	Installation of Centrifugal Fire Pumps
NFPA 24 NFPA 25	Standard for the Installation of Private Fire Service Mains and Their Appurtenances [underground fire protection system design] Inspection, Testing And Maintenance Of Water-Based Fire Protection Systems
NFPA 30	Flammable and Combustible Liquids Code
NFPA 30A	Motor Fuel Dispensing Facilities and Repair Garages

NFPA 31	Installation of Oil Burning Equipment
NFPA 54	National Fuel Gas Code
NFPA 58	Liquefied Petroleum Gas Code
NFPA 70	National Electrical Code
NFPA 70E	Standard for Electrical Safety in the Workplace
NFPA 72	National Fire Alarm Code
NFPA 76	Fire Protection of Telecommunications Facilities
NFPA 80	Standard for Fire Doors and Fire Windows
NFPA 90a	Installation of Air Conditioning and Ventilating Systems
NFPA 96	Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations
NFPA 101	Life Safety Code
NFPA 780	Standard for the Installation of Lightning Protection Systems
National Roofing Contractor's Association (NRCA)	
	Roofing and Waterproofing Manual
National Sanitation Foundation, International	
NSF/ANSI Std. 2, 3, 4, 5, 6, 7, 8, 12, 13, 18, 20, 21, 25, 29, 35, 36, 37, 51, 52, 59, 169	Food Equipment Standards
ANSI/UL Std. 73, 197, 471, 621, 763	Food Equipment Standards
CSA Std. C22.2 No. 109, 120, 195	Food Equipment Standards
Occupational Safety and Health Administration (OSHA)	

Title 29, Part 1926	OSHA Construction Industry Standards, Title 29, Code of Federal Regulations, Part 1926, Safety and Health Regulations for Construction
Plumbing and Drainage Institute (PDI)	
PDI G 101	Testing and Rating Procedure for Grease Interceptors with Appendix of Sizing and Installation Data
PDI WH201	Water Hammer Arrestors
Precast Concrete Institute	
PCI Design Handbook	Precast and Prestressed Concrete
Sheet Metal and Air Conditioning Contractor's National Association (SMACNA)	
SMACNA HVAC Duct Construction Standards	HVAC Duct Construction Standards - Metal and Flexible
SMACNA Architectural Manual	Architectural Sheet Metal Manual
SMACNA HVAC TAB	HVAC Systems - Testing, Adjusting and Balancing
State/Local Regulations	
	State Department of Transportation Standard Specifications for Highway and Bridge Construction
	Sedimentation and Erosion Control Design Requirements
	Environmental Control Requirements
	Storm Water Management Requirements
Steel Door Institute (SDI)	
ANSI A250.8/SDI 100	Standard Steel Doors and Frames
Steel Deck Institute	
	SDI Diaphragm Design Manual

Steel Joist Institute	
	Catalog of Standard Specifications and Load Tables for Steel Joists and Joist Girders
Underwriters Laboratories (UL)	
UL 96A	Installation Requirements for Lightning Protection Systems
UL 300	Standard for Safety for Fire Testing of Fire Extinguishing Systems for Protection of Restaurant Cooking Areas
UNITED STATES ACCESS BOARD: U.S. ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD	
ADA and ABA Accessibility Guidelines for Buildings and Facilities	<p>ABA Accessibility Standard for DoD Facilities</p> <p>Derived from the ADA and ABA Accessibility Guidelines: Specifically includes: ABA Chapters 1 and 2 and Chapters 3 through 10.</p> <p>Use this reference in lieu of IBC Chapter 11.</p> <p>Excluded are:</p> <p>(a) Facilities, or portions of facilities, on a military installation that are designed and constructed for use exclusively by able-bodied military personnel (See Paragraph 3 for any reference to this exclusion).</p> <p>(b) Reserve and National Guard facilities, or portions of such facilities, owned by or under the control of the Department of Defense, that are designed and constructed for use exclusively by able-bodied military personnel. (See paragraph 3 for any reference to this exclusion).</p>
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES	
	FDA National Food Code
U.S. GREEN BUILDING COUNCIL (USGBC)	
LEED-NC	Green Building Rating System for New Construction & Major Renovations
	Application Guide for Multiple Buildings and On-Campus Building Projects

4.2. MILITARY CRITERIA

The project shall conform to the following criteria. Certain design impacts and features due to these criteria are noted for the benefit of the offeror. However, all requirements of the referenced criteria will be applicable, whether noted or not, unless otherwise specified herein.

- 4.2.1. Energy Policy Act of 2005 (Public Law 109-58) (applies only to the extent specifically implemented in the contract, which may or may not directly cite or reference EPACT)
- 4.2.2. Energy Independence and Security Act of 2007- "EISA" (applies only to the extent specifically implemented in the contract)
- 4.2.3. Executive Order 12770: Metric Usage In Federal Government
- (a) Metric design and construction is required except when it increases construction cost. Offeror to determine most cost efficient system of measurement to be used for the project.
- 4.2.4. TB MED 530: Occupational and Environmental Health Food Sanitation
- 4.2.5. Unified Facilities Criteria (UFC) 3-410-01FA: Heating, Ventilating, and Air Conditioning - applicable only to the extent specified in paragraph 5, herein.
- 4.2.6. UFC 3-101-01 Architectural Design, (Applies only to the extent specifically implemented herein).
- 4.2.7. UFC 3-210-10, Low Impact Development, applicable only to the extent specified herein.
- 4.2.8. UFC 3-600-01 Design: Fire Protection Engineering for Facilities. Use the latest edition of the IBC in coordination with this UFC. Use Chapters 3, 6, 7, 33 and UFC 3-600-01. If any conflict occurs between these Chapters and UFC 3-600-01, the requirements of UFC 3-600-01 take precedence. Use UFC 3-600-01 in lieu of IBC Chapters 4, 8,9,10.
- 4.2.9. UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings
- 4.2.10. UFC 4-023-03 Design of Buildings to Resist Progressive Collapse (Use most recent version, regardless of references thereto in other publications)
- (a) Note the option to use tie force method or alternate path design for Occupancy Category II.
- 4.2.11. UFC 4-021-01 Design and O&M: Mass Notification Systems
- 4.2.12. UFC 3-420-01, Plumbing Systems, (Applicable only to the extent specifically implemented herein).
- 4.2.13. Technical Criteria for Installation Information Infrastructure Architecture (I3A)
- (a) Email: DetrickISECI3Aguide@conus.army.mil
- 4.2.14. U.S. Army Information Systems Engineering Command (USAISEC) SECRET Internet Protocol (IP) Router Network (SIPRNET) Technical Implementation Criteria (STIC).. See Paragraph 3 for applicability to specific facility type. May not apply to every facility. This is mandatory criteria for those facilities with SIPRNET.
- 4.2.14.1. Draft Guide Specification for Section 27 05 28 PROTECTIVE DISTRIBUTION SYSTEM (PDS) FOR SIPRNET COMMUNICATIONS SYSTEMS, found at http://mrsi.usace.army.mil/rfp/Shared%20Documents/SECTION_270528-v3.pdf

5.0 GENERAL TECHNICAL REQUIREMENTS (REV 2.2 - 31 OCT 2012)

This paragraph contains technical requirements with general applicability to Army facilities. See also Paragraph 3 for facility type-specific operational, functional and technical requirements. Residential or similar grade finishes and materials are not acceptable for inclusion in these buildings, unless otherwise specifically allowed. References to ASHRAE Standard 189.1 are to ASHRAE Standard 189.1-2009 unless otherwise specified in this Paragraph.

5.1. SITE PLANNING AND DESIGN

5.1.1. STANDARDS AND CODES: The site planning and design shall conform to APPLICABLE CRITERIA and to paragraph 6, PROJECT SPECIFIC REQUIREMENTS.

5.1.2. SITE SELECTION: Meet the allowable site requirements of ASHRAE Standard 189.1, Section 5.3, Mandatory Provisions, and either Section 5.4, Prescriptive Option, or Section 5.5, Performance Option; and ASHRAE Standard 189.1, Section 10.3.2.1.1, unless otherwise specified by the current Department of Defense Minimum Antiterrorism Standards for Buildings, UFC 4-010-01.

5.1.3. SITE PLANNING OBJECTIVES: Group buildings in configurations that create a sense of community and promote pedestrian use. See Paragraph 3 for additional site planning requirements relating to building functions.

5.1.3.1. Enclosures and Visual Screens: Provide enclosures and or visual screening devices for Outdoor Utility such as dumpsters, emergency generators, transformers, heating, ventilation, and air conditioning units from streetscape and courtyard views to limit visual impact. Enclosures shall be compatible with the building they serve and accessible by vehicle. The location of dumpsters can have a significant visual impact and should be addressed as part of an overall building design and incorporated in site planning.

5.1.3.2. Dumpster Pads: Where included in the project, dumpster pads shall be concrete (minimum of 8 inches thick on 4 inch base course, unless site conditions dictate more conservative requirements) and directly accessible by way of a paved service drive or parking lot with adequate overhead clearance for collection vehicles. Provide space at dumpster areas for recycling receptacles. Coordinate with Installation on recycling receptacle types, sizes and access requirements and provide space at dumpster areas to accommodate them.

5.1.3.3. Vehicular Circulation: Apply design vehicle templates provided by the American Association of State Highway and Transportation Officials (AASHTO) to the site design. The passenger car class includes passenger cars and light trucks, such as vans and pick-ups. The passenger car template is equivalent to the non-organizational – privately owned vehicle (POV). The truck class template includes single-unit trucks, recreation vehicles, buses, truck tractor-semi-trailer combinations, and trucks or truck tractors with semi-trailers in combination with full trailers. Provide vehicle clearances required to meet traffic safety for emergency vehicles, service vehicles, and moving vans. Provide required traffic control signage Site entrances and site drive aisles shall maximize spacing between drives, incorporate right-angle turns, and limit points of conflict between traffic. Design Services Drives to restrict access to unauthorized vehicles by removable bollards, gates, or other barriers to meet Anti-Terrorism/Force Protection (ATFP) requirements. Orient service drives to building entrances other than the primary pedestrian entry at the front of the building.

5.1.3.4. Emergency Vehicle Access: Provide Emergency Vehicle Access around the facility and shall be in accordance with AT/FP requirements. Maintain a 33-foot clear zone buffer for emergency vehicles, designed to prevent other vehicles from entering the AT/FP standoff to the building.

5.1.3.5. Stormwater Management and Low Impact Design: Employ design and construction strategies (Best Management Practices, or BMPs) that reduce stormwater runoff, reduce discharges of polluted

water offsite and maintain or restore predevelopment hydrology with respect to temperature, rate, volume, quality and duration of flow. See "Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act (EISA)" (http://www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_eisa.pdf) and Paragraph 6, PROJECT SPECIFIC requirements for additional information. BMPs used to treat runoff must be capable of removing 80% of the average annual postdevelopment total suspended solids (TSS) load based on existing monitoring reports. BMPs are considered to meet these criteria if:

- (a) They are designed in accordance with standards and specifications from a state or local program that has adopted these performance standards OR
- (b) There exists infield performance monitoring data demonstrating compliance with the criteria. Data must conform to accepted protocol (e.g., Technology Acceptance Reciprocity Partnership [TARP], Washington State Department of Ecology) for BMP monitoring.
- (c) In addition, meet the requirements of ASHRAE Standard 189.1, Section 5.3, and either Section 5.4, Prescriptive Option or Section 5.5 Performance Option for Site Development and UFC 3-210-10. If any of the requirements in this subsection are prohibited by state law, state law shall take precedence but only as to those requirements found to be in conflict.

5.1.3.6. Erosion and Sedimentation Control: Meet the requirements of ASHRAE Standard 189.1, Section 10.3.1.3.

5.1.4. EXTERIOR SIGNAGE: Provide exterior signage in accordance with Appendix H, Exterior Signage. Provide exterior NO SMOKING signage that conveys building and grounds smoking policy. Meet the requirements of ASHRAE Standard 189.1, Section 8.3.1.4 (a).

5.1.5. EXISTING UTILITIES: Base utilities maps and capacities for this site are included as part of this RFP. See paragraph 6 for more detailed information.

5.2. SITE ENGINEERING

5.2.1. STANDARDS AND CODES: The site engineering shall conform to APPLICABLE CRITERIA.

5.2.2. SOILS:

5.2.2.1. Subsurface Conditions Report: A report has been prepared to characterize the subsurface conditions at the project site and is appended to these specifications. The report provides a general overview of the soil and geologic conditions with detailed descriptions at discrete boring locations. The Contractor's team shall include a licensed geotechnical engineer to interpret the report and develop earthwork and foundation recommendations and design parameters in which to base the contractor's design. If any additional subsurface investigation or laboratory analysis is required to better characterize the site or develop the final design, the Contractor shall perform it under the direction of a licensed geotechnical engineer. There will be no separate payment for the cost of additional tests. If differences between the Contractor's additional subsurface investigation and the government provided soils report or the reasonably expected conditions require material revisions in the design, an equitable adjustment may be made, in accordance with the provisions of the Differing Site Conditions clause. The basis for the adjustment would be the design and construction appropriate for the conditions described in the Government furnished report or the reasonably expected conditions, in comparison with any changes required by material differences in the actual conditions encountered, in accordance with the terms of contract clause Differing Site Conditions.

5.2.2.2. Geotechnical Evaluation Report: The contractor's licensed geotechnical engineer shall prepare a final geotechnical evaluation report, to be submitted along with the first foundation design submittal, as described in Section 01 33 16, *Design After Award*.

5.2.3. VEHICLE PAVEMENTS: (as applicable to the project)

5.2.3.1. Pavement Requirements: Except in Department of Energy (DOE) Climate Zones 6, 7, and 8, meet ASHRAE Standard 189.1, Section 5.3.2.1. If the project is located in DOE Climate Zones 6, 7, or 8, design procedures and materials shall conform to one of the following: 1) the USACE Pavement Transportation Computer Assisted Structural Engineering (PCASE) program, 2) American Association of State Highway and Transportation Officials (AASHTO) or, 3) the applicable state Department of Transportation standards in which the project is located. See Paragraph 5.2.2.2 and Section 01 33 16 for required information for the Contractor's geotechnical evaluation report. The minimum flexible pavement section shall consist of 2 inches of asphalt and 6 inches of base or as required by the pavement design, whichever is greater, unless specifically identified by the Government to be a gravel road. Design roads and parking areas for a life expectancy of 25 years with normal maintenance. Parking area for tactical vehicles (as applicable to the project) shall be Portland Cement Concrete (PCC) rigid pavement design. For concrete pavements, submit joint layout plan for review and concurrence. Design pavements for military tracked vehicles (as applicable to the project) IAW USACE PCASE. Traffic estimates for each roadway area will be as shown on the drawings or listed in Section 01 10 00 Paragraph 6.4.4. Pavement markings and traffic signage in all DOE Climate Zones shall comply with the Installation requirements and with the Manual on Uniform Traffic Control Devices. Develop a Transportation Management Plan that meets the requirements of ASHRAE Standard 189.1, Section 10.3.2.4.1.

5.2.3.2. Parking Requirements. This subsection is applicable only to parking lots/areas that permit POV parking:

(a) General Parking Requirements:

(1) Design POV parking spaces for the type of vehicles anticipated, but shall be a minimum of 9 ft by 18 ft for POVs, except for two wheel vehicles.

(2) Handicap POV parking. All handicap POV parking lots (where applicable in the facility specific requirements) shall meet the ADA and ABA Accessibility Guidelines for accessible parking spaces.

(3) All handicap POV parking lots (where applicable in the facility specific requirements) shall meet the ADA and ABA Accessibility Guidelines for accessible parking spaces. Design POV parking spaces for the type of vehicles anticipated, but shall be a minimum of 9 ft by 18 ft for POVs, except for two wheel vehicles.

(b) Preferred Parking:

(c) Low-Emitting and Fuel Efficient Vehicles:

5.2.3.3. Sidewalks: Design the network of walks throughout the complex (where applicable) to facilitate pedestrian traffic among facilities, and minimize the need to use vehicles. Incorporate sidewalks to enhance the appearance of the site development, while creating a sense of entry at the primary patron entrances to the buildings. Minimum sidewalk requirements are in Paragraph 3, where applicable and/or paragraph 6 and/or site plans, where applicable. In addition, meet the requirements of ASHRAE Standard 189.1, Section 5.3.2.1.

5.2.4. CATHODIC PROTECTION: Provide cathodic protection systems for all underground metallic systems and metallic fittings/portions of non-metallic, underground systems, both inside and outside the building 5 foot line that are subject to corrosion. Coordinate final solutions with the installation to insure an approach that is consistent with installation cathodic protection programs.

5.2.5. UTILITIES: See Paragraph 6.4.6 for specific information on ownership of utilities and Paragraph 5.9.3.5 below for utility metering requirements.

5.2.6. PERMITS: The CONTRACTOR shall be responsible for obtaining all permits (local, state and federal) required for design and construction of all site features and utilities.

5.2.7. IRRIGATION: Landscape and irrigation systems, if provided, shall comply with ASHRAE Standard 189.1, Section 6.3, Mandatory Provisions, and either Section 6.4, Prescriptive Option, or Section 6.5, Performance Option. In addition, meet the requirements of ASHRAE Standard 189.1, Standard 10.3.2.

5.2.8. EPA WATERSENSE PRODUCTS AND CONTRACTORS: Except where precluded in this Paragraph or by other project requirements, use EPA WaterSense labeled products and irrigation contractors that are certified through a WaterSense labeled program where available.

5.3. COMMISSIONING: Execute total building commissioning practices in order to verify performance of building components and systems and ensure that Owner Project Requirements (OPR) are met. Adopt and follow the requirements of ASHRAE Standard 189.1 Section 10.3.1.2, ASHRAE Guideline 0, ASHRAE Guideline 1.1, LEED Energy and Atmosphere (EA) Prerequisite 1 and LEED EA Credit 3. Do not use the sampling techniques discussed in ASHRAE Guideline 1.1 and in ASHRAE Guideline 0. Commission 100% of the HVAC controls and equipment. Commissioning activities shall be consistent with the Pre-Design Phase, Design Phase, Construction Phase and Occupancy and Operations Phase. Perform and document a post occupancy system monitoring and inspection to review building operation within 12 months after beneficial occupancy. Post occupancy system monitoring and inspection results will be used to verify compliance with the Owner's Project Requirements (OPR), to revise and update the Systems Manual and for completion of the Final Commissioning Report.

5.3.1.

5.3.2. Plan Development: Meet the requirements for the development of the Maintenance Plan and Service Life Plan in ASHRAE Standard 189.1, Section 10.3.2.

5.4. ARCHITECTURE AND INTERIOR DESIGN.

5.4.1. STANDARDS AND CODES: The architecture and interior design shall conform to APPLICABLE CRITERIA.

5.4.2. GENERAL: Overall architectural goal is to provide a functional, quality, meet expected usable life standards, and visually appealing facility that is a source of pride for the installation and delivered within the available budget and schedule.

5.4.3. MATERIALS AND RESOURCES: Meet ASHRAE Standard 189.1, Section 9.3, Mandatory Provisions, and either Section 9.4, Prescriptive Option, or Section 9.5, Performance Option.

5.4.3.1. Construction and Demolition (C&D) Waste Management: Meet the requirements of ASHRAE Standard 189.1, Section 9.3.1. A waste management plan and waste diversion reports are required, as detailed in Section 01 57 20.00 10, ENVIRONMENTAL PROTECTION.

5.4.4. COMPUTATION OF AREAS: See APPENDIX Q of this RFP for how to compute gross and net areas of the facility(ies).

5.4.5. BUILDING EXTERIOR: Design buildings to enhance or compliment the visual environment of the Installation and reflect a human scale to the facility. Building entrance should be architecturally defined and easily seen. Exterior materials, roof forms, and detailing shall be compatible with the surrounding development and adjacent buildings on the Installation and follow locally established architectural themes. Use durable materials that are easy to maintain. Exterior materials colors shall conform to the Installation requirements and if brick or stone, have color that is throughout the material. See Paragraph 6 for project specific requirements.

5.4.5.1. Building Numbers: Permanently attach exterior signage on two faces of each building indicating the assigned building number or address. Building number signage details and locations shall conform to Appendix H, Exterior Signage of this RFP.

5.4.5.2. Roofs and Exterior Walls: Meet the requirements of ASHRAE Standard 189.1, Section 5.3, Mandatory Provisions, and Section 5.4, Prescriptive Option, or Section 5.5, Performance Option. In addition, if a green roof is considered for this project, meet the requirements of ASHRAE Standard 6.2, Mandatory Provisions, and Section 6.3, Prescriptive Option, or Section 6.4, Performance Option.

5.4.6. BUILDING INTERIOR

5.4.6.1. Daylighting and Low Emitting Materials: Meet the requirements of ASHRAE Standard 189.1, Section 8.3, Mandatory Provisions, and either Section 8.4, Prescriptive Option, or 8.5, Performance Option. In addition, meet the daylighting requirements of ASHRAE Standard 189.1, Section 7.3, Mandatory Provisions, and either Section 7.4, Prescriptive Option, or Section 7.5, Prescriptive Option.

5.4.6.2. Surfaces and Color:

(a) Surfaces: Appearance retention is the top priority for building and furniture related finishes. Provide low maintenance, easily cleaned room finishes that are commercially standard for the facility occupancy specified, unless noted otherwise. In daylit zones, meet the requirements of ASHRAE Standard 189.1 section 8.4.1.

(b) Color: The color, texture and pattern selections for the finishes of the building shall provide an aesthetically pleasing, comfortable, easily maintainable and functional environment for the occupants. Coordinate the building colors and finishes for a cohesive design. Select colors appropriate for the building type. Use color, texture and pattern to path or way find through the building. Trendy colors that will become dated shall be limited to non-permanent finishes such as carpet and paint. Select finishes with regards to aesthetics, maintenance, durability, life safety and image. Limit the number of similar colors for each material. Use medium range colors for ceramic and porcelain tile grout help hide soiling. Plastic laminate and solid surface materials shall have patterns that are mottled, flecked or speckled. Coordinate finish colors of fire extinguisher cabinets, receptacle bodies and plates, fire alarms / warning lights, emergency lighting, and other miscellaneous items with the building interior. Match color of equipment items on ceilings (speakers, smoke detectors, grills, etc.) to the ceiling color.

5.4.6.3. Building Entrance: Meet the requirements of ASHRAE Standard 189.1, Section 8.3.1.5.

5.4.6.4. Signage: Provide interior signage for overall way finding and life safety requirements. A comprehensive interior plan shall be from one manufacturer. Include the following sign types: (1) Lobby Directory, (2) Directional Signs; (3) Room Identification Signs; (4) Building Service Signs; (5) Regulatory Signs; (6) Official and Unofficial Signs (7) Visual Communication Boards (8) NO SMOKING signage that conveys building smoking policy. Use of emblems or logos may also be incorporated into the signage plan.

5.4.6.5. Window Treatment: All exterior windows and interior windows are to receive either blinds, mini-blinds or roller shades in a color selected by the architect from the manufacturer's standard range of colors. Color shall compliment building's design theme. Maintain uniformity of treatment color and material to the maximum extent possible within a building. For all other window treatments and accessories (draperies, curtains, lining, sheers, rods, pulls), refer to Attachment A&B.

5.4.6.6. Casework: Unless, otherwise specified, all casework for Cabinetry and cases shall be "custom grade", as described in the AWI Quality Standards

5.4.7. COMPREHENSIVE INTERIOR DESIGN

5.4.7.1. SID and FF&E: Comprehensive Interior Design includes the integration of a Structural Interior Design (SID) and a Furniture, Fixtures and Equipment (FF&E) design and package. SID requires the design, selection and coordination of interior finish materials that are integral to or attached to the building structure. Completion of a SID involves the selection and specification of applied finishes for the building's interior features including, but not limited to, walls, floors, ceilings, trims, doors, windows,

window treatments, built-in furnishings and installed equipment, lighting, and signage. The SID package includes finish schedules, finish samples and any supporting interior elevations, details or plans necessary to communicate the building finish design and build out. The SID also provides basic space planning for the anticipated FF&E requirements in conjunction with the functional layout of the building and design issues such as life safety, privacy, acoustics, lighting, ventilation, and accessibility. See Section 01 33 16 for SID design procedures.

5.4.7.2. FF&E Package: The FF&E design and package includes the design, selection, color coordination and of the required furnishing items necessary to meet the functional, operational, sustainability, and aesthetic needs of the facility coordinated with the interior finish materials in the SID. The FF&E package includes the specification, procurement documentation, placement plans, ordering and finish information on all freestanding furnishings and accessories, and a cost estimate. Coordinate the selection of furniture style, function and configuration with the defined requirements. Examples of FF&E items include, but are not limited to workstations, seating, files, tables, beds, wardrobes, draperies and accessories as well as marker boards, tack boards, and presentation screens. Criteria for furniture selection include function and ergonomics, maintenance, durability, sustainability, comfort and cost.

5.5. STRUCTURAL DESIGN

5.5.1. STANDARDS AND CODES: The structural design shall conform to APPLICABLE CRITERIA.

5.5.2. GENERAL: The structural system must be compatible with the intended functions and components that allows for future flexibility and reconfigurations of the interior space. Do not locate columns, for instance, in rooms requiring visibility, circulation or open space, including, but not limited to entries, hallways, common areas, classrooms, etc. Select an economical structural system based upon facility size, projected load requirements and local availability of materials and labor. Base the structural design on accurate, site specific geotechnical information and anticipated loads for the building types and geographical location. Consider climate conditions, high humidity, industrial atmosphere, saltwater exposure, or other adverse conditions when selecting the type of cement and admixtures used in concrete, the concrete cover on reinforcing steel, the coatings on structural members, expansion joints, the level of corrosion protection, and the structural systems. Analyze, design and detail each building as a complete structural system. Design structural elements to preclude damage to finishes, partitions and other frangible, non-structural elements to prevent impaired operability of moveable components; and to prevent cladding leakage and roof ponding. Limit deflections of structural members to the allowable of the applicable material standard, e.g., ACI, AISC, Brick Industry Association, etc. When modular units or other pre-fabricated construction is used or combined with stick-built construction, fully coordinate and integrate the overall structural design between the two different or interfacing construction types. If the state that the project is located in requires separate, specific licensing for structural engineers (for instance, such as in Florida, California and others), then the structural engineer designer of record must be registered in that state.

5.5.3. LOADS: See Paragraph 3 for facility specific (if applicable) and Paragraph 6 for site and project specific structural loading criteria. Unless otherwise specified in paragraph 6, use Exposure Category C for wind. If not specified, use Category C unless the Designer of Record can satisfactorily justify another Exposure Category in its design analysis based on the facility Master Plan. Submit such exceptions for approval as early as possible and prior to the Interim Design Submittal in Section "Design After Award". Design the ancillary building items, e.g. doors, window jambs and connections, overhead architectural features, systems and equipment bracing, ducting, piping, etc. for gravity, seismic, lateral loads and for the requirements of UFC 4-010-01, DOD Minimum Antiterrorism Standards for Buildings. Ensure and document that the design of glazed items includes, but is not limited to, the following items under the design loads prescribed in UFC 4-010-01:

- (a) Supporting members of glazed elements, e.g. window jamb, sill, header
- (b) Connections of glazed element to supporting members, e.g. window to header
- (c) Connections of supporting members to each other, e.g. header to jamb

(d) Connections of supporting members to structural system, e.g. jamb to foundation.

5.5.4. TERMITE TREATMENT AND GREEN CLEANING: (Except Alaska) Provide termite prevention treatment in accordance with Installation and local building code requirements, using licensed chemicals and licensed applicator firm. In all States, meet the requirements of ASHRAE Standard 189.1, Section 10.3.2, regarding the building Green Cleaning Plan.

5.6. THERMAL PERFORMANCE

5.6.1. STANDARDS AND CODES: Building construction and thermal insulation for mechanical systems shall conform to APPLICABLE CRITERIA.

5.6.2. BUILDING ENVELOPE SEALING PERFORMANCE REQUIREMENT: Design and construct the building envelope for office buildings, office portions of mixed office and open space (e.g., company operations facilities), dining, barracks and instructional/training facilities with a continuous air barrier to control air leakage into, or out of, the conditioned space that shall meet the requirements of ASHRAE Standard 189.1, Section 7.3, Mandatory Provisions, and either Section 7.4, Prescriptive Option, or 7.5, Performance Option. In addition, meet the requirements of ASHRAE Standard 189.1, Sections 10.3.1.4, 10.3.1.5, 10.3.1.6, and 10.3.2 as well as UFC 3-101-01, Section 3-6. Clearly identify all air barrier components of each envelope assembly on construction documents and detail the joints, interconnections and penetrations of the air barrier components. Clearly identify the boundary limits of the building air barriers, and of the zone or zones to be tested for building air tightness on the drawings. The use of painted interior walls is not an acceptable air barrier method.

5.6.2.1. Air Barrier: The air barrier must be durable to last the anticipated service life of the assembly. Provide a motorized damper in the closed position and connected to the fire alarm system to open on call and fail in the open position for any fixed open louvers at elevator shafts. Coordinate the motorized elevator hoistway vent damper(s) with the Fire Protection System design in Paragraph 5.10. Ensure that the damper(s) is accessible to facilitate regular inspection and maintenance.

5.6.2.2. Thermal Bridge. A Thermal Bridge (or cold bridge) occurs when a thermally conductive material (such as a metal stud, steel frame or concrete beam, slab or column) penetrates or bypasses the exterior insulation system. Design the building envelope to align all insulating elements, ie, the continuous wall insulation, insulated glazing, insulated doors from top of footing to bottom of roof deck. Wrap insulation around roof overhangs. Disconnect window and door sills from interior construction. Utilize thermally broken window and door frames. Provide details to eliminate thermal bridges particularly at floor slabs, roof/wall intersections, steel lintels and relief angles, metal through-wall flashings and at building corners.

5.6.2.3. Damper and Control: Close all ventilation or make-up air intakes and exhausts, , etc., when leakage can occur during inactive periods. Atrium smoke exhaust and intakes shall only open when activated per IBC and other applicable Fire Code requirements.

5.6.2.4. Garages: Compartmentalize garages under buildings by providing air-tight vestibules at building access points.

5.6.2.5. Spaces Under Negative Pressure: Compartmentalize spaces under negative pressure such as boiler rooms and provide make-up air for combustion.

5.6.2.6. TESTING, ADJUSTING AND BALANCING: Test and balance air and hydronic systems, using a firm certified for testing and balancing by the Associated Air Balance Council (AABC), National Environmental Balancing Bureau (NEBB), or the Testing Adjusting, and Balancing Bureau (TABB). The prime contractor shall hire the TAB firm directly, not through a subcontractor. Perform TAB in accordance with the requirements of the standard under which the TAB Firm's qualifications are approved, i.e., AABC MN-1, NEBB TABES, or SMACNA HVACTAB unless otherwise specified herein. All recommendations and suggested practices contained in the TAB Standard shall be considered mandatory. Use the

provisions of the TAB Standard, including checklists, report forms, etc., as nearly as practicable to satisfy the Contract requirements. Use the TAB Standard for all aspects of TAB, including qualifications for the TAB Firm and Specialist and calibration of TAB instruments. Where the instrument manufacturer calibration recommendations are more stringent than those listed in the TAB Standard, adhere to the manufacturer's recommendations. All quality assurance provisions of the TAB Standard such as performance guarantees shall be part of this contract. For systems or system components not covered in the TAB Standard, the TAB Specialist shall develop TAB procedures. Where new procedures, requirements, etc., applicable to the Contract requirements have been published or adopted by the body responsible for the TAB Standard used (AABC, NEBB, or TABB), the requirements and recommendations contained in these procedures and requirements are mandatory.

5.6.2.7. Performance Criteria and Substantiation: Test the completed building for air tightness in accordance with UFC 3-101-01, Section 3-6.3. Submit the qualifications and experience of the testing entity for approval. Demonstrate performance of the continuous air barrier for the opaque building envelope by the following tests:

(a) Air Barrier Quality Control Plan: Develop an Air Barrier Quality Control plan to assure that a competent air barrier inspector/specialist inspects the critical components prior to them being concealed. At a minimum, three onsite inspections are required during construction to assure the completeness of the construction and design.

(b) Notification of Testing: Notify the Government at least three working days prior to the tests to provide the Government the opportunity to witness the tests. Provide the Government written test results confirming the results of all tests.

5.7. PLUMBING AND WATER CONSUMING EQUIPMENT

5.7.1. STANDARDS AND CODES: The plumbing system and water consuming equipment shall conform to APPLICABLE CRITERIA and ASHRAE Standard 189.1, Section 6.3, Mandatory Provisions, and either Section 6.4, Prescriptive Option, or Section 6.5, Performance Option. In addition, meet the requirements of ASHRAE Standard 189.1, Section 10.3.2.

5.7.2. PRECAUTIONS FOR EXPANSIVE SOILS: Where expansive soils are present, include design features for underslab piping systems and underground piping serving chillers, cooling towers, etc, to control forces resulting from soil heave. Some possible solutions include, but are not necessarily limited to, features such as flexible expansion joints, slip joints, horizontal offsets with ball joints, or multiple bell and spigot gasketed fittings. For structurally supported slabs, suspend piping from the structure with adequate space provided below the pipe for the anticipated soil movement.

5.7.3. HOT WATER SYSTEMS: For hot water heating and supply systems, meet the requirements in UFC 3-420-01 and amendments, and the service water heating requirements of ASHRAE 189.1, Section 7.4.4.

5.7.4. SIZING HOT WATER SYSTEMS: Unless otherwise specified or directed in Paragraph 3, design in accordance with ASHRAE Handbook HVAC Applications, Chapter 49, "Service Water Heating," UFC 3-420-01 and amendments, and ASHRAE 189.1, Section 7.4.3. Size and place equipment so that it is easily accessible and removable for repair or replacement.

5.7.5. JANITOR CLOSETS: In janitor spaces/room/closets, provide at minimum, a service sink with heavy duty shelf and wall hung mop and broom rack(s).

5.7.6. FLOOR DRAINS: As a minimum, provide floor drains in mechanical rooms and areas, janitor spaces/rooms/closets and any other area that requires drainage from fixtures or equipment, drain downs, condensate, as necessary.

5.7.7. WATER EFFICIENT PLUMBING FIXTURES: Indoor plumbing fixture equipment shall comply with the following criteria: ASHRAE 189.1, Section 6.3, Mandatory Provisions, and either Section 6.4, Prescriptive Option, or Section 6.5, Performance Option.

5.7.7.1. Water Closets (Toilets): ASHRAE 189.1, Sections 6.3.2.1.a and b. requirements for water closets (toilets) shall be as follows: Flushometer valve type: For single flush, maximum flush volume shall be determined in accordance with ASME A112.19.2/CSA B45.1 and shall be 1.28 gal (4.8 L). For dual-flush, the effective flush volume shall be determined in accordance with ASME A112.19.14 and shall be 1.28 gal (4.8 L). Water closets (toilets)—tank-type: Tank-type water closets shall be certified to the performance criteria of the U.S. EPA WaterSense Tank-Type High-Efficiency Toilet Specification and shall have a maximum flush volume of 1.28 gal (4.8 L).

5.7.7.2. URINALS: Non-water urinals shall comply with ASME A112.19.19 (vitreous china) or IAPMO Z124.9 (plastic) as appropriate.

5.7.7.3. PUBLIC LAVATORY FAUCETS: Lavatory faucets in a public setting shall have a maximum flow rate of 0.5 gallons per minute and be in accordance with ASME A112.18.1/CSA B125.1.

5.7.7.4. PUBLIC METERING SELF-CLOSING FAUCETS: Faucets in a public setting that supply a specific amount of water over a given period shall have a maximum water use of 0.25 gallons per cycle and be in accordance with ASME A112.18.1/CSA B125.1.

5.7.7.5. PRIVATE LAVATORY FAUCETS: Faucets in a private setting such as barracks, family housing, or hospitals shall have a maximum flow rate of 1.5 gallons per minute and be in accordance with ASME A112.18.1/CSA B125.1 and shall comply with the performance requirements of the US EPA WaterSense High-Efficiency Lavatory Faucet Specification.

5.7.7.6. KITCHEN FAUCETS: Kitchen faucets shall have a maximum flow rate of 2.2 gallons per minute and be in accordance with ASME A112.18.1/CSA B125.1.

5.7.7.7. Cooling Towers: In addition to the requirements of Subsection 5.7.1. above, conduct a one-time potable water analysis, measuring at least the following control parameters, in ppm or mg/l: calcium (Ca); total alkalinity; silica (Si); chloride (Cl); and conductivity . Calculate the number of cooling tower cycles by dividing the amount of each parameter in the condenser water by the amount in the potable makeup water. The maximum acceptable levels of the parameters in the condenser water are: Ca (as CaCO₃) and Total alkalinity – 1000 ppm; SiO₂–100 ppm; Cl – 250 ppm; Conductivity – 3500 µS/ml. Limit cooling tower cycles to avoid exceeding maximum values for any of these parameters. AND Complete the following: A system to monitor and control microbiological growth is recommended; Meter the potable makeup water to the cooling tower and blowdown from the cooling; Blowdown must be controlled with a conductivity meter; Report monthly results of the amount of potable water used, microbiological levels, blowdown, and corrosion; On cooling towers, install drift eliminators that achieve minimum efficiencies of 0.2% for counter-flow systems or 0.5% for cross-flow systems.

5.7.7.8. Drainage Systems: Do not use engineered vent or Sovent® type drainage systems.

5.7.7.9. Pipe Location and Insulation: Where the seasonal design temperature of the cold water entering a building is below the seasonal design dew point of the indoor ambient air insulate plumbing piping with a vapor barrier type of insulation to prevent condensation. Do not locate water or drainage piping over electrical wiring or equipment unless adequate protection against water (including condensation) damage is provided. Insulation alone is not adequate protection against condensation. Meet pipe insulation requirements of ASHRAE 189.1, Section 7.4.3.11 and Table C-11 of Normative Appendix C.

5.7.7.10. Pipe Protection During Construction: Cover all drain, waste and vent piping to prevent mortar or other debris during such construction activities.

5.8. ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

5.8.1. STANDARDS AND CODES: The electrical systems for all facilities shall conform to APPLICABLE CRITERIA.

5.8.2. MATERIALS AND EQUIPMENT: Materials, equipment and devices shall, as a minimum, meet the requirements of Underwriters Laboratories (UL) where UL standards are established for those items. Wiring for branch circuits shall be copper. Motors larger than one-half horsepower shall be three phase. All electrical systems shall be pre-wired and fully operational unless otherwise indicated. Wall mounted electrical devices (power receptacles, communication outlets and CATV outlets) shall have matching colors, mounting heights and faceplates.

5.8.3. POWER SERVICE: Primary service from the base electrical distribution system to the pad-mounted transformer and secondary service from the transformer to the building service electrical equipment room shall be underground. See paragraph 6 for additional site electrical requirements.

5.8.3.1. Space Capacity: Provide 10% space for future circuit breakers in all panelboards serving residential areas of buildings and 15% spaces in all other panelboards.

5.8.4. TELECOMMUNICATION SERVICE: Connect the project's facilities to the Installation telecommunications (voice and data) system through the outside plant (OSP) telecommunications underground infrastructure cabling system per the I3A Criteria. Connect to the OSP cabling system from each facility main cross connect located in the telecommunications room.

5.8.5. LIGHTING: Comply with the recommendations of the Illumination Engineering Society (IES) and requirements of EAct-2005 and Federal Energy Management Program (FEMP) for lighting products.

5.8.5.1. Interior Lighting:

(a) Reflective Surfaces: Coordinate daylighting requirements and interior architectural space surfaces and colors with the lighting systems to provide the most energy-efficient workable combinations.

(1) Fluorescent Lighting: Fluorescent lighting systems shall utilize NEMA premium electronic ballasts and high performance fluorescent lamps with a Correlated Color Temperature (CCT) of 4100 Kelvin (K) to 5000 K. Linear fluorescent and compact fluorescent lamps shall have a Color Rendering Index (CRI) of ≥ 82 . All fluorescent lamps (compact and linear) shall be reclaimed through a process that captures and properly disposes of or recycles the mercury content. Do not use surface mounted luminaires on acoustical tile ceilings. Provide outside each building emergency egress door an un-switched emergency egress luminaire controlled by photocell or astronomical time clock. All other emergency egress luminaires shall be controlled the same as non-emergency luminaires in a shared space during normal (non-emergency) operation.

(2) Solid-State Lighting: Fixtures shall have a lumen maintenance life expectancy (L_{70}) of $\geq 36,000$ hours, a CRI of ≥ 82 , and a CCT of 4100 K to 5000 K. Each solid-state fixture model shall be tested in accordance with IES LM-79. Test reports shall verify the fixture performance (lumen output, lumen maintenance, power consumption, efficacy and color) meets or exceeds the fixture manufactures published data. Laboratory testing shall be completed by a National Voluntary Laboratory Accreditation Program laboratory. Provide a five year warranty for fixtures.

(3) Light Level Tuning: Light level tuning is a closed-loop feedback system that measures the illumination level in a space and dims the luminaires when the measured level exceeds the target level, thereby saving the energy that otherwise would be used to compensate for future light depreciation. Provide a life-cycle cost-benefit analysis (LCCA) of light level tuning for all spaces where the general lighting luminaires are equipped with dimming ballasts or LED drivers. The LCCA shall follow the methodology contained in 10 CFR 436. Provide light level tuning where the LCCA shows it to be life cycle cost effective.

(4) Lighting Systems and Controls: Lighting systems (including lighting controls, daylighting controls, and lighting power density limits) shall comply with the requirements of Section 7.4.6 of ASHRAE Standard 189.1 and Section 9 of ANSI/ASHRAE/IES 90.1-2007. Lighting designs shall follow the recommended practices of the IES and shall target the recommended illumination levels of the IES.

(5) Occupancy or Vacancy Sensors: Use occupancy or vacancy sensors to automatically turn off lighting a specified time after all occupants leave the space. The off time shall be user adjustable to 5, 15, or 30 minutes. Selection of the sensor type (single or dual technology, wired or wireless) shall be based on the space configuration, user functionality and life-cycle cost-benefit analysis. Single technology solutions shall incorporate signal processing technology that distinguishes between background noise and actual motion without automatically changing their sensitivity.

(6) Automated Shading: Automated shading shall be considered in spaces utilizing daylight harvesting to maximize the energy savings of the daylighting system. The shades shall be controlled to reduce glare and unwanted heat gain while still allowing natural light to enter the space. When utilizing automated shading consider the following :

- i. For ease of use and space aesthetics, incorporate the automated shades with the lighting control system.
- ii. For maximum energy savings the automated shading system shall predictably position the shades based on a combination of time of day, façade direction, and sky conditions.
- iii. For maximum design flexibility and ease of installation, shade system should have the capability to address and control each shade individually.
- iv. The shading system shall have a manual override that allows the occupant to temporarily adjust the shades to any desired position. The system shall revert back to automatic control after a specified period of time.

(b) Provide a life-cycle cost-benefit analysis (LCCA) of automated shading for all spaces where daylight harvesting is provided. The LCCA shall follow the methodology contained in 10 CFR 436. Provide automated shading where the LCCA shows it to be economical.

(1) Scene-Based Dimming: Use scene based dimming in multiple-use areas including auditoriums, conference rooms and classrooms. Also provide scene based dimming in dining rooms and gymnasiums with multiple functions. One button preset touch recall shall allow multiple zones of light within a space to go to the appropriate light levels, known as a scene, for a specific task or use. Scene based control shall allow the integration of AV controls, shading/projection screens and lighting to work seamlessly with one button preset touch (i.e. lights dim, projection screen lowers, and shades go down).

(2) Personal Lighting Control: Personal lighting controls exceeding ASHRAE requirements shall be considered. Personal lighting controls allow users to vary the general light level based on the task at hand. Personal control can be achieved by wall mounted controls (hard wired or wireless), Infrared or Radio Frequency (RF) wireless devices, or via computer. Digital addressable ballasts and light emitting diode (LED) drivers allow the control flexibility of personal dimming of installed lighting on the occupant's work area (i.e. dim the luminaire over their cubicle to the appropriate light level).

(3) Wireless and Plug-and-Play Controls: Wireless and plug-and-play lighting controls shall be considered for all installations where flexibility is paramount. To avoid interference, wireless products shall communicate in an FCC frequency band that does not allow continuous transmissions.

(4) Testing Agent: An independent agent with no less than three years experience in testing of complex lighting control systems shall be hired to conduct and certify functional testing of lighting control devices and control systems. The testing agent shall not be directly involved in either the design or construction of the project and shall certify the installed lighting controls meet or exceed all requirements of ASHRAE Standard 189.1, ANSI/ASHRAE/IES Standard 90.1-2007, and all documented performance criteria. The lighting control manufacturer's authorized technical representative may serve as the testing agent. Submit qualifications of the testing agent for approval.

(5) Manufacturer Support: shall include technical phone support located in the United States. The technical phone support shall be available 24 hours a day, 365 days a year.

5.8.5.2. Exterior Lighting Requirements: These requirements apply to exterior lighting illuminating any building, site, property, structure, gate, sign, roadway, parking lot, pathway, sidewalk, landscape, structure, etc. that is owned, operated by, or constructed to be leased to the Department of the Army. This includes all Sustainment, Restoration, and Modernization (SRM) and Military Construction activities within the United States, its territories, and overseas on permanent Active Army installations, Army Reserve Centers, Army National Guard Readiness Facilities, and Armed Forces Reserve Centers, regardless of funds source. See Paragraph 6.9 for site specific information, if any, on exterior lighting systems.

- (a) General: Exterior lighting technology should be selected based on a balance of energy performance and quality of light, while remaining life-cycle cost effective and environmentally responsible. Exterior lighting systems or luminaires selected for use should have demonstrated adherence to quality standards by being recognized by the DesignLights Consortium (reference e), the ENERGY STAR Program, the FEMP or other third-party qualifier appropriate to the technology. Manufacturers should also stand behind their products by providing a Luminaire warranty for at least five years or more. Design teams should carefully consider the occupancy and purpose of the lighting requirements and incorporate energy-saving controls, sensors, and the use of bi-level fixtures to provide exterior lighting levels only as appropriate and only during the hours of night needed. Other energy-saving and lighting quality design considerations include ensuring better uniformity of lighting distribution to required levels to reduce over-lighted hotspots and control light trespass outside the area of intended coverage.
- (b) Exterior Lighting Performance by Application: Exterior lighting systems should meet, at a minimum, the better of the standards below in Table 1 or the DLC Product Qualification Criteria (reference e) or current ENERGY STAR qualification or FEMP designation requirements.
- (c) General Exterior Lighting: Typically lighting to provide visibility for security and people moving along established circulation pathways through an illuminated area to or from a destination. Examples include roadways, parking lots, parking structures, sidewalks, tarmacs, service areas, and secondary exits from buildings.
- (d) Architectural Lighting: Lighting in use where exterior spaces are occupied at night for a functional purpose, such as plazas, gas stations, pavilions, or amphitheaters. Also, for use where a higher quality of light is desired, such as building entrances, wall-wash luminaires, illumination of architectural or landscaping features, sculpture, displays, exhibits, flags, gates, primary signage, etc.
- (e) Exceptions: Where a non-white light color is specifically desired by aesthetic design or a color-specific functional requirement (e.g. water feature lighting, entertainment, signal lights, airfield lights, marine wildlife protection, etc.), the CRI and CCT range values indicated may not apply. Specialized lighting, such as lighting for monitoring systems designed to use non-visible spectrum light, are also exempt from the minimum CRI and CCT standards as well. Luminaires primarily powered by on-site renewable energy (e.g. solar and/or wind) are also exempt from the requirements herein.

Table 1 – Minimum Exterior Lighting Performance by Application. These values represent minimum standards and do not supersede higher standards that may also be applicable or specified by design.

Application	Luminaire Efficacy	CRI	Nominal CCT Ranges	Lamp Life
General Exterior Lighting	65	65	3000-5700	50,000
Architectural Lighting	50	75	3500-5000	50,000

Units:

Luminaire Efficacy (with complete fixture load including ballast/driver loads) is in lumens per watt

CRI (Color Rendering Index) is a value without units
CCT (Correlated Color Temperature) Range is in Kelvin Temperature
Minimum Lamp Life is in Rated Hours per TM-21

(f) Life-Cycle Cost Analysis (LCCA) and Renewable Energy Opportunities. On-site renewable or alternative energy power system cost over a 25-year life-cycle should be compared to the cost of the conventional grid-connection infrastructure, operation and maintenance costs thereof, proper time-of-use grid energy cost with line losses and price escalation. Renewable or alternative energy systems should be used wherever the payback period less than or equal to the life cycle period. Design team selections and Value Engineering evaluations are to prioritize a reduced total cost of ownership during the full life-cycle period over the first costs of design and construction. The LCCA shall follow the methodology contained in 10 CFR 436.

(g) Sustainability and Environmental Impact Reduction. To meet the mercury-use reduction intent of EISA 2007 (Reference c) and other sustainability goals, lighting systems should not contain added mercury in excess of 5mg per lamp or 80 picograms per Lumen Hour. Whenever two or more viable lighting technologies are substantially equal in life-cycle cost and performance, preference should be given to the technology with the lowest mercury content per Lumen Hour.

5.8.6. TELECOMMUNICATION SYSTEM: Building telecommunications cabling systems (BCS) and OSP telecommunications cabling system shall conform to APPLICABLE CRITERIA, including but not limited to I3A Technical Criteria. An acceptable BCS encompasses, but is not limited to, copper and fiber optic (FO) entrance cable, termination equipment, copper and fiber backbone cable, copper and fiber horizontal distribution cable, workstation outlets, racks, cable management, patch panels, cable tray, cable ladder, conduits, grounding, and labeling. Items included under OSP infrastructure encompass, but are not limited to, manhole and duct infrastructure, copper cable, fiber optic cable, cross connects, terminations, cable vaults, and copper and FO entrance cable.

5.8.6.1. Testing: Design, install, label and test all telecommunications systems in accordance with the I3A Criteria and ANSI/TIA/EIA 568, 569, and 606 standards. A Building Industry Consulting Services International (BICSI) Registered Communications Distribution Designer (RCDD) with at least 2 yrs related experience shall develop and stamp telecommunications design, and prepare the test plan. See Paragraph 5.9.2.5 for design of environmental systems for Telecommunications Rooms.

5.8.6.2. Installation: The installers assigned to the installation of the telecommunications system or any of its components shall be regularly and professionally engaged in the business of the application, installation and testing of the specified telecommunications systems and equipment. Key personnel; i.e., supervisors and lead installers assigned to the installation of this system or any of its components shall be BICSI Registered Cabling Installers, Technician Level. Submit documentation of current BICSI certification for each of the key personnel. In lieu of BICSI certification, supervisors and installers shall have a minimum of 5 years experience in the installation of the specified copper and fiber optic cable and components. They shall have factory or factory approved certification from each equipment manufacturer indicating that they are qualified to install and test the provided products.

5.8.6.3. End to End Test: Perform a comprehensive end to end test of all circuits to include all copper and fiber optic cables upon completion of the BCS and prior to acceptance of the facility. Provide adequate advanced notification to the COR to allow COR and Installation personnel attendance. The BCS circuits include but are not limited to all copper and fiber optic(FO) entrance cables, termination equipment, copper and fiber backbone cable, copper and fiber horizontal distribution cable, and workstation outlets. Test in accordance with ANSI/EIA/TIA 568 standards. Use test instrumentation that meets or exceeds the standard. Submit the official test report to include test procedures, parameters tested, values, discrepancies and corrective actions in electronic format. Test and accomplish all necessary corrective actions to ensure that the government receives a fully operational, standards based, code compliant telecommunications system.

5.8.7. LIGHTNING PROTECTION SYSTEM: Provide a lightning protection system where recommended by the Lightning Risk Assessment of NFPA 780, Annex L.

5.9. HEATING, VENTILATING, AND AIR CONDITIONING

5.9.1. STANDARDS AND CODES: The HVAC system shall conform to APPLICABLE CRITERIA.

5.9.2. DESIGN CONDITIONS:

5.9.2.1. Outdoor and Indoor Calculations and Requirements: Indoor design conditions and load calculations shall be in accordance with UFC 3-410-01FA. Outdoor air and exhaust ventilation requirements for indoor air quality shall be in accordance with ASHRAE 62.1-2007. Outdoor design conditions are in UFC 3-410-01FA except that weather data is specified in paragraph 6, rather than at the URL (web link) listed in the UFC.

5.9.2.2. Indoor Air Quality: Buildings indoor air quality systems, thermal comfort, acoustical control, equipment, calculation procedures, construction and start-up shall comply with ASHRAE Standard 189.1, Section 8.3, Mandatory Provisions, and Section 8.4, Prescriptive Option, and either Section 8.5, Performance Option unless otherwise specified in this subsection.

5.9.2.3. Outdoor Air Delivery Monitoring: Spaces Ventilated by Mechanical Systems. Reference Sections 7.4.3.2, 8.3.1.2.1, and 10.3.2, of ASHRAE Standard 189.1. A densely occupied space is defined as those spaces with a design occupant density greater than or equal to 25 people per 1000 ft² (100m²).

5.9.2.4. Environmental Tobacco Smoke: a. Smoking shall not be allowed inside the building. Signage stating such shall be posted within 10 ft (3 m) of each building entrance. b. Any exterior designated smoking areas shall be located a minimum of 50 ft (7.5 m) away from *building entrances, outdoor air intakes, and operable windows*. c. Section 6.2.9 of ANSI/ASHRAE Standard 62.1 shall not apply.

5.9.2.5. High Humidity Areas: Design HVAC systems in geographical areas meeting the definition for high humidity in UFC 3-410-01FA to comply with the special criteria therein for humid areas.

5.9.2.6. Controls Maintenance: Locate all equipment so that service, adjustment and replacement of controls or internal components are readily accessible for easy maintenance.

5.9.2.7. Environmental Requirements for Telecommunications Rooms and Telecommunications Equipment Rooms, (including SIPRNET ROOMS, where applicable for specific facility type): Comply with ANSI/EIA/TIA 569 (including applicable Addenda). Maintain environmental conditions at the Class 1 and 2 Recommended Operating Environment. Before being introduced into the room, filter and pre-condition outside air to remove particles with the minimum MERV filtration quality shown in the ASHRAE HVAC Applications, Chapter 19. Maintain rooms under positive pressure relative to surrounding spaces. Design computer room air conditioning units specifically for telecommunications room applications. Build and test units in accordance with the requirements of ANSI/ASHRAE Standard 127. A complete air handling system shall provide ventilation, air filtration, cooling and dehumidification, humidification (as determined during the design phase), and heating. The system shall be independent of other facility HVAC systems and shall be required year round.

5.9.2.8. Fire dampers: dynamic type with a dynamic rating suitable for the maximum air velocity and pressure differential to which the damper is subjected. Test each fire damper with the air handling and distribution system running.

5.9.3 Utility Meters: Measurement devices with remote communication capability shall be provided to collect energy and water consumption data for each energy supply source and water supply source to each facility, including gas, water (potable, reclaimed and rainwater), electricity, and distributed energy that exceeds the thresholds listed in ASHRAE Standard 189.1. Meet the requirements of ASHRAE Standard 189.1, Sections 6.3.3, 7.3.3, 10.3.2 and AR 420-1, Chapter 22. For Government owned utilities, install meters with remote communication capability as well as have a continuous manual reading option. Water meters shall provide daily data and shall record hourly consumption. Gas and electric meters will

also provide demand readings based on consumption over a maximum of any 15 minute period. Configure all meters to transmit to a meter data management system at least daily even if no receiver for the data is currently available at the time of project acceptance. For privatized utilities, coordinate with the privatization utility(ies) for the proper meter base and meter installation. Exception: Renovation or energy projects with programmed costs less than \$200,000 shall incorporate lower-cost energy monitors when cost effective over the life-cycle of the building following the monitoring guidance as detailed in ASHRAE Standard 189.1 Section 7.3.3.

5.9.3.1 Data Storage and Retrieval. The meter data management system shall be capable of electronically storing water meter and sub-meter data and creating user reports showing calculated hourly, daily, monthly and annual water consumption for each meter and sub-meter and provide alarming notification capabilities as needed. In addition, verification of meter operation will be conducted at installation.

5.9.3.2 Evaporative Cooling Sub-metering: For buildings that use evaporative cooling, cooling tower(s), hot water makeup systems, or automatic landscape irrigation system(s), separate submeters shall be provided for each such application. Water use data shall be collected at each source (e.g. *potable water*, reclaimed water, rainwater) for any source that exceeds the thresholds of: Potable water- 3,800 L/day (1,000 gal/day); Municipally reclaimed water - 3,800 L/day (1,000 gal/day); and Alternate sources of water - 1,900 L/day (500 gal/day).

5.9.3.3 Water Sub-metering: Sub-metering shall also be provided to collect water use data for each of following building subsystems, if they are sized above the threshold levels: Cooling towers – Primary flow > 30 L/s (500 gpm); Evaporative Coolers – Makeup water > 0.04 L/s (0.6 gpm); Steam and hot water boilers - > 50 kW (500,000 Btu/h) input; Irrigated landscape area with controllers - > 2500 m² (25,000 ft²); Any large water using process – Consumption > 3,800 L/day (1000 gal/day).

5.9.3.4 Outdoor Irrigation: Outdoor irrigation shall have smart controllers that will shut off when rainfall is sensed (ASHRAE Standard 189.1 paragraph 6.3.1.3 (2011 version)). Outdoor irrigation shall be used only to temporarily for plant establishment and shall be removed within a period not to exceed 18 months of installation.

5.9.3.5 Energy Metering: Meters with remote metering capability or automatic meter reading (AMR) capability shall be provided to collect energy use data for each supply energy source (e.g. gas, electricity, district steam) to the building that exceed thresholds of: Electrical service - > 200 kVA; On-site renewable electric power – All systems > 1 kVA (peak); Gas and steam service - >300 kW (1,000,000 Btu/h); Geothermal - >300 kW (1,000,000 Btu/h) heating; Solar thermal - >10 kW (30,000 Btu/h). Utility company service entrance/interval meters are allowed to be used provided they are configured for automatic meter reading (AMR) capability. Sub-metering with remote metering capability shall be provided to collect energy use data for each subsystem component that meet the following thresholds: Chillers/heat pumps - >70 kW (240,000 Btu/h) cooling capacity; Packaged AC units - > 70 kW (240,000 Btu/h) cooling; Fans - > 15 kW (20 hp); Pumps - > 15 kW (20 hp); Cooling towers - > 15 kW (20 hp); Boilers and other heating equipment - >300 kW (1,000,000 Btu/h) input; General lighting circuits - > 100 kVA; Miscellaneous electric loads - > 100 kVA).

5.9.4 BUILDING AUTOMATION SYSTEM. Provide a Building Automation System consisting of a building control network , and integrate the building control network into the UMCS as specified.

The building control network shall be a single complete non-proprietary Direct Digital Control (DDC) system for control of the heating, ventilating and air conditioning (HVAC) systems as specified herein. The building control network shall be an Open implementation of LONWORKS® technology using ANSI/EIA 709.1B as the only communications protocol and use only LonMark Standard Network Variable Types (SNVTs), as defined in the LonMark® Resource Files, for communication between DDC Hardware devices to allow multi-vendor interoperability.

5.9.4.1 The building automation system shall be open in that it is designed and installed such that the Government or its agents are able to perform repair, replacement, upgrades, and expansions of the system without further dependence on the original Contractor. This includes, but is not limited to the following:

- (a) Install hardware such that individual control equipment can be replaced by similar control equipment from other equipment manufacturers with no loss of system functionality.
- (b) Necessary documentation (including rights to documentation and data), configuration information, configuration tools, programs, drivers, and other software shall be licensed to and otherwise remain with the Government such that the Government or its agents are able to perform repair, replacement, upgrades, and expansions of the system without subsequent or future dependence on the Contractor.

5.9.4.2 All DDC Hardware shall:

- (a) Be connected to a TP/FT-10 ANSI/EIA 709.3 control network.
- (b) Communicate over the control network via ANSI/EIA 709.1B exclusively.
- (c) Communicate with other DDC hardware using only SNVTs
- (d) Conform to the LonMark® Interoperability Guidelines.
- (e) Be locally powered; link power (over the control network) is not acceptable.
- (f) Be fully configurable via standard or user-defined configuration parameter types (SCPT or UCPT), standard network variable type (SNVT) network configuration inputs (*nci*), or hardware settings on the controller itself to support the application. All settings and parameters used by the application shall be configurable via standard or user-defined configuration parameter types (SCPT or UCPT), standard network variable type (SNVT) network configuration inputs (*nci*), or hardware settings on the controller itself
- (g) Provide input and output SNVTs required to support monitoring and control (including but not limited to scheduling, alarming, trending and overrides) of the application. Required SNVTs include but are not limited to: SNVT outputs for all hardware I/O, SNVT outputs for all setpoints and SNVT inputs for override of setpoints.
- (h) To the greatest extent practical, not rely on the control network to perform the application.

5.9.4.3 Controllers shall be Application Specific Controllers whenever an ASC suitable for the application exists. When an ASC suitable for the application does not exist use programmable controllers or multiple application specific controllers.

5.9.4.4 Application Specific Controllers shall be LonMark Certified whenever a LonMark Certified ASC suitable for the application exists. For example, VAV controllers must be LonMark certified.

5.9.4.5 Application Specific Controllers (ASCs) shall be configurable via an LNS plug-in whenever t an ASC with an LNS plug-in suitable for the application exists.

5.9.4.6 Each scheduled system shall accept a network variable of type SNVT_occupancy and shall use this network variable to determine the occupancy mode. If the system has not received a value to this network variable for more than 60 minutes it shall default to a configured occupancy schedule.

5.9.4.7 Gateways may be used provided that each gateway communicates with and performs protocol translation for control hardware controlling one and only one package unit.

5.9.4.8 Not Used

5.9.4.9 Perform all necessary actions needed to fully integrate the building control system. These actions include but are not limited to:

- (a) Configure M&C Software functionality including: graphical pages for System Graphic Displays including overrides, alarm handling, scheduling, trends for critical values needing long-term or permanent monitoring via trends, and demand limiting.
- (b) Install IP routers or ANSI/CEA-852 routers as needed to connect the building control network to the UMCS IP network. Routers shall be capable of configuration via DHCP and use of an ANSI/CEA-852 configuration server but shall not rely on these services for configuration. All communication between the UMCS and building networks shall be via the ANSI/CEA-709.1B protocol over the IP network in accordance with ANSI/CEA-852.

5.9.4.10 Provide the following to the Government for review prior to acceptance of the system:

- (a) The latest version of all software and user manuals required to program, configure and operate the system.
- (b) Points Schedule drawing that shows every DDC Hardware device. The Points Schedule shall contain the following information as a minimum:
 - (1) Device address and NodeID.
 - (2) Input and Output SNVTs including SNVT Name, Type and Description.
 - (3) Hardware I/O, including Type (AI, AO, BI, BO) and Description.
 - (4) Alarm information including alarm limits and SNVT information.
 - (5) Supervisory control information including SNVTs for trending and overrides.
 - (6) Configuration parameters (for devices without LNS plug-ins) Example Points Schedules are available at <https://eko.usace.army.mil/fa/besc/>
- (c) Riser diagram of the network showing all network cabling and hardware. Label hardware with ANSI.CEA-709.1 addresses, IP addresses, and network names.
- (d) Control System Schematic diagram and Sequence of Operation for each HVAC system.
- (e) Operation and Maintenance Instructions including procedures for system start-up, operation and shut-down, a routine maintenance checklist, and a qualified service organization list.
- (f) LONWORKS® Network Services (LNS®) database for the completed system.
- (g) Quality Control (QC) checklist (below) completed by the Contractor's Chief Quality Control (QC) Representative

Table 5-1: QC Checklist

Instructions: Initial each item, sign and date verifying that the requirements have been met.		
#	Description	Initials
1	All DDC Hardware is installed on a TP/FT-10 local control bus.	
2	Communication between DDC Hardware is only via EIA 709.1B using SNVTs. Other protocols and network variables other than SNVTs have not been used.	
3	All sequences are performed using DDC Hardware.	
4	LNS Database is up-to-date and accurately represents the final installed system	
5	All software has been licensed to the Government	
6	M&C software monitoring displays have been created for all building systems, including all override and display points indicated on Points Schedule drawings.	
7	Final As-built Drawings accurately represent the final installed system.	
8	O&M Instructions have been completed and submitted.	
9	Connections between the UMCS IP network and ANSI/CEA-709.1B building networks are through ANSI/CEA-852 Routers.	
By signing below I verify that all requirements of the contract, including but not limited to the above, been met.		
Signature: _____ Date: _____		

5.9.4.11 Perform a Performance Verification Test (PVT) under Government supervision prior to system acceptance. During the PVT demonstrate that the system performs as specified, including but not limited to demonstrating that the system is Open and correctly performs the Sequences of Operation.

5.9.4.12 Provide a 1 year unconditional warranty on the installed system and on all service call work. The warranty shall include labor and material necessary to restore the equipment involved in the initial service call to a fully operable condition.

5.9.4.13 Provide training at the project site on the installed building system, including all commissioned systems and equipment (ASHRAE Standard 189.1, Section 10.3.1.2), . Upon completion of this training each student, using appropriate documentation, should be able to start the system, operate the system, recover the system after a failure, perform routine maintenance and describe the specific hardware, architecture and operation of the system.

5.10 ENERGY CONSERVATION

5.10.1 ENERGY EFFICIENCY: The building(s), including the envelope(s), HVAC systems, service water heating, power, and lighting systems, shall meet, at a minimum, the Mandatory Provisions in Section 7.3 and either the Prescriptive Option in Section 7.4 or the Performance Option in Section 7.5 of ASHRAE Standard 189.1. ASHRAE 189.1 is the minimum requirement that incorporates by reference the requirements of ASHRAE Standard 90.1-2007 and shall be used as the project baseline for life-cycle cost comparisons. A LCCA is not required on the baseline project. Substantiation requirements are defined in Section 01 33 16, Design After Award and ASHRAE Standard 189.1, Section 10.3.2. Exception 1: The on-site renewable energy systems included in ASHRAE Standard 189.1, Section 7.4.1.1 are not required.

5.10.1.1 Minimum Energy Consumption: The building, including the building envelope, HVAC systems, service water heating, power, lighting systems and process and plug loads shall achieve an energy consumption that is a minimum of 30% below the consumption of a baseline building meeting the minimum requirements of ANSI/ASHRAE/IESNA Standard 90.1-2007 and that is life cycle cost effective. Energy calculation methodologies and substantiation requirements are defined in Section 01 33 16, Design After Award. A LCCA is required.

5.10.1.2 EISA 2007 Requirement: Design the building to achieve the maximum possible fossil fuel-generated energy consumption reduction based on the requirements of EISA 2007 Section 433 that is life cycle cost effective. A LCCA is required.

5.10.1.3 LCCA: Where a LCCA is required, an incremental LCCA shall be completed for all energy efficiency or conservation features provided in excess of the baseline to ensure the payback period is no greater than the lesser of 40 years or the projected life of the facility. Equipment procurement, fuel, maintenance, repair, replacement, and any other quantifiable benefits and costs are to be included in the LCCA. The LCCA will be documented and made part of the design analysis. The LCCA shall follow the methodology contained in 10 CFR 436.

5.10.2 EnergyStar AND FEMP PRODUCTS: The heating, ventilation, and air conditioning shall comply with Section 6 of ANSI/ASHRAE/IESNA 90.1-2007 and Section 7.4.2.1.b of ASHRAE Standard 189.1, including the Normative Appendix C of ASHRAE Standard 189.1 with the following modification: Purchase Energy Star products, except use FEMP designated products where FEMP is applicable to the product type. The term "Energy Star" means a product that is rated for energy efficiency under an Energy Star program. The term "FEMP designated" means a product that is designated under the Federal Energy Management Program of the Department of Energy as being among the highest 25 percent of equivalent products for energy efficiency. For projects located OCONUS the products listed in ASHRAE Standard 189.1, Section 7.4.7, shall have an equipment efficiency that is equivalent or greater than the criteria required to achieve the ENERGY STAR label or meets or exceeds the equivalent of FEMP designated efficiency requirements.

5.10.3 SOLAR HOT WATER HEATING: Design and construct all new construction projects with an average daily non-industrial hot water requirement of 50 gallons or more, and located in an area shown on the NREL solar radiation maps (<http://www.nrel.gov/gis/solar.html>) as receiving an annual average of 4kWh/m²/day or more to provide a minimum of 30 percent of the facility's hot water demand by solar water heating. Waste heat harvesting, integrated co-generation systems, or a combination thereof may be used in lieu of solar water heating where they achieve equivalent energy savings, as documented in the project's design analysis and commissioning analysis.

5.10.4 WATER USED FOR HEATING AND COOLING: Meet the requirements of ASHRAE 189.1 Section 6.3.2.3 – HVAC Systems and Equipment and Section 6.4.2.1 – Cooling Towers. When potable water is used to improve a building's energy efficiency, employ life-cycle cost effective water conservation measures per requirements of EPA 2005 Section 109. This includes potable water used for both domestic and process purposes.

5.10.5 RENEWABLE ENERGY: See Paragraph 6, PROJECT SPECIFIC REQUIREMENTS for renewable energy requirements for this project.

5.10.6 FUNDAMENTAL REFRIGERANT MANAGEMENT: Meet the requirements of ASHRAE Standard 189.1, Section 9.3.3.

5.11 FIRE PROTECTION

5.11.2 STANDARDS AND CODES Provide the fire protection system conforming to APPLICABLE CRITERIA.

5.11.3 INSPECTION AND TESTING: Inspect and test all fire suppression equipment and systems, fire pumps, fire alarm and detection systems and mass notification systems in accordance with the applicable NFPA standards. The fire protection engineer of record shall witness final tests. The fire protection engineer of record shall certify that the equipment and systems are fully operational and meet the contract requirements. Two weeks prior to each final test, the contractor shall notify, in writing, the installation fire department and the installation public work representative of the test and invite them to witness the test.

5.11.4 FIRE EXTINGUISHER CABINETS: Provide fire extinguisher cabinets and locations for hanging portable fire extinguishers in accordance with NFPA 10 Standard for Portable Fire Extinguishers. The Government will furnish and install portable fire extinguishers, which are personal property, not real property installed equipment.

5.11.5 FIRE ALARM AND DETECTION SYSTEM: Required fire alarm and detection systems shall be the addressable type. Fire alarm initiating devices, such as smoke detectors, heat detectors and manual pull stations shall be addressable. When the system is in alarm condition, the system shall annunciate the type and location of each alarm initiating device. Sprinkler water flow alarms shall be zoned by building and by floor. Supervisory alarm initiating devices, such as valve supervisory switches, fire pump running alarm, low-air pressure on dry sprinkler system, etc. shall be zoned by type and by room location.

5.11.6 ROOF ACCESS: Paragraph 2-9 of UFC 3-600-01 Fire Protection for Facilities will be modified in the next update to that UFC. Pending revision, comply with roof access and stairway requirements in accordance with the International Building Code. Where roof access is required by the IBC or other criteria, comply with UFC 4-010-01, Anti-Terrorist Force Protection, Standard 14. "Roof Access".

5.11.7 FIRE PROTECTION ENGINEER QUALIFICATIONS: In accordance with UFC 3-600-01, FIRE PROTECTION ENGINEERING FOR FACILITIES, the fire protection engineer of record shall be a registered professional engineer (P.E.) who has passed the fire protection engineering written examination administered by the National Council of Examiners for Engineering and Surveys (NCEES), or a registered P.E. in a related engineering discipline with a minimum of 5 years experience, dedicated to fire protection engineering that can be verified with documentation.

5.12 SUSTAINABLE DESIGN

5.12.1 STANDARDS: Sustainable design shall conform to APPLICABLE CRITERIA. See Paragraph 6, PROJECT-SPECIFIC REQUIREMENTS for which version of LEED applies to this project, however, this project shall achieve a minimum of LEED Silver Certification by Green Building Certification Institute (GBCI). Each building must individually comply with the requirements of paragraphs ENERGY CONSERVATION and PLUMBING AND WATER CONSUMING EQUIPMENT. The project must earn the points associated with compliance with paragraph 5.10, ENERGY CONSERVATION, of this RFP.

5.12.2 In accordance with the National Defense Appropriations Act of 2012, Section 2830, the contractor will not be compensated for any expenses associated with the express intent to obtain LEED certification above the SILVER level. It is recognized that competitive best value proposal details and requirements cited elsewhere in this document and supporting documents may provide for features which allow for a certification higher than SILVER to be obtained. Whether to achieve a future marketing advantage or for other purposes, the contractor may obtain LEED GOLD or PLATINUM certification(s) provided that achieving such certification imposes no additional cost to the government.

5.12.3 CONSTRUCTION WASTE MANAGEMENT: A minimum of 60% of non hazardous construction and demolition waste material generated prior to the issuance of the final certificate of occupancy shall be diverted from disposal in landfills and incinerators by recycling and/or reuse. Reuse includes donation of materials to charitable organization, salvage of existing materials onsite, and packaging materials returned to the manufacturer, shipper, or other source that will reuse the packaging in future shipments. Excavated soil and land clearing debris shall not be included in the calculation. Calculations are allowed to be done by either weight or volume, but shall be consistent throughout. Specific area(s) on the construction site shall be designated for collection of recyclable and reusable materials. Off-site storage and sorting of materials shall be allowed. Diversion efforts shall be tracked throughout the construction process.

5.12.4 LEED INNOVATION AND DESIGN AND REGIONAL PRIORITY CREDITS: LEED Innovation and Design (ID) credits are acceptable only if they are supported by formal written approval by GBCI (either published in USGBC Innovation and Design Credit Catalog or accompanied by a formal ruling from GBCI). LEED ID and RP credits that require any Owner actions or commitments are acceptable only

when Owner commitment is indicated in paragraph PROJECT-SPECIFIC REQUIREMENTS or Appendix LEED Project Credit Guidance.

5.12.5 DOCUMENTATION FOR CERTIFICATION: All LEED Prerequisite and Credit documentation shall be provided to GBCI and the Owner (if requested) in addition to any other documentation requirements. Online documentation shall be uploaded to GBCI and updated at each phase of the project.

5.13 SECURITY (ANTI-TERRORISM STANDARDS): Unless otherwise specified in Project Specific Requirements, only the minimum protective measures as specified by the current Department of Defense Minimum Antiterrorism Standards for Buildings, UFC 4-010-01, are required for this project. The element of those standards that has the most significant impact on project planning is providing protection against explosives effects. That protection can either be achieved using conventional construction (including specific window requirements) in conjunction with establishing relatively large standoff distances to parking, roadways, and installation perimeters or through building hardening, which will allow lesser standoff distances. Even with the latter, the minimum standoff distances cannot be encroached upon. These setbacks will establish the maximum buildable area. All standards in Appendix B of UFC 4-010-01 must be followed and as many of the recommendations in Appendix C that can reasonably be accommodated should be included. The facility requirements listed in these specifications assume that the minimum standoff distances can be met, permitting conventional construction. Lesser standoff distances (with specific minimums) are not desired, however can be provided, but will require structural hardening for the building. See Project Specific Requirements for project specific siting constraints. The following list highlights the major points but the detailed requirements as presented in Appendix B of UFC 4-010-01 must be followed.

- (a) Standoff distance from roads, parking and installation perimeter; and/or structural blast mitigation
- (b) Blast resistant windows and skylights, including glazing, frames, anchors, and supports
- (c) Progressive collapse resistance for all facilities 3 stories or higher. Unless determined otherwise by the Installation and noted in paragraphs 3 or 6, the building shall be considered to have areas of uncontrolled public access when designing for progressive collapse.
- (d) Mass notification system (shall also conform to UFC 4-021-01, Mass Notification Systems)
- (e) For facilities with mailrooms (see Paragraph 3 for applicability) – mailrooms have separate HVAC systems and are sealed from rest of building

6.0 PROJECT SPECIFIC REQUIREMENTS FORT STEWART, GA (REV 2.5 – 30 APR 2012)

6.1. GENERAL

The requirements of this paragraph augment the requirements indicated in Paragraphs 3 through 5.

6.2. APPROVED DEVIATIONS

The following are approved deviations from the requirements stated in Paragraphs 3 through 5 that only apply to this project.

NONE

6.3. SITE PLANNING AND DESIGN

6.3.1. General:

All the appendices, drawings, and specifications included in the RFP package are additional requirements that apply to this project.

6.3.1.1. Site Plan

A preliminary site layout plan is provided for design and development purposes. The site plan has been approved by the installation and should not be revised except to accommodate final building design. Develop the site plan based on actual building footprints, within the LIMITS OF CONSTRUCTION shown on the drawings.

6.3.1.2. NOT USED

6.3.1.3. NOT USED

6.3.1.4. On-Post Recycling Center

There is an operating recycling center on-Post. Fort Stewart/Hunter Army Air Field has a mandatory recycling program. The Command Recycling Policy is included in Appendix E. Recyclable materials listed in the mandatory recycling policy generated during the entire term of any construction, demolition, or renovation contract may be turned over to the Ft. Stewart or HAAF Recycling Program. Contractors must contact the COR who will coordinate with the DPW, Environmental Waste Management Section to arrange for turn-in of recyclable materials. In areas where large amounts of scrap metal or cardboard will be generated, it is possible that a collection bin/container could be provided at no cost to deposit these materials.

If any of the materials are recycled by the contractor or taken to a recycling center off post, the contractor will provide copies of all salvage weight/scale tickets showing the in, out, and tare weights of each load to the COR/COTR at the end of each month. The COR/COTR will provide copies of these tickets to the Fort Stewart Waste Management Section.

6.3.1.5. Waters of the U.S. and State Waters

Delineation of Waters of the U.S. (wetlands and streams) is shown on the drawings. As the Designer of Record, contact the Georgia Environmental Protection Division to determine presence of State Waters, and to prepare and submit any Stream Buffer Variance (including request fees) required as a result of specific design layout. Allow time in the schedule for State action of the request and avoid disturbances within the Stream Buffer until the request is approved.

6.3.2. Site Structures and Amenities

6.3.2.1. Storm Drainage System

Construction and material specified for storm drainage installation shall be in accordance with the State's DOT requirements. All storm drainage lines constructed under organizational vehicle hardstand, entrance drives, or surfaces subject to vehicular traffic shall be reinforced concrete pipe with watertight joints.

6.3.2.2. Dumpsters

Dumpster enclosure openings must be a minimum of 12 feet wide per dumpster.

6.3.2.2 Finished Floor

The finished floor elevation of the barracks shall be a minimum of 6 inches above the finished grade and above the 100-year base flood elevation. Finished earth grades shall be sloped away from the building at a rate of 2 percent for the first 10 feet.

6.3.2.3 Dumpsters

The Contractor shall ensure that dumpster screening is compatible with the building it serves. Dumpster enclosure area shall be located as shown on the drawings. Dumpster enclosures' openings must be a minimum of 11 feet wide per dumpster.

6.3.2.4 POV Parking

Provide as many POV parking spots as possible. At a minimum, provide 34 spaces to serve the 48-man barracks and 68 spaces (total) to serve the two 48-man barracks. The attached site plan depicts a layout in which more parking is achievable. Provide POV spaces that are a minimum of 9 feet wide by 18 feet deep.

6.3.3. Site Functional Requirements:

6.3.3.1. Stormwater Management (SWM) Systems.

(a) Design and construct an SWM system capable of controlling the runoff. Locate the SWM system within the Limits of Construction shown on the drawings.

(b) Additional information:

Design and construction of two POV parking lots, access drives and sidewalks are part of this project. See the attached site plan for layouts. One POV parking lot will be sized to accommodate 2 of the barracks and the second POV parking lot will be sized to accommodate the remaining one barracks.

Please note that there is an existing stormwater detention basin on the site. Coordination with Ft. Stewart must occur to determine what area currently drains to this pond, how the runoff is routed to the pond, (pipes vs. sheetflow), and how the pond can be expanded to handle the runoff from the EAB barracks site. Consider the use of swales around the site to accommodate the increased runoff. If the D/B Contractor chooses to expand the existing pond, it may be wet detention. If the D/B Contractor chooses to construct a new detention pond, it must be dry detention. Note that there is a high water table in this area.

(c) Provide a Storm Water Pollution Prevention Plan for approval. Keep the approved plan onsite at all times for inspection by EPA, Georgia Department Natural Resources (Georgia DNR), and Fort Stewart/Hunter AAF environmental personnel. To the extent possible within the contract cost limit, post development runoff shall equal predevelopment runoff. Storm water design shall also consider future development upstream and that flows through the project site. Wet detention ponds are not allowed. Grade all sites to drain without ponding of water. Design dry detention basins to hold water for a MINIMUM of 24 hours, to remove total suspended solids by 80%, and meet detention requirements for flood controls as required during heavier rain events. See Appendix Dry Detention Pond Specifications.

6.3.3.2. Erosion and Sediment Control

In accordance with Section 01 57 20.00 10, provide an Erosion and Sediment Control Plan, approved by the Georgia Soil and Water Conservation Commission and complying with the requirements set forth in the Fort Stewart/Hunter AAF specification Section 01354 entitled Erosion and Sedimentation Control prior to construction. See Appendix. Any violation to such permits will result in the immediate shutdown of work until corrective measures have been taken at the Contractor's expense. Implement any additional erosion and sediment control measures necessary to retain sediment within the boundaries of the project sites during all phases of construction. Ensure at least one GSWCC certified individual is available on-site during land disturbing activities (LDA). In the event that the GSWCC certified individual leaves the site and is the only individual on-site that is certified, then stop all LDA until the certified individual returns.

6.3.3.2.1. Notice of Intent (NOI) Document

Submit the NOI, and approved Erosion and Sediment Control Plan, and land disturbance fees in the amount of \$80/disturbed acre to DPW Environmental Branch.

The DPW will review the NOI package and provide comments to the Contractor. The Contractor shall revise and resubmit the NOI package for DPW signature. The DPW will submit the completed NOI package via certified mail to the State of Georgia. The NOI package must be received by the Georgia Environmental Protection Division at least 14 days prior to any land disturbing activities.

Early project coordination with the representative from the National Resources Conservation Service (NRCS) at Fort Stewart, Mr. Jim Freeman at 912-767-7829 is highly recommended.

6.3.3.2.2. Notice of Termination (NOT) Document

When 70 percent of the permanent vegetation utilized to stabilize 100 percent of the disturbed acreage is established, coordinate a site visit with the Environmental Division [POC, Russell Moncrief, at (912)767-0271] and submit the NOT to:

DPW-Environmental Division
Attn: Russell Moncrief
550 Frank Cochran Dr., Bldg. 1137
Fort Stewart, GA 31314

The DPW will sign and submit the NOT package via certified mail to the State of Georgia, Environmental Protection Division, provided the DPW Environmental Branch concurs with the Contractor's 70 percent established vegetation calculation.

6.3.3.3. Vehicular Circulation. Vehicular Circulation. Eliminate conflicting movements within parking areas and address any traffic impacts within ½ mile of the project limits.

6.4. SITE ENGINEERING

6.4.1. Existing Topographical Conditions

6.4.1.1. See Attachment J for Topographic, conceptual or final Site Layout Drawing and utility survey. Coordinate the design with tie in points provided. Verify the Government-furnished survey and obtain all additional survey information that may be required for design and construction of the project. Bring any discrepancies which are found in the Government furnished survey to the immediate attention of the Government for clarification. Perform any additional surveys required to complete this project at no additional cost to the Government.

6.4.1.2. Bring any discrepancies which are found in the furnished plans to the attention of the Contracting Officer. Complete the Site Layout Plan based on actual building footprints.

6.4.2. Existing Geotechnical conditions:

See Appendix A for a preliminary geotechnical report.

6.4.3. Fire Flow Tests See Appendix D for results of fire flow tests to use for basis of design for fire flow and domestic water supply requirements.

6.4.4. Pavement Engineering and Traffic Estimates:

6.4.4.1. A professional engineer, licensed in the State of Georgia, shall design all rigid and flexible pavements in accordance with the Contractor's final geotechnical report.

6.4.4.2. Additional information

Flexible and rigid concrete pavement shall be designed in accordance with Pavement-Transportation Computer Assisted Structural Engineering (PCASE) software available at <https://transportation.wes.army.mil/triservice/pcase/>. The pavement shall have a design life of 25 years. The pavement design for the basic site design will consider the vehicles assigned to this facility. The minimum rigid concrete pavement design thickness based on an assumed Modulus of Soil Reaction k (pci) of 200 is 7 inches rigid concrete pavement over 4 inches of compacted aggregate base. The Contractor shall base his actual design thickness on the soils boring data taken for this project. Rigid concrete pavement designs over cohesive soil subgrades or areas with high water tables require an under drain systems. A concrete joint layout plan shall be required for all rigid concrete pavements. Joint spacing and joint types shall be shown.

6.4.4.3. Vehicular Parking Areas

(a) Do not use permeable pavements (e.g., segmented pavers, pervious concrete, or pervious asphalt) in vehicular parking and other pavements.

(b) Design parking area surface slopes between 0.5% and 2.0% with a maximum of 3% in the parking stalls.

(c) Design parking areas to avoid ponding.

6.4.4.4. Flexible Pavement Design

(a) Design heavy duty flexible pavements to support H-20 loading.

- (b) Design light duty flexible pavements to support 5,000 lb axial loading.
- (c) Pavement designs over cohesive soil subgrades require under-drain systems.
- (d) The flexible pavement design shall be larger of the calculated flexible design thickness and the minimum flexible design thickness.

6.4.4.5. Rigid Pavement Design

- (a) Design rigid pavements to support H-20 loading.
- (b) The minimum pavement section shall be 6 inches rigid concrete pavement over 6 inches of compacted aggregate base course.
- (c) Pavement designs over cohesive soil subgrades require under drain systems.
- (d) Provide a concrete joint layout plan for all concrete pavements. Show joint spacing, joint types, and joint grading.

6.4.4.6. Sidewalks

- (a) Locate sidewalks a minimum of 5 feet from main roads and streets. Slope sidewalks to meet all requirements for ADAAG. Construct sidewalks of Portland Cement Concrete.
- (b) Emergency vehicle access and service drives shall be a concrete sidewalk (minimum 20 feet wide) designed to support multi-story ladder trucks weighing 75,500 pounds on three axles; two axles are double tired. Install AT/FP access control measures for the service drive meeting the requirements of UFC 4-010-01. Any vehicle control measure must be operable or removable by one person (not to exceed 90 lbs).

6.4.5. Traffic Signage and Pavement Markings. Provide traffic signs and markings per State Department of Transportation requirements and MUTCD.

Traffic Signage and Pavement Markings. Provide traffic signs and markings per State Department of

Traffic Signage and Pavement Markings. Provide traffic signs and markings per State Department of

Transportation requirements and MUTCD.

6.4.6. Base Utility Information

Utilities at Fort Stewart/Hunter AAF are a combination of Government-owned/private-maintained and completely privatized. The Contractor shall coordinate with the installation and private utilities.

Prior to the start of construction, perform utility coordination meetings with the Contracting Officer, Fort Stewart/Hunter AAF utility personnel, and the privatized utility companies. Do not interrupt utility service for buildings adjacent to this project site, except with installation approval. Coordinate approved outages thru the COR. Use the coordination meetings to identify all utility lines impacted by project construction and verify working status of the existing lines. Coordinate the proposed work on impacted utility lines with the appropriate utility company. Utility impacts to be coordinated shall include, but not be limited to, removals, temporary service and removal, and permanent relocations.

Accomplish any utility relocation to construct the facilities in such a manner as to minimize the impact to other users. The Contractor shall bear the cost of installation and relocation of all utilities except as noted otherwise.

6.4.6.1. Electrical Service

Electrical Service on this installation is privatized. Canoochee EMC is the privatized Utility Company. See paragraph 6.9 for additional information.

6.4.6.2. Communications Service

The Government owns communication service on this installation. Design and install outside plant (OSP) communication infrastructure including cabling. See paragraph 6.9 for additional information.

6.4.6.3. Sanitary Sewer Service

The Government owns the sanitary sewer service on this installation. Government point of contact is Fred Cavedo, 912-767-5499.

Refer to Appendix E for sanitary sewer system permit requirements. Contact Stanley Thomas, Water, Wastewater, and Landfill Compliance Program Manager, Environmental Compliance Branch, Directorate of Public Works 1550 Frank Cochran Drive, Bldg. 1137 Fort Stewart, Georgia 31314-4940; Phone: 912-767-4139.

6.4.6.4. Storm Drainage Service

The Government owns the storm drainage system on this installation. Government point of contact is Fred Cavedo, 912-767-5499.

6.4.6.5. Water Service

The Government owns the water service on this installation. Maps are available through the installation. Government point of contact is Fred Cavedo, 912-767-5499. Design and construct water lines from the connection point to the building. Conceptual or final tie-in points are shown on the drawings. Coordinate with installation Environmental personnel on chlorination requirements. The following are required elements for the water distribution system:

- (a) Backflow prevention devices
- (b) Lead-free solder on copper pipes
- (c) Water service connections must be metered
- (d) Water conserving fixtures such as low flow toilets, faucets, and showerheads, and waterless urinals to facilitate compliance with water/waste water permitting requirements

Refer to Appendix E for water system permit requirements. Contact Stanley Thomas, Water, Wastewater, and Landfill Compliance Program Manager, Environmental Compliance Branch, Directorate of Public Works, 1550 Frank Cochran Drive, Bldg. 1137 Fort Stewart, Georgia 31314-4940; Phone: 912-767-4139.

6.4.6.6. Natural Gas Service

Natural gas **IS** available in the project area. The design, routing, tie-in, and installation of the exterior gas distribution system (up to and including the gas meter/regulator assembly) shall be accomplished by the Design/Build Contractor. Natural gas meters to be provided shall be compatible with the building's DDC system. Fort Stewart purchases natural gas through a Defense Energy Supply Company (DESC). The utility is distributed locally by Atlanta Gas Light. The installation receives natural gas on a firm basis. Point of contact at Fort Stewart for gas service line capacity, size, routing, and points of connection to the gas distribution system is Fred Cavedo, 912-767-5499. The nearest gas line available for use by this project is located as indicated in the Attachments.

6.4.6.7. Hydronic Piping

No existing chilled water or heating water distribution lines are available in or near this project area.

6.4.6.8. Local Telephone Service

The local telephone company will design and install outside plant (OSP) local telephone service (e.g., subscription service to permanent party barracks). Coordinate with the local telephone company to assure ductline entry into the building.

6.4.6.9. Cable TV Service

Cable TV service on this installation is privatized. The local cable company will design and install CATV distribution to and within the project site. Coordinate with the local cable company to assure ductline entry into the building. See paragraph 6.9 for additional information.

6.4.7. Cut and Fill

Earth cut and fill slopes shall not exceed 3 horizontal to 1 vertical. Retaining walls are an option to limit the amount of cut and fill. Locate retaining wall in the following areas:

Earth cut and fill slopes shall not exceed 3 horizontal to 1 vertical.

6.4.8. Borrow Material

6.4.8.1. D5.2 BP1 is the only fill source accessible within the cantonment area without checkpoints/gates and is also NOI permitted requiring NO submittals and/or fees. Additional sources of fill are available outside of the cantonment area. Borrow pits are acquired on a first come, first serve basis. Determination of soil suitability and quantity is the responsibility of project engineer/management. NOTE: Due to location being adjacent to wetlands and high groundwater levels, dewatering of borrow pit(s) must be expected. Work must follow the guidelines within the Georgia's BMP's to prevent silts and sediments from leaving the borrow pit area and entering the waters of the State of Georgia. In addition, any construction projects utilizing/impacting area exceeding 0.75 acres within a borrow pit except for D5.2 BP1 (permitted) must submit a NOI and pay necessary fees. NOI submittal and processing will take approx. 2-3 weeks. In order to avoid project delays, schedule accordingly. If fill material is needed, contact Jesse Coursey @ (912) 767-1211. A Borrow Pit Excavation Application must be completed and approved prior to receiving a Borrow Pit Permit.

Borrow areas are available on the installation. The contractor shall coordinate with the COR for location of the borrow pits. Borrow pits are available on a first come, first serve basis. Due to high groundwater levels, dewatering/pumping of borrow pits must be expected. Proper sedimentation and erosion control BMP's must be implemented. Waste area is not available on the installation.

6.4.9. Haul Routes and Staging Areas

6.4.9.1. Haul routes are shown on the site drawings. The Installation must approve any requested changes to the haul routes shown. Coordinate with the installation through the COR.

6.4.9.2. Additional Site Requirements

(a) Employee parking. Employees shall park privately owned vehicles in an area designated by the Contracting Officer. This area will be within reasonable walking distance of the construction site. Employee parking shall not interfere with existing and established parking requirements of the Installation.

(b) Temporary Utilities. All temporary utilities (e.g., water, sewer, electrical, and telecommunications) will be at the Contractor's expense and subject to Fort Stewart/Hunter Army Air Field regulations. The utility cost information is located at Appendix K. Negotiate and contract with the privatization utility directly without benefit of the Government.

(c) Storage Area. Trailers, equipment, or materials shall not be open to public view with the exceptions of those items which are in support of ongoing work on any given day. Locate the staging area within the Limits of Construction unless previously approved by the Contracting Officer and the

Installation. Comply at all times with the Fort Stewart Command Policy Memorandum, Subject: Design and Maintenance of Contractor Storage Areas. A copy of the memorandum is included in Appendix DD.

6.4.10. Clearing and Grubbing:

6.4.10.1. Tree Removal and Timber Harvesting Requirements

Timber Harvesting will be completed under separate contract prior to Notice To Proceed. Remove all trees or portions of trees remaining after the Timber Harvest Contractor has completed his operations.

6.4.10.2. Timber Harvesting in Wetlands and Streamside Management Zones

If clearing of trees is required within 25 feet of the wretched vegetation of either side of a stream and/or state water, acquire a stream buffer variance from the Georgia Environmental Protection Division (EPD) before the trees can be removed. If at the time of timber harvest, stream buffer variance permits have not been acquired, then the stream buffer areas must remain untouched until the required stream buffer variance permits have been issued. Cut and stockpile all merchantable trees in stream buffer areas. Stockpile all merchantable trees that meet the following criteria on the foot print of the construction site for pick-up by the Government timber harvest contractor.

- (a) Pine Sawtimber is a minimum of 10 inches diameter at breast height (DBH) and 25-foot length to an 8-inch top.
- (b) Pine Pulpwood is a minimum of 6 inches in DBH and 25-foot length to a 3-inch top.
- (c) Hardwood Pulpwood is a minimum of 6 inches DBH and 25-foot length to a 3-inch top.
- (d) Hardwood Sawtimber is a minimum of 12 inches DBH and 16.5-foot length to a 12-inch top.

6.4.10.3. Harvesting Streamside Management Zones and Wetlands

- (a) Use site-specific equipment and methods to minimize water quality impacts, including high-flotation, low-pressure harvesting equipment, shovel logging, or cable yarding.
- (b) Concentrate skid trails and use logging slash, mats or other techniques to minimize soil compaction and rutting.
- (c) Use techniques that minimize soil disturbance, such as backing trees out with machine, using low ground pressure equipment, using equipment with a boom or cable winch.
- (d) Maintain the integrity of stream banks.
- (e) Minimize the exposure of mineral soil by spreading logging slash and using it to drive over.
- (f) Follow Federal mandated stream and wetland crossing procedures.
- (g) Ruts can not be deeper than 12 inches in wetland areas and stream variance areas
- (h) Must Avoid 1) using de-limbing gates or trees as de-limbing gates in the wetlands or stream variance areas or 2) Leaving tops in stream channels.

6.4.10.4. Slash and Residual Tree Removal

Submit a written plan for disposal of all remaining timber at least 15 days prior to any removal. Indicate the method of disposal and the location. The disposal shall occur in one of the following ways unless the Government otherwise approves:

- (a) Chip the debris and haul off Fort Stewart/Hunter AAF.
- (b) Chip the debris and use as mulch for landscaping. Chips used for this purpose cannot exceed a depth of 3 inches.
- (c) Haul debris to a non-Government landfill off of Fort Stewart/Hunter AAF.

6.4.10.5. Clearing and grubbing area must be cleared free of organics to a depth where suitable soil for construction is obtained.

6.4.11. Landscaping:

Comply with the following references:

(a) Specification SECTION 32 93 00, EXTERIOR PLANTS. It is the standard for all Installation-wide landscape plantings. See Appendix I.

(b) Plant trees, shrubs and grasses in accordance with Fort Stewart's approved plant list palette (See Appendix I).

(c) Submittals in accordance with Section 01 33 00 SUBMITTAL PROCEDURES shall be provided to the DPW Landscape Architect prior to the installation of any plants, trees, shrubs or grasses for the following:

- SD- 04 Samples
 - Topsoil - submit one pint
 - Mulch - submit one pint
- SD-06 Test Reports
 - Topsoil Composition Tests; Soil Test of proposed landscape planting areas
 - Percolation Test; Percolation Test of proposed landscape planting areas

6.4.12. Turf: Sod all disturbed areas within the Garrison area. All other areas may be seeded. Use Tifway 419 Bermuda for sod and seed.

6.5. ARCHITECTURE

6.5.1. General: To the maximum extent possible within the contract cost limitation, the buildings shall conform to the look and feel of the architectural style and shall use the same colors as adjacent facilities as expressed herein. The Government will evaluate the extent to which the proposal is compatible with the architectural theme expressed in the RFP during the contract or task order competition. The first priority in order of importance is that the design provides comparable building mass, size, height, and configuration compared to the architectural theme expressed herein. The second priority is that design is providing compatible exterior skin appearance based upon façade, architectural character (period or style), exterior detailing, matching nearby and installation material/color pallets, as described herein.

6.5.2. Design

6.5.2.1. Appendix F is provided "For Information Only", to establish the desired site and architectural themes for the area. Appendix F identifies the desired project look and feel based on Fort Stewart's Installation Architectural Theme from existing and proposed adjacent building forms; i.e. building exterior skin, roof lines, delineation of entrances, proportions of fenestration in relation to elevations, shade and shadow effects, materials, textures, exterior color schemes, and organizational layout.

6.5.2.2. The design should address Fort Stewart's identified preferences. Implement these preferences considering the following:

- (a) Achievable within the Construction Contract Cost Limitation (CCL)
- (b) Meets Milestones within Maximum Performance Duration.
- (c) Achieves Full Scope identified in this Solicitation
- (d) Best Life-Cycle Cost Design
- (e) Meets the Specified Sustainable Design and LEED requirements

(f) Complies with Energy Conservation Requirements Specified in this RFP.

6.5.2.3. Priority #1. Visual Compatibility: Facility Massing (Size, Height, Spacing, Architectural Theme, etc.) Exterior Aesthetic Considerations: The buildings massing, exterior functional aesthetics, and character shall create a comprehensive and harmonious blend of design features that are sympathetic to the style and context of the Installation. The Installation's intent for this area is:

Fort Stewart is currently implementing an architectural design theme called "Southern Living Station of Choice," implying that the installation has all the amenities that would cause a military service member to request being stationed at Fort Stewart. The architectural characteristics of this theme are reminiscent of the Southern Colonial Revival style. It incorporates specific architectural features such as porticos, verandas, columns, low-pitched hip or gable roofs and regular patterns of fenestration. Building materials such as brick, concrete masonry units and stucco are used and the range of colors is limited to emphasize earth tones and white. When properly combined, these elements create an architectural image which expresses continuity with Georgia architectural traditions. In the current period of construction, a number of buildings are completed or under construction, and more are planned. These include the Command and Control Facility (Bldg. 001), the Army Education Center, the Soldier Service Center (Bldg. 253), the Troop and Family Care Medical Clinic (Bldg. 412), the Military Police Headquarters (Bldg. 258), the Post Chapel (Bldg. 500), the entrance gates and the new Brigade Combat Team (BCT) area. (See appendix "F" for pictures of the buildings mentioned above.)

Design Techniques for Consistent Structural Character

Fort Stewart seeks to further achieve consistency in design throughout the visual zones by applying the design preferences of the Southern Living Station of Choice theme. Development of consistent character provides a coherent 'sense of order' and 'sense of place.' This relationship of design comes from using compatible scale, massing, form, color, texture, materials and fenestration. These design principles are explained in the following paragraphs:

(a) Scale, Scale refers to the size of a building façade in relation to humans. Buildings with predominant vertical façades, which dwarf the individual, are defined as monumental in scale. Buildings with more horizontal façades, designed to relate to the size of the human figure, are defined as human scale. Most buildings on Fort Stewart are and should be human rather than monumental scale. Monumental architectural design is typically utilized for more prominent or ceremonial buildings, such as headquarters complexes and worship facilities. These types of buildings make use of large, glazed areas at entrances and oversized fenestration to create a more dominant scale. The new Post Chapel (Bldg. 500) is an example of a monumental-scale building. All new construction on Fort Stewart should be compatible in scale with adjacent buildings. Relief should be provided through roof form, fenestration, building projections, and landscape plantings. Creation of human-scaled buildings on Fort Stewart will be achieved by limiting the height of buildings to no more than three stories, terminating buildings with low-pitched (between 3:12 and 5:12 pitch) hipped or gabled roofs with dormers or gablets, and designing buildings with regular fenestration patterns.

(b) Massing, Massing refers to the overall bulk or volume of a building. The size and proportion of individual buildings should be designed to be proportionally compatible with adjacent buildings (Fig. 8.20). The massing of the majority of buildings and structures on Fort Stewart is broken up by complex roof configurations, gabled entrance porticos, projecting bays or piers or alternating window and wall bays.

(c) Form, The form of a building is determined by its size, mass, shape, and proportions. The use of similar building forms provides continuity to the installation architecture. The result is a more aesthetically pleasing environment. Low-scale, rectangular building forms are repeated throughout Fort Stewart.

(d) Color, The use of a color scheme that is consistent throughout the installation results in continuity of buildings and contributes to a sense of place. However, color schemes throughout the installation

often vary according to the visual zone and visual theme in which the structure is located. Fort Stewart has broadly-defined color schemes for each visual zone in the cantonment area (see Section

8.14). For instance, the preferred colors (and materials) of buildings in the Headquarters Visual Zone is red (brick) walls and patina green (sheet metal) roofs. New construction on Fort Stewart must adhere to the defined color schemes.

(e) Texture, The use of materials with similar texture in buildings helps to provide visual continuity for the installation.

(f) Materials, The use of the same materials in the exterior finish and trim of buildings helps provide visual continuity. Fort Stewart has identified the primary and secondary building materials for walls, wall openings, and roofs for each visual zone. For instance, the preferred materials (and color) of buildings in the Headquarters Visual Zone are brick walls (red) and sheet metal roofs (patina green). Designs for new buildings or structures on Fort Stewart should use the materials listed in Appendix "F".

(g) Fenestration, Fenestration is the design and arrangement of windows in the walls of a building. Windows should be similar in design, size, and proportion for architectural compatibility and visual consistency. A regular fenestration pattern and avoidance of continuous bands of windows across entire facades are two of the design preferences for buildings on Fort Stewart.

(h) Building Entrances, Fort Stewart has emphasized prominent building entrances for new construction. This design emphasis creates a definitive sense of entry appropriate to the size or importance of the building. Evidence of this can be seen at both the Soldier Service Center and the Post Exchange (Figs. 8.23 and 8.24). This trend should continue.

Building entrances are designed to conform to the following guidelines:

- The entrance to a building should be in a prominent location and should be oriented toward the primary

adjacent public spaces, such as a courtyard, lawn, parking lot, or street.

- The preferred configuration of a primary entrance for a building of large size or importance is a double-

door entry under a full-height, front-gabled portico supported by classical-style columns. For other

types of buildings, the main entrance should consist of a small gabled portico or gabled hood over a

double-door or recessed entry (Fig. 8.25). An entrance should not be barrel-vaulted.

- The details of an entrance should be designed to provide continuity with other entrances to the building and the entrances of adjacent buildings.

6.5.2.4. Priority #2. Architectural Compatibility: Exterior Design Elements (Materials, Style, Construction Details, etc.) Roofs, Exterior Skin, and Windows & Door Fenestrations should promote a visually appealing compatibility with the desired character while not sacrificing the integrity and technical competency of building systems.

6.5.2.5. See Appendix F for exterior colors that apply to Architectural character at Fort Stewart. The manufacturers and materials referenced are intended to establish color only, and are not intended to limit manufacturers and material selections.

6.5.2.6. Additional architectural requirements:

- (a) Install fall protection anchor points on all roofs with a slope greater than 2:12
- (b) Lockset cylinders shall be fully compatible with products of the Best Lock Corporation and shall have interchangeable cores which are removable by a special control key. Cores shall have seven pin tumblers and shall be factory set using the A4 system and E keyway. All locksets and exit devices shall accept the same interchangeable cores.
- (c) If the project includes any elevators, provide an elevator inspector, licensed by the State of Georgia, who shall inspect the installation and provide testing of all new elevators and certify in writing that they meet all requirements.
- (d) Color match all exterior louvers, vents, exhaust grilles, etc. to the surrounding building finish material, unless otherwise specified by the Installation.
- (e) Use standard size brick (or standard size brick veneer) for all exterior brick facades.
- (f) Submit exterior finishes for (Installation Master Planning Division, DPW) Government approval (GA).

6.5.3. Not Used

6.5.4. INTERIOR DESIGN

Interior building signage requirements:

No additional requirements.

6.6. STRUCTURAL DESIGN

6.6.1. Foundation

Treat subgrades under all facility foundation to resist subterranean and other wood destroying insects known to exist in the vicinity of the site. Such treatment shall be in accordance with the environmental criteria referenced in this document.

6.6.2. Slabs on Grade

Provide all interior slabs on grade, including storage and mechanical rooms, garages, and carports with a moisture vapor barrier consisting of lapped polyethylene sheeting having a minimum thickness of 6 mils and a minimum 4-inch thick capillary water barrier. Provide capillary water barrier of clean, washed, sand, poorly graded rock, crushed gravel, or natural gravel. Conform to ASTM C 33 for fine aggregate grading with a maximum of 3 percent by weight passing ASTM D 1140, No. 200 sieve (wash), or coarse aggregate size Nos. 57, 67, 7, 78, or 89.

6.6.3. Structural Loading

(a) For Seismic and Wind Load Analysis, the occupancy factor shall be II, as indicated in the most recent version of ASCE 7.

(b) The wind analysis shall be based on a minimum design wind speed of 110 mph for Ft Stewart and 120 mph for Hunter AAF.

(c) For seismic design (Site Class B), the maximum considered earthquake (MCE) spectral response acceleration at short periods and 1 second period shall be, $S_s = 29\%g$ for Ft Stewart and $38\%g$ for Hunter AAF and $S_1 = 10\%g$ for Ft Stewart and $12\%g$ for Hunter AAF..

(d) Snow load is Zero.

(e) Roof Live Loads (20 psf minimum)

(f) Frost Penetration is Zero.

6.7. THERMAL PERFORMANCE

No additional requirements

6.8. PLUMBING

6.8.1. For barracks buildings: In all toilet areas requiring water closets, provide elongated floor mounted vitreous china flush tank type with vitreous china lid.

6.9. SITE ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.9.1. General.

6.9.1.1. See Appendix C: UTILITY CONNECTIONS for additional information and points of contact.

6.9.1.2. Hold site coordination meetings at the start of design and when necessary thereafter. Meet with all applicable parties, including the installation Network Enterprise Center (NEC), the privatized electric Utility Company, the local cable television (CATV) company, and the Contracting Officer's Representative (COR). Address all design, demolition, and construction work including schedules, capacities, equipment selection, equipment locations, utility routing, connection points and final connection responsibilities..Route all coordination including exchanges of information between the Design-Build Contractor and the installation DPW, NEC, the Utility Company, the local CATV company information and other utility entities through the COR. Coordinate the installation of all privatized utilities to avoid conflicts and ensure all utilities are in place prior to landscaping

6.9.2. Exterior Electrical Distribution System

6.9.2.1. General. Canoochee EMC owns, manages, and maintains the primary distribution system at Ft. Stewart. The existing primary power distribution system is a 24900/14400 volts, three-phase, four-wire, grounded wye system. The Utility Company will design and construct site electrical primary distribution infrastructure, cabling, equipment, provide and install meters and the service transformer(s). The Utility Company will install secondary service cable from the point of metering to the service transformer. The Utility Company will demolish existing exterior primary lines and equipment no longer required on the project site(s). For all services, the utility will install the cable terminators and connect to the transformer. The Utility Company's work will be under separate contract with the Government and is not part of this contract.

6.9.2.2. Coordination of Schedules. Develop a schedule with the Utility Company concerning transformer delivery times and any offsite utility upgrade projects required to provide power to this project. Coordinate all schedules to insure that all projects are completed without compromising the Beneficial Occupancy Date.

6.9.2.3. Outages. Schedule outages on the existing systems for off peak times (nights and weekends) and obtain approval from DPW. Give a minimum of 2 weeks advance notification of outage. Make full preparations before the outage, in order to minimize the downtime duration.

6.9.2.4. Secondary Service and Exterior Circuits.

(a) Design and construct the site electrical secondary distribution (e.g., site electrical service entrance ducts, site electrical service entrance conductors between the building service equipment and the point of metering, and site feeder and circuit conduit and conductors for sump pumps, irrigation pumps and other electrical and mechanical equipment.)

(b) Coordinate the location for the meter with the Utility Company. Services greater than 600 amp capacity are typically metered at the service transformer.

(c) Secondary service ductlines shall be direct-burial, thick wall type, Provide concrete encasement in areas subject to vehicular traffic. Transitions from below-grade to above-grade shall be galvanized rigid steel. Fittings for steel conduit shall be steel threaded or compression type. Secondary service ductlines shall include a minimum of one spare duct, sized to match the filled ducts.

(d) Provide a 1-inch conduit from the electric utility meter to a data collection point located inside the building communications room.

6.9.2.5. Service Transformer. Furnish demand load data to the utility and the COR in a timely manner to facilitate Utility Company's transformer procurement. Determine the secondary voltage and provide that information to the Utility Company. Obtain transformer impedances from the Utility Company to perform electrical calculations. Coordinate the location of the service transformer with the Utility Company.

6.9.2.6. See Appendix AA: CANOOCHEE EMC RESPONSIBILITIES, and Appendix BB : CONTRACTOR/CANOOCHEE DEMARCATION LINE for additional information. The Contractor (identified as GC in the appendices) shall comply with all requirements within these appendices unless otherwise indicated.

6.9.3. Exterior Lighting

6.9.3.1. Design all site lighting within the project site. The design shall comply with the recommendations of the Illuminating Engineering Society of North America (IESNA) and shall be based on standard full-cutoff fixtures of the Utility Company approved for use at Fort Stewart. Coordinate the lighting design and conduit routing with Canoochee EMC to ensure timely procurement and installation of equipment by the Utility Company. See Appendix AA for additional exterior lighting design and construction responsibilities.

6.9.3.2. The Utility Company owns and maintains site lighting, defined as all exterior lighting outside of the building 5 foot line, Site lighting includes but is not limited to roadway, walkway, parking, hardstand, physical training (PT) field, sports and area lighting.

6.9.3.3. The Contractor is responsible for design and construction of exterior lighting mounted on the new buildings. Wall mounted site lighting fixtures shall be the fully shrouded, full cut-off type, compatible with the building architecture. The Contractor is responsible for lighting of walkways within 5-feet of the building. Lighting shall be controlled automatically.

6.9.3.4. Calculate the site lighting power densities and demonstrate compliance with the requirements of ASHRAE 90.1 and LEED (where applicable). Coordinate with the Utility Company to obtain information required to calculate the site lighting power densities.

6.9.3.5. The Utility Company will demolish existing lighting structures and associated site conduit and wiring no longer required on the project site(s).

6.9.3.6. All Electric Utility Company work will be under a separate contract with the Government. Such work is NOT part of this contract.

6.9.3.7. For additional guidance regarding the separation of responsibilities between the Contractor and the Utility Company (Canoochee EMC), see APPENDIX AA: CANOOCHEE EMC RESPONSIBILITIES and APPENDIX BB: CONTRACTOR/CANOOCHEE DEMARCATION LINE.

6.9.4. Exterior Communication Services

6.9.4.1. Coordinate and obtain approval for the telecommunications design from the NEC Quality Assurance Officer prior to construction.

6.9.4.2. Connect to the OSP, extending a new ductline, manhole and cable system to the building main communications room. Coordinate the sizes and quantities of the conduits between manholes with the installation NEC. Terminate cables on protected entrance terminal blocks in the building main communications room. Coordinate the duct bank and OSP cabling design and construction with the installation NEC, The NEC will provide location of duct bank and OSP cabling connection point.

6.9.4.3. All ductlines shall include one duct with 3-way Maxcell innerduct.

6.9.4.4. Provide a minimum of 4 weeks advance notification to NEC through the COR prior to any demolition of communication lines or equipment.

6.9.4.5. Provide 50 feet of service loop at the building communications room and in each manhole and hand hole. Tag all cables.

communications conduit and cabling as shown on drawings in Appendix J.

6.9.5. Cable Television (CATV) Service

6.9.5.1. Comcast Cable is the local cable television (CATV) company at Fort Stewart. Comcast will provide and install service cabling throughout the project site, terminating at the head-end equipment in each building under separate contract with the Government. That work is not part of this contract.

6.9.5.2. Coordinate site work and site/facility interfaces with Comcast Cable. Coordination shall include interface requirements between the building CATV system and the site CATV system.

6.9.5.3. Comcast will provide and install head-end equipment. Coordinate head-end equipment locations with Comcast and NEC.

6.9.5.4. Extend one 4-inch duct from the CATV backboard location to a location specified by Comcast

6.9.6. Cathodic Protection. Obtain soil resistivity data on site to assist in determining the cathodic protection requirements.

6.10. FACILITY ELECTRICAL AND TELECOMMUNICATIONS SYSTEMS

6.10.1. Telecommunications Systems

6.10.1.1. LAN hubs and other communication electronics shall be Government-furnished, Government-installed (GFGI); all other equipment shall be Contractor-furnished, Contractor-installed (CFCI). Connect the BCS with the outside plant (OSP) Notify the Contracting Officer and the NEC Quality Assurance Officer 14 days prior to connection between the BCS and OSP. Representatives of the Contracting Officer and the NEC Quality Assurance Officer will witness the connection.

6.10.1.2. Coordinate design with the Network Enterprise Center (NEC) Quality Assurance Officer. The NEC and the US Army Information Systems Engineering Command (ISEC) must concur with the design prior to construction See Appendix C, UTILITY CONNECTIONS for NEC points of contact.

6.10.2. Intrusion Detection System

6.10.2.1. Where an Intrusion Detection System (IDS) is required by paragraph 3, the Design-Build Contractor shall provide power, communication, and signal circuits including all wiring, conduit, and boxes for the IDS system. The Government will provide and install the actual sensors (door alarm sensor, passive infrared motion sensor, and the duress alarm sensor, etc) and the Control Unit.

6.10.2.2. Provide a dedicated 20A, 120VAC circuit with a ground wire to the IDS Control Unit enclosure. The conduit for the IDS telephone line shall originate at the communications backboard and terminate in the IDS Control Unit enclosure. The enclosure shall be GFCI. Coordinate with the Physical Security Division (912) 767-8490.

6.10.2.3. Each alarm sensor shall report to the IDS Control Unit. Wiring for the balanced magnetic switch (door alarm sensor) and the duress alarm sensor(s) shall each be a 22 AWG, 4-conductor, stranded wire. Wiring for the PIR motion sensor(s) shall be a 22 AWG, 4-conductor stranded wire. Terminate wiring and conduit for the door alarm sensor near the opening side of the door, adjacent to the ceiling with a 4-inch square metal box. Coordinate locations and connection points with the Installation Physical Security Officer during design. Coordinate the IDS requirements including final sensor box locations with the Fort Stewart Physical Security Division (912) 767-8490. The Government's ICIDS contractor will complete the installation of the sensors and program the control unit to put the system on-line at the monitor station.

6.10.3. Cable Television System

6.10.3.1. Where cable television (CATV) is required, design and install the complete building CATV system in accordance with the I3A. Provide cable television outlets in each reception area, private office, open office, lounge, conference room, training room, classroom, snack bar and elsewhere as appropriate.

6.10.3.2. Coordinate CATV requirements with the local CATV company, Comcast Cable. Coordination includes interface requirements between the building CATV system and the site CATV system. See Appendix C: UTILITY CONNECTIONS for Comcast points of contact.

6.11. HEATING, VENTILATING, AND AIR CONDITIONING

6.11.1. Utility Monitoring and Control System (UMCS)

The existing UMCS is a Johnson Controls (Metasys) UMCS, which is a web-based system located in Building 1134. The Fort Stewart point of contact for UMCS is Energy Engineer, Mr. Fred Louis (912-767-5034). The building level controllers and DDC System shall utilize LonWorks technology. The Government's separate system integration contractor will integrate the building DDC systems. The design-Build Contractor shall coordinate with Mr. Louis for integration of building DDC systems. Before starting the design, meet with Mr. Louis to discuss the installation's requirements for graphics and programming. Additional requirements for DDC systems are in the "Fort Stewart Supplement To LONWorks Direct Digital Control for HVAC and Other Local Building Systems" in the APPENDIX.:

6.11.2. Outdoor Design Conditions

[Not Supplied - PS_HVAC : HVAC]

6.12. ENERGY CONSERVATION

6.12.1. Inclusion of Renewable Energy Features. The following renewable energy features have been determined lifecycle cost effective, are included in the project budget and shall be provided:

[Not Supplied - PS_EnergyConservation : RENEWABLE_ENERGY_FEATURES]

6.13. FIRE PROTECTION

6.13.1. The building fire alarm and detection system (FADS) shall be an addressable Class A system fully compatible with the base-wide Monaco D21 central fire alarm system. Coordinate fire alarm zone descriptions and number with the fire department. (Single-story buildings typically require a minimum of 8 to 11 fire alarm zones; each floor above the first floor requires an additional 6 fire alarm zones.)The FADS shall include an integrated radio transceiver, Monaco BT-X or approved equal. Manual pull stations shall be metal, double action type, and shall not use break rods. Key the FADS to the LS-300 keying standard in all cases. Coordinate the fire alarm requirements with the Fort Stewart Fire Chief [Donald Hollis at (912) 767-2636, email address: donald.hollis2@us.army.mil].

6.13.2. Provide a Knox 3200 Series recessed wall mounted key vault for Fire Department use at each building exterior. Locate adjacent to the main building entrance. Coordinate purchase of key vault through the Installation Fire Department for purchase order information and forms.

6.13.3. Provide an exterior post indicator valve with tamper switch reporting to the fire alarm control panel (FACP) on the sprinkler service main.

6.13.4. Protection of Piping Against Earthquake Damage: Protect sprinkler and fire pump piping systems against damage from earthquakes. Seismic protection shall include both flexible and rigid couplings, sway bracing, seismic separation assemblies where piping crosses building seismic separation joints, and other features as required by NFPA 13.

6.13.5. Fire Pump: Determine if a fire pump is required based on fire flow test data and fire protection system design requirements. If a fire pump is required, provide a complete fire pump system installation.

6.13.6. Fire Extinguisher Cabinets and Brackets: Provide semi-recessed cabinets in finished areas and provide brackets in non-finished areas (such as utility rooms, shops, and vehicle bays). Note the location of cabinets and brackets on the architectural drawings. Size cabinets and brackets to accommodate a minimum of a 10-pound ABC extinguisher.

6.13.7. Mass Notification System (MNS): Provide a combined system or equivalent that performs both as an individual building MNS and as the building Fire Alarm voice evacuation system.

6.13.7.1. The MNS shall be fully compatible with and integrated into the basewide Mass Notification System manufactured by Acoustic Technology Inc. (ATI) and shall be capable of accepting all pre-recorded messages as well as live messages from a remote site by way of dry contacts and 600 ohm audio inputs.

6.13.7.2. Coordinate work and site/facility interfaces with ATI Systems. Procure and install the ATI interface ATI Systems uses a wireless Motorola radio system. Coordinate interface requirements between the building MNS system and the site MNS system. Key the MNS to the LS-300 keying standard in all cases. The ATI Systems point of contact for procurement and installation is Antonio Cracchiolo at (617) 567-4969 x307. The contact for coordination of the tie-in at Fort Stewart is Eric Waters at (912) 767-3417.

6.14. SUSTAINABLE DESIGN

6.14.1. LEED Rating Tool Version. This project shall be executed using **LEED-NC Version 2.2**.

6.14.2. The minimum requirement for this project is to achieve LEED **Silver** level. Each non-exempt facility (building plus sitework) must achieve this level. In addition to any facilities indicated as exempt in paragraph 3, the following facilities are exempt from the minimum LEED achievement requirement: **Not Applicable**.

6.14.3. Credit Validation: LEED registration, compiling of documentation at LEED OnLine and use of the LEED Letter Templates is required. Registration and payment of registration fees will be by the **Government**. Administration/team management of the online project will be by the **Contractor**. Validation of credits will be accomplished by the Government. LEED certification of the project by the Contractor is required. The Contractor will obtain LEED certification prior to project closeout. Application, payment of certification of fees and all coordination with USGBC during the certification process will be by the Contractor. GBCI interim review of design phase data is not required by the Government but is recommended. Government validation during project execution does not relieve or modify in any way the Contractor's responsibility to satisfy all requirements for certification as defined by LEED and GBCI. Contractor is not responsible for design phase LEED documentation of any unaltered portion of the design that is accomplished by others. If the project includes unaltered complete design by others, during the certification process Contractor will coordinate all GBCI comments on LEED credits that fall outside Contractor's scope of responsibility with the Government for coordination with the Designer of Record, and Contractor will not be penalized if project fails to achieve certification at the minimum required level due to loss of credits that are the responsibility of others.

6.14.4. Commissioning: See Appendix M for Owner's Project Requirements document(s).

6.14.5. LEED Credits Coordination. The following information is provided relative to Sustainable Sites and other credits.

SS Credit 1 Site Selection:

Project site **IS NOT** considered prime farmland.

Delineation of 100-year flood elevation is shown on site drawings provided in this CONTRACT.

Delineation of threatened or endangered species habitat is shown on site drawings provided in this CONTRACT.

Delineation of water, wetlands and areas of special concern is shown on site drawings provided in this CONTRACT.

Project site **WAS NOT** previously used as public parkland.

SS Credit 2 Development Density & Community Connectivity.

Project site **DOES NOT** meets the criteria for this credit.

SS Credit 3 Brownfield Redevelopment.

Project site **DOES NOT** meets the criteria for this credit.

SS Credit 4.1 Public Transportation Access.

Project site **DOES NOT** meets the criteria for this credit.

EA Credit 6 Green Power.

35% of the project's electricity **WILL NOT** be provided through an Installation renewable energy contract. Do not purchase Renewable Energy Credits (REC's) to earn this credit.

MR Credit 2 Construction Waste Management.

The Installation has an on-post recycling facility.

6.14.6. LEED Credit Preferences, Guidance and Resources. See Appendix L LEED Project Credit Guidance for supplemental information relating to individual credits.

6.14.7. Not Used

6.14.8. For all Fort Stewart projects using LEED Online, invite the following individuals at the beginning of the project, assigned QA/QC role: Lynda.s.pfau.ctr@mail.mil, Judith.f.milton@usace.army.mil, Stephen.d.bentley@usace.army.mil, Savannah District Project Manager, Fort Bragg Project Manager (name varies - coordinate at kickoff meeting)

6.14.8.1. Additional Information

No additional requirements.

6.15. ENVIRONMENTAL

6.15.1. Comply with all Federal, State, and local environmental requirements to include all requirements of the Fort Stewart Directorate of Public Works Environmental Division as outlined in the Appendix E regarding disposal, borrow pit usage, storm water management, air quality, water quality, storage tanks, cultural resources, and forestry. Refer to Appendix E for the project's National Environmental Policy Act (NEPA) Documentation..

6.15.2. Site Evaluation

No additional information.

6.15.3. Contractual Responsibilities of All Parties in the Event of Encounter with Contamination

If the Contractor encounters materials or conditions which indicate that there may be contamination on the site, stop all work on the job site and report the discovery of the contaminants to the Contracting Officer's Representative (COR). The Contracting Officer will issue a written order to resume work or to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the Government as provided in FAR 52.242-14 - SUSPENSION OF WORK. The Government will be responsible for making an assessment

of the contaminated site if this course of action is determined to be appropriate. After the assessment has been completed, the Government reserves the right to the following courses of action:

- (a) Direct the Contractor to resume work.
- (b) Contain, clean up or institute avoidance action at the contaminated site prior to directing the Contractor to resume work. The COR will determine whether the containment or cleanup is to be accomplished by others or the Contractor.
- (c) Relocate the project site.
- (d) Terminate the contract for the convenience of the Government as provided in FAR 52.249-1 - TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (SHORT FORM) or FAR 52.249-2 - TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) - ALTERNATE I as applicable.

6.16. PERMITS

6.16.1. General

6.16.1.1. The Government has not obtained any permits/licenses related to this project. Obtain all permits/licenses required for this project. Comply with all permit requirements. Submit copies of the permits and any amendments. Determine the fee basis and pay all filing fees. The known permit forms are provided in an Appendix.

6.16.1.2. Prepare permit/license applications; provide all required information and supporting documentation in a form ready for signature by the Owner and submittal to the applicable agency. Should the permitting agency require additional clarification or information during the review process, provide all necessary assistance to resolve the outstanding issue. The appropriate address for all permit/license applications will be provided at the Post Award Conference or otherwise, after contract award.

6.16.1.3. Comply with provisions of Installation permits, compliance agreements, and plans with regulating authorities/agencies.

6.16.2. Soil Borrow Permits. If Installation Borrow pits are available for this contract (see paragraph 6.4.8) a permit is required for their use. Soil borrow pit permits are processed with the DPW Environmental Division. Permits are issued for the life of the Contract. Borrow materials may be used only on the project for which the permits are issued. Keep a copy of the completed permit with the vehicle throughout the Contract borrow operation.

6.16.3. Site Excavation (Disturbance) and Utility Location Permits. Present DPW approved Site Excavation and Utility Location Permits prior to any excavation or drilling that penetrates the ground by 6 or more inches. Keep a signed copy of the digging permit shall be kept on site at all times. A sample of this form can be obtained from the Contracting Officer or DPW upon request. The DPW POC contact information will be provided at the Post award conference.

6.16.4. State of Georgia Required Applications and Permits. Prepare, sign, and submit the following list of commonly required State of Georgia applications and permits for Fort Stewart/Hunter AAF projects. Obtain any additional applications and permits not listed as required for the construction of this project.

Erosion and Sedimentation Control permit

General Permit to Discharge Stormwater under the National Pollutant Discharge Elimination System

Stormwater Management Permit Application Form

Notice of Intent (NOI) and Notice of Termination (NOT) Documents. The Contractor shall prepare, sign, and submit the NOI and NOT documents to the State Georgia.

6.16.5. Air Permits. Coordinate with Fort Stewart/Hunter AAF's Environmental Management Division (EMD) staff in obtaining all required and applicable permits as part of the design process. Secure all permits necessary for construction of this project. Fort Stewart/Hunter AAF operates under a Title V Air Permit for air quality requirements. Perform a regulatory review of all air sources in the project and submit for approval to the EMD. Each Congressional Appropriation is defined as one project. Additionally, new sources must be reviewed for NESHAP (National Emissions Standards for Hazardous Air Pollutants) applicability. Develop required air permit application(s) and/or coordinate with EMD on any on-going permit applications. Pay all air permitting fees and obtain all required permits prior to construction of any new sources. Comply with all State regulatory requirements for boilers fired by either natural gas or distillate oil. Ensure that the boiler(s) is included in the Installations Title V Air Permit. New boilers with an input greater than 10 million btu/hr shall meet 40 CFR Part 60, New Source Performance Standards. All new boilers shall include low NOx burners. An air permit is required for each type of material (i.e. concrete, rock crushing, asphalt batch plants) that will produce dust and other harmful particulates within the boundaries of the installation. The Contractor can not unilaterally change the Installation's Title V Air Permit. Coordinate any and all changes/modifications through the designated EMD staff.

6.16.5.1. Air Permit Submittal Requirements (Boilers and Domestic Water Heaters). Pursuant to satisfying requirements under the Clean Air Act, at or before the Interim design stage, submit the following to the installation's environmental office:

- (1) a listing of boilers and domestic hot water heaters that will be fired by natural gas, propane, and/or fuel oil
- (2) the fuel or fuels (primary and backup, if applicable) that will be utilized for each piece of equipment
- (3) the quantity of each particulate size
- (4) the respective input firing rate. Provide a point of contact and an alternate point of contact, should the environmental office require additional information from the designer of record during the permitting process. Send two copies of the document to the Savannah District, one to the Project Manager for placement in Central Files, and another to the Mechanical Section.
- (5) Do not send this document prematurely, since any increase in boiler sizing subsequent to submission of the document will require revision to the permitting process. In any event, if there is a change in equipment sizing during refinement of the design process, submit an updated copy of said document per the guidance above.
- (6) Incorporate into the design the equipment accessories required for compliance with the governing environmental laws. This includes, but is not limited to, determining the need for individual metering and the level of emissions monitoring required. The Interim design narrative shall specifically address those features that will be incorporated into the boiler system design to assure compliance with the applicable environmental laws of the State.
- (7) Prior to the submission of form DD 1354 Acceptance of Real Property, submit to EMD copies of all required Federal and/or State certifications associated with emission units, i.e. visible emissions certifications. Note the dates that the certifications are turned into EMD in the remarks section of form DD 1354.

6.16.5.2. Construction Permit. Be aware that, normally, for fast track design-build contracts, the construction permit will not have been obtained prior to award of the design-build contract. No construction associated with the building(s) housing the boiler(s) or other source(s) of contaminant can be done prior to obtaining the required permit. Generally, only the following things can be done prior to possession of the permit: clearing and grading, access roads, driveways, parking lots, underground

utilities up to the 5-foot line of the buildings, and ancillary structures (structures not associated with housing the sources of contaminants).

6.16.6. Utility Marking Permit (Required for Excavation). Submit all requests for underground utility locations at Fort Stewart/Hunter AAF shall be submitted through the Georgia Utility Protection Center (UPC). The UPC will accept locate requests either by telephone or on-line. The phone number is (800) 282-7411. The UPC web address is www.gaupc.com. Once at the web site, click on IRTM login. To submit a request online, registration is required. The excavating Contractor must mark the boundaries of the proposed excavation site using either white paint, flags or stakes. DPW has responsibility for the accuracy of the locates pertaining to gas and fuel lines, water lines, electrical lines to include secondary electricity, airfield lighting, low voltage, fire systems, sewer lines, roof drain lines, storm drainage lines, industrial waste lines, chilled water lines, high temperature water lines, irrigation systems and DPW non-fiber optic computer lines. Forward requests to all utility companies with services in the vicinity of the excavation site. Permits will be issued within 48 hours of the next business day following the receipt of the request by the UPC. Permits will only be valid for 21 days. Submit renewal requests a minimum of 3 days prior to expiration. Requesting contractors are responsible for maintaining marks during the 21 day period. If after acquiring a permit, a utility is damaged during excavation, please notify the appropriate utility company. DPW's utilities are listed above. The DPW point of contact for utilities at Fort Stewart or at HAAF will be provided at the Post Award Conference. The excavating contractor should be prepared to submit proof of a valid permit when calling about damaged utilities.

6.17. DEMOLITION

6.17.1. Demolition of structures requires 50 percent by weight diversion of material from the landfill. Remove all construction debris in the way of construction from the site and dispose of off of the installation. Demolish all existing structures as required to develop the project site within the limits of construction. Remove and/or relocate utilities as required to develop the project site within the limits of construction. Coordinate utility removals and/or relocation with the privatized utilities. .

6.17.2. Remove all hazardous building materials (HBM) from buildings to be demolished. HBMs are defined as asbestos (friable and non friable), mercury containing or contaminated items, PCB containing or contaminated items (including hydraulic systems fluids, light ballasts, and caulk), electronic boards (fire/smoke alarm systems, HVAC control systems, fire suppression dump systems, MNS, IDS, etc.), radioactive sources (smoke detectors), poured lead items (stair rail anchors, roofing weights, window counterweights, sink/shower pastes, pipe joints), and other materials identified in the Asbestos and HBM Surveys in Appendix XX. Lead-based paint (LBP) is a hazardous material when:

- The Toxicity Characteristic Leaching Procedure (TCLP) of demolition waste is exceeded for wastes going into a construction and debris landfill. This applies to all non-housing structures. Housing and barracks are not required to adhere to this requirement when debris is scheduled to be landfilled.
- Used as riprap or fill material. No painted materials may be used for environmental stabilization regardless of lead content.
- When targeted to be used for recycling for uses other than batch feed for hot asphalt or concrete. (Grinding of LBP painted concrete for batch feed must include plans with requirements to control lead contaminated dust, rain run-off, and worker protection. The Contractor is responsible for all permits associated with this activity.

6.17.3. Project Specific Requirements:

No additional requirements.

6.18. ADDITIONAL FACILITIES

No additional facilities.

End of Section 01 10 00.0004

SECTION 01 33 00.0004

REV 1.4 - 30 APR 2010

**SUBMITTAL PROCEDURES
(DESIGN-BUILD TASK ORDERS)**

1.0 GENERAL

1.13. GOVERNMENT APPROVED OR CONCURRED WITH SUBMITTALS

1.14. INFORMATION ONLY SUBMITTALS

1.0 GENERAL

1.1.1. This section contains requirements specifically applicable to this task order. The requirements of Base ID/IQ contract Section 01 33 30 apply to this task order, except as otherwise specified herein.

1.13. GOVERNMENT APPROVED OR CONCURRED WITH SUBMITTALS

Upon completion of review of submittals requiring Government approval or concurrence, the Government will stamp and date the submittals as approved or concurred. The Government will retain two (2) copies of the submittal and return one (1) copy(ies) of the submittal.

1.14. INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe. The Government will retain zero(0) copies of information only submittals.

End of Section 01 33 00.0004

SECTION 01 33 16
REV 2.38 – 31 AUG 2012
DESIGN AFTER AWARD

1.0 GENERAL INFORMATION

1.1. INTRODUCTION

1.2. DESIGNER OF RECORD

2.0 PRODUCTS (Not Applicable)

3.0 EXECUTION

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3.1.1. Design Quality Control Plan

3.1.2. Post Award Conference

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3.2.2. Interim Design Submittals

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 - 3.7.6. Acceptance and Release for Construction
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- 3.9. SUBMITTAL DISTRIBUTION, MEDIA AND QUANTITIES
 - 3.9.1. Submittal Distribution and Quantities
 - 3.9.2. Web based Design Submittals
 - 3.9.3. Mailing of Design Submittals
- 3.10. AS-BUILT DOCUMENTS

ATTACHMENT A STRUCTURAL INTERIOR DESIGN (SID) REQUIREMENTS

ATTACHMENT B FURNITURE, FIXTURES AND EQUIPMENT REQUIREMENTS

ATTACHMENT C TRACKING COMMENTS IN DRCHECKS

ATTACHMENT D SAMPLE FIRE PROTECTION AND LIFE SAFETY CODE REVIEW

ATTACHMENT E LEED SUBMITTALS

ATTACHMENT F BUILDING INFORMATION MODELING REQUIREMENTS

ATTACHMENT G DESIGN SUBMITTAL DIRECTORY AND SUBDIRECTORY FILE ARRANGEMENT

1.0 GENERAL INFORMATION

1.1. INTRODUCTION

1.1.1. The information contained in this section applies to the design required after award. After award, the Contractor will develop the accepted proposal into the completed design, as described herein.

1.1.2. The Contractor may elect to fast track the design and construction that is, proceed with construction of parts of the sitework and facilities prior to completion of the overall design. To facilitate fast tracking, the Contractor may elect to divide the design into no more than six (6) design packages per major facility type and no more than three (3) design packages for site and associated work. Designate how it will package the design, consistent with its overall plan for permitting (where applicable) and construction of the project. See Sections 01 33 00 SUBMITTAL PROCEDURES and 01 32 01.00 10 PROJECT SCHEDULE for requirements for identifying and scheduling the design packaging plan in the submittal register and project schedule. See also Sections 01 10 00 STATEMENT OF WORK and 01 57 20.00 10 ENVIRONMENTAL PROTECTION for any specified permit requirements. If early procurement of long-lead item construction materials or installed equipment, prior to completion of the associated design package, is necessary to facilitate the project schedule, also identify those long-lead items and how it will assure design integrity of the associated design package to meet the contract requirements (The Contract consists of the Solicitation requirements and the accepted proposal). Once the Government is satisfied that the long-lead items meet the contract requirements, the Contracting Officer will allow the Contractor to procure the items at its own risk.

1.1.3. The Contractor may proceed with the construction work included in a separate design package after the Government has reviewed the final (100%) design submission for that package, review comments have been addressed and resolved to the Government's satisfaction and the Contracting Officer (or the Administrative Contracting Officer) has agreed that the design package may be released for construction.

1.1.4. INTEGRATED DESIGN. To the maximum extent permitted for this project, use a collaborative, integrated design process for all stages of project delivery with comprehensive performance goals for siting, energy, water, materials and indoor environmental quality and ensures incorporation of these goals. Consider all stages of the building lifecycle, including deconstruction.

1.2. DESIGNER OF RECORD

Identify, for approval, the Designer of Record ("DOR") that will be responsible for each area of design. One DOR may be responsible for more than one area. Listed, Professional Registered, DOR(s) shall account for all areas of design disciplines. The DOR's shall stamp, sign, and date each design drawing and other design deliverables under their responsible discipline at each design submittal stage (see contract clause Registration of Designers). If the deliverables are not ready for release for construction, identify them as "preliminary" or "not for release for construction" or by using some other appropriate designation. The DOR(s) shall also be responsible for maintaining the integrity of the design and for compliance with the contract requirements through construction and documentation of the as-built condition by coordination, review and approval of extensions of design, material, equipment and other construction submittals, review and approval or disapproval of requested deviations to the accepted design or to the contract, coordination with the Government of the above activities, and by performing other typical professional designer responsibilities.

2.0 PRODUCTS (Not Applicable)

3.0 EXECUTION

3.1. PRE-WORK ACTIVITIES & CONFERENCES

3.1.1. Design Quality Control Plan

Submit for Government acceptance, a Design Quality Control Plan in accordance with Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL before design may proceed.

3.1.2. Post Award Conference

3.1.2.1. The government will conduct a post award contract administration conference at the project site, as soon as possible after contract award. This will be coordinated with issuance of the contract notice to proceed (NTP). The Contractor and major sub-contractor representatives shall participate. All designers need not attend this first meeting. Government representatives will include COE project delivery team members, facility users, facility command representatives, and installation representatives. The Government will provide an agenda, meeting goals, meeting place, and meeting time to participants prior to the meeting.

3.1.2.2. The post award conference shall include determination and introduction of contact persons, their authorities, contract administration requirements, discussion of expected project progress processes, and coordination of subsequent meetings for quality control (see Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL), Partnering (see below and SCR: Partnering), and the initial design conference (see below).

3.1.2.3. The government will introduce COE project delivery team members, facility users, facility command representatives, and installation representatives. The DB Contractor shall introduce major subcontractors, and other needed staff. Expectations and duties of each person shall be defined for all participants. A meeting roster shall be developed and distributed by the government with complete contact information including name, office, project role, phone, mailing and physical address, and email address.

3.1.3. Partnering & Project Progress Processes

3.1.3.1. The initial Partnering conference may be scheduled and conducted at any time with or following the post award conference. The Government proposes to form a partnership with the DB Contractor to develop a cohesive building team. This partnership will involve the COE project delivery team members, facility users, facility command representatives, installation representatives, Designers of Record, major subcontractors, contractor quality control staff, and contractor construction management staff. This partnership will strive to develop a cooperative management team drawing on the strengths of each team member in an effort to achieve a quality project within budget and on schedule. This partnership will be bilateral in membership and participation will be totally voluntary. All costs, excluding labor and travel expenses, shall be shared equally between the Government and the Contractor. The Contractor and Government shall be responsible for their own labor and travel costs. Normally, partnering meetings will be held at or in the vicinity of the project installation.

3.1.3.2. As part of the partnering process, the Government and Contractor shall develop, establish, and agree to comprehensive design development processes including conduct of conferences, expectations of design development at conferences, fast-tracking, design acceptance, Structural Interior Design (SID)/ Furniture, Fixtures & Equipment (FF&E) design approval, project closeout, etc. The government will explain contract requirements and the DB Contractor shall review their proposed project schedule and suggest ways to streamline processes.

3.1.4. Initial Design Conference

The initial design conference may be scheduled and conducted at the project installation any time after the post award conference, although it is recommended that the partnering process be initiated with or before the initial design conference. Any design work conducted after award and prior to this conference should be limited to site and is discouraged for other items. All Designers of Record shall participate in

the conference. The purpose of the meeting is to introduce everyone and to make sure any needs the contractor has are assigned and due dates established as well as who will get the information. See also Attachment F, BUILDING INFORMATION MODELING REQUIREMENTS for discussion concerning the BIM Implementation Plan demonstration at this meeting. The DB Contractor shall conduct the initial design conference.

3.1.5. Pre-Construction Conference

Before starting construction activities, the Contractor and Government will jointly conduct a pre-construction administrative conference to discuss any outstanding requirements and to review local installation requirements for start of construction. It is possible there will be multiple Pre-Construction Conferences based on the content of the design packages selected by the Contractor. The Government will provide minutes of this meeting to all participants.

3.2. STAGES OF DESIGN SUBMITTALS AND OVER THE SHOULDER PROGRESS REVIEWS

The stages of design submittals described below define Government expectations with respect to process and content. The Contractor shall determine how to best plan and execute the design and review process for this project, within the parameters listed below. As a minimum, the Government expects to see at least one interim design submittal, at least one final design submittal before construction of a design package may proceed and at least one Design Complete submittal that documents the accepted design. The Contractor may sub-divide the design into separate packages for each stage of design and may proceed with construction of a package after the Government accepts the final design for that package. See discussion on waivers to submission of one or more intermediate design packages where the parties partner during the design process. See also Attachment F, BUILDING INFORMATION MODELING REQUIREMENTS for discussion concerning BIM and the various stages of design submittals and over-the-shoulder progress reviews.

3.2.1. Site/Utilities

To facilitate fast-track design-construction activities the contractor may submit a final (100%) site and utility design as the first design submittal or it may elect to submit interim and final site and utility design submittals as explained below. Following review, resolution, and incorporation of all Government comments, and submittal of a satisfactory set of site/utility design documents, after completing all other pre-construction requirements in this contract and after the pre-construction meeting, the Government will allow the Contractor to proceed with site development activities, including demolition where applicable, within the parameters set forth in the accepted design submittal. For the first site and utility design submission, whether an interim or final, the submittal review, comment, and resolution times from this specification apply, except that the Contractor shall allow the Government a 14 calendar day review period, exclusive of mailing time. No on-site construction activities shall begin prior to written Government clearance to proceed.

3.2.2. Interim Design Submittals

The Contractor may submit either a single interim design for review, representing a complete package with all design disciplines, or split the interim design into smaller, individual design packages as it deems necessary for fast-track construction purposes. As required in Section 01 32 01.00 10 PROJECT SCHEDULE, the Contractor shall schedule its design and construction packaging plan to meet the contract completion period. This submission is the Government's primary opportunity to review the design for conformance to the solicitation and to the accepted contract proposal and to the Building Codes at a point where required revisions may be still made, while minimizing lost design effort to keep the design on track with the contract requirements. The requirements for the interim design review submittals and review conferences are described hereinafter. This is not necessarily a hold point for the design process; the Contractor may designate the interim design submittal(s) as a snapshot and proceed with design development at its own risk. See below for a waiver, where the parties establish an effective

over-the-shoulder progress review procedure through the partnering process that would eliminate the need for or expedite a formal intermediate design review on one or more individual design packages.

3.2.3. Over-the-Shoulder Progress Reviews

To facilitate a streamlined design-build process, the Government and the Contractor may agree to one-on-one reviewer or small group reviews, electronically, on-line (if available within the Contractor's standard design practices) or at the Contractor's design offices or other agreed location, when practicable to the parties. The Government and Contractor will coordinate such reviews to minimize or eliminate disruptions to the design process. Any data required for these reviews shall normally be provided in electronic format, rather than in hard copy. If the Government and Contractor establish and implement an effective, mutually agreeable partnering procedure for regular (e.g., weekly) over-the-shoulder review procedures that allow the Government reviewers the opportunity to keep fully informed of the progress, contents, design intent, design documentation, etc. of the design package, the Government will agree to waive or to expedite the formal intermediate design review period for that package. The Contractor shall still be required to submit the required intermediate design documentation, however the parties may agree to how that material will be provided, in lieu of a formal consolidated submission of the package. It should be noted that Government funding is extremely limited for non-local travel by design reviewers, so the maximum use of virtual teaming methods must be used. Some possible examples include electronic file sharing, interactive software with on-line or telephonic conferencing, televideo conferencing, etc. The Government must still perform its Code and Contract conformance reviews, so the Contractor is encouraged to partner with the reviewers to find ways to facilitate this process and to facilitate meeting or bettering the design-build schedule. The Contractor shall maintain a fully functional configuration management system as described herein to track design revisions, regardless of whether or not there is a need for a formal intermediate design review. The formal intermediate review procedures shall form the contractual basis for the official schedule, in the event that the partnering process determines that the formal intermediate review process to be best suited for efficient project execution. However, the Government pledges to support and promote the partnering process to work with the Contractor to find ways to better the design schedule.

3.2.4. Final Design Submissions

This submittal is required for each design package prior to Government acceptance of that design package for construction. The requirements for the final design submittal review conferences and the Government's acceptance for start of construction are described herein after.

3.2.5. Design Complete Submittals

After the final design submission and review conference for a design package, revise the design package to incorporate the comments generated and resolved in the final review conferences, perform and document a back-check review and submit the final, design complete documents, which shall represent released for construction documents. The requirements for the design complete submittals are described hereinafter.

3.2.6. Holiday Periods for Government Review or Actions

Do not schedule meetings, Government reviews or responses during the last two weeks of December or other designated Government Holidays (including Friday after Thanksgiving). Exclude such dates and periods from any durations specified herein for Government actions.

3.2.7. Late Submittals and Reviews

If the Contractor cannot meet its scheduled submittal date for a design package, it must revise the proposed submittal date and notify the government in writing, at least one (1) week prior to the submittal, in order to accommodate the Government reviewers' other scheduled activities. If a design submittal is

over one (1) day late in accordance with the latest revised design schedule, or if notification of a proposed design schedule change is less than seven (7) days from the anticipated design submission receipt date, the Government review period may be extended up to seven (7) days due to reviewers' schedule conflicts. If the Government is late in meeting its review commitment and the delay increases the Contractor's cost or delays completion of the project, the Suspension of Work and Defaults clauses provide the respective remedy or relief for the delay.

3.3. DESIGN CONFIGURATION MANAGEMENT

3.3.1. Procedures

Develop and maintain effective, acceptable design configuration management (DCM) procedures to control and track all revisions to the design documents after the Interim Design Submission through submission of the As-Built documents. During the design process, this will facilitate and help streamline the design and review schedule. After the final design is accepted, this process provides control of and documents revisions to the accepted design (See Special Contract Requirement: Deviating From the Accepted Design). The system shall include appropriate authorities and concurrences to authorize revisions, including documentation as to why the revision must be made. Include the DCM procedures in the Design Quality Control Plan. The DCM data shall be available to the Government reviewers at all times. The Contractor may use its own internal system with interactive Government concurrences, where necessary or may use the Government's "DrChecks Design Review and Checking System" (see below and Attachment C).

3.3.2. Tracking Design Review Comments

Although the Contractor may use its own internal system for overall design configuration management, the Government and the Contractor shall use the DrChecks Design Review and Checking System to initiate, respond to, resolve and track Government design compliance review comments. This system may be useful for other data which needs to be interactive or otherwise available for shared use and retrieval. See Attachment C for details on how to establish an account and set-up the DrChecks system for use on the project.

3.3.3. Design and Code Checklists

Develop and complete various discipline-specific checklists to be used during the design and quality control of each submittal. Submit these completed checklists with each design submittal, as applicable, as part of the project documentation. See Section 01 45 04.00 10 Contractor Quality Control, Attachment D for a Sample Fire Protection and Life Safety Code review checklist and Attachment E for LEED SUBMITTALS.

3.4. INTERIM DESIGN REVIEWS AND CONFERENCES

3.4.1. General

At least one interim design submittal, review and review conference is required for each design package (except that, per paragraph 3.2.1, the Contractor may skip the interim design submission and proceed directly to final design on the sitework and utilities package). The DB Contractor may include additional interim design conferences or over-the-shoulder reviews, as needed, to assure continued government concurrence with the design work. Include the interim submittal review periods and conferences in the project schedule and indicate what part of the design work is at what percentage of completion. The required interim design conferences shall be held when interim design requirements are reached as described below. See also Paragraph: **Over-the-Shoulder Progress Reviews** for a waiver to the formal interim design review.

3.4.2. Procedures

After receipt of an Interim Design submission, allow the Government fourteen (14) calendar days after receipt of the submission to review and comment on the interim design submittal. For smaller design packages, especially those that involve only one or a few separate design disciplines, the parties may agree on a shorter review period or alternative review methods (e.g., over-the-shoulder or electronic file sharing), through the partnering process. For each interim design review submittal, the COR will furnish, to the Contractor, a single consolidated, validated listing of all comments from the various design sections and from other concerned agencies involved in the review process using the DrChecks Design Review and Checking System. The review will be for conformance with the technical requirements of the solicitation and the Contractor's RFP proposal. If the Contractor disagrees technically with any comment or comments and does not intend to comply with the comment, he/she must clearly outline, with ample justification, the reasons for noncompliance within five (5) days after receipt of these comments in order that the comment can be resolved. Furnish disposition of all comments, in writing, through DrChecks. The Contractor is cautioned that if it believes the action required by any comment exceeds the requirements of this contract, that it should take no action and notify the COR in writing immediately. The Interim Review conference will be held for each design submittal at the installation. Bring the personnel that developed the design submittal to the review conference. The conference will take place the week after the receipt of the comments by the Contractor. For smaller fast-track packages that involve only a few reviewers, the parties may agree to alternative conferencing methods, such as teleconferencing, or televideo, where available, as determined through Partnering.

3.4.3. Conference Documentation

3.4.3.1. In order to facilitate and accelerate the Government code and contract conformance reviews, identify, track resolution of and maintain all comments and action items generated during the design process and make this available to the designers and reviewers prior to the Interim and subsequent design reviews.

3.4.3.2. The DB Contractor shall prepare meeting minutes and enter final resolution of all comments into DrChecks. Copies of comments, annotated with comment action agreed on, will be made available to all parties before the conference adjourns. Unresolved problems will be resolved by immediate follow-on action at the end of conferences. Incorporate valid comments. The Government reserves the right to reject design document submittals if comments are significant. Participants shall determine if any comments are critical enough to require further design development prior to government concurrence. Participants shall also determine how to proceed in order to obtain government concurrence with the design work presented.

3.5. INTERIM DESIGN REQUIREMENTS

Interim design deliverables shall include drawings, specifications, and design analysis for the part of design that the Contractor considers ready for review.

3.5.1. Drawings

Include comments from any previous design conferences incorporated into the documents to provide an interim design for the "part" submitted.

3.5.2. Design Analyses

3.5.2.1. The designers of record shall prepare and present design analyses with calculations necessary to substantiate and support all design documents submitted. Address design substantiation required by the applicable codes and references and pay particular attention to the following listed items:

3.5.2.2. For parts including sitework, include site specific civil calculations.

3.5.2.3. For parts including structural work, include structural calculations.

- (a) Identify all loads to be used for design.
- (b) Describe the method of providing lateral stability for the structural system to meet seismic and wind load requirements. Include sufficient calculations to verify the adequacy of the method.
- (c) Provide calculations for all principal roof, floor, and foundation members and bracing and secondary members.
- (d) Provide complete seismic analyses for all building structural, mechanical, electrical, architectural, and building features as dictated by the seismic zone for which the facility is being constructed.
- (e) Computer generated calculations must identify the program name, source, and version. 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, element/members, materials/properties, and all loadings, induced settlements/deflections, etc., and a list of load combinations. Include an output listing for maximum/minimum stresses/forces and deflections for each element and the reactions for each loading case and combination.
- (f) See also the Security (Anti-Terrorism) requirements below for members subject to Anti-Terrorist Force Protection (ATFP) and Progressive Collapse requirements.
- (g) Fully coordinate and integrate the overall structural design between two different or interfacing construction types, such as modular and stick-built or multistory, stacked modular construction. Provide substantiation of structural, consolidation/settlement analysis, etc., as applicable, through the interfaces.

3.5.2.4. For Security (Anti-Terrorism): Provide a design narrative and calculations where applicable, demonstrating compliance with each of the 22 standards in UFC 4-010-01, which includes Design of Buildings to Resist Progressive Collapse (use the most recent version of UFC 4-023-03, regardless of references to any specific version in UFC 4-010-01). Where sufficient standoff distance is not being provided, show calculations for blast resistance of the structural system and building envelope. Show complete calculations for members subjected to ATFP loads, e.g., support members of glazed items (jambs, headers, sills) connections of windows to support members and connections of support members to the rest of the structure. For 3 story and higher buildings, provide calculations to demonstrate compliance with progressive collapse requirements.

3.5.2.5. For parts including architectural work, include building floor area analysis.

3.5.2.6. For parts including mechanical work, include HVAC analysis and calculations. Include complete design calculations for mechanical systems. Include computations for sizing equipment, compressed air systems, air duct design, and U-factors for ceilings, roofs and exterior walls and floors. Contractor shall employ commercially available energy analysis techniques to determine the energy performance of all passive systems and features. Use of hourly energy load computer simulation is required (see paragraph 3.5.5.2 for list of acceptable software). Based on the results of calculations, provide a complete list of the materials and equipment proposed with the manufacturer's published cataloged product installation specifications and roughing-in data.

3.5.2.7. For parts including life safety, include building code analysis and sprinkler and other suppression systems. Notwithstanding the requirements of the Codes, address the following:

- (a) A registered fire protection engineer (FPE) must perform all fire protection analyses. Provide the fire protection engineer's qualifications. See Section 01 10 00, paragraph 5 for qualifications.
- (b) Provide all references used in the design including Government design documents and industry standards used to generate the fire protection analysis.
- (c) Provide classification of each building in accordance with fire zone, building floor areas and height and number of stories.

(d) Provide discussion and description of required fire protection requirements including extinguishing equipment, detection equipment, alarm equipment and water supply. Alarm and detection equipment shall interface to requirements of Electronic Systems.

(e) Provide hydraulic calculations based on water flow test for each sprinkler system to insure that flow and pressure requirements can be met with current water supply. Include copies of Contractor's water flow testing done to certify the available water source.

3.5.2.8. For parts including plumbing systems:

(a) List all references used in the design.

(b) Provide justification and brief description of the types of plumbing fixtures, piping materials and equipment proposed for use.

(c) Detail calculations for systems such as sizing of domestic hot water heater and piping; natural gas piping; LP gas piping and tanks, fuel oil piping and tanks, etc., as applicable.

(d) When the geotechnical report indicates expansive soils are present, indicate in the first piping design submittal how piping systems will be protected against damage or backfall/backflow due to soil heave (from penetration of slab to the 5 foot building line).

3.5.2.9. For elevator systems:

(a) List all criteria codes, documents and design conditions used.

(b) List any required permits and registrations for construction of items of special mechanical systems and equipment.

3.5.2.10. For parts including electrical work, include lighting calculations to determine maintained foot-candle levels, electrical load analysis and calculations, electrical short circuit and protective device coordination analysis and calculations and arc fault calculations.

3.5.2.11. For parts including telecommunications voice/data (including SIPRNET, where applicable), include analysis for determining the number and placement of outlets

3.5.2.12. For Cathodic Protection Systems, provide the following stamped report by the licensed corrosion engineer or NACE specialist with the first design submission. The designer must be qualified to engage in the practice of corrosion control of buried or submerged metallic surfaces. He/she must be accredited or certified by the National Association of Corrosion Engineers (NACE) as a NACE Accredited Corrosion Specialist or a NACE certified Cathodic Protection Specialist, or must be a registered professional engineer with a minimum of five years experience in corrosion control and cathodic protection, Clearly describe structures, systems or components in soil or water to be protected. Describe methods proposed for protection of each.

3.5.2.13. Air Barrier System: Provide a narrative of the design and installation requirements for the Air Barrier system. As part of the design quality control process an air barrier consultant shall review drawing details to assure that details of critical Air Barrier components are properly detailed and incorporated during the design drawings and process (i.e. window flashing details, penetration in air barrier details, door flashing details, roofing/ceiling barrier interface details and etc.). Furnish the Government written review details and results.

3.5.2.14. Life Cycle Cost Analysis (LCCA) Documentation: Sufficient documentation is required for all life cycle cost analyses required in paragraph 5 of Section 01 10 00, the Statement of Work. Each LCCA must be complete and substantial, sufficient of being read as a standalone document which defines all the parameters of the analysis. Use of commercially available software programs to calculate life cycle costs are acceptable, however, provide the LCCA Documentation requirements, as outlined below in addition to any input/output documents generated by the software. As a minimum, include the following items in the LCCA documentation:

- (a) Definition of Baseline Condition
- (b) Narrative Identification/Explanation of Each Alternative Considered
- (c) Energy Usage Analysis (Narrative explanation as well as computer outputs)
- (d) Energy Costs Used (Source of Rate Structure or Utility Rates)
- (e) First Cost of Baseline Condition and Each Alternative (Cost information must demonstrate inclusion of applicable components and sub-components - single line, lump sum cost estimates for the baseline or alternative conditions are not acceptable)
- (f) Cyclical Replacement Costs (Identify data source for equipment/component life used)
- (g) Annual/Recurring Maintenance Costs (Identify data source for required maintenance tasks and duration/cost of tasks)
- (h) Salvage Values (Identify data source for equipment/component life used)
- (i) Life Cycle Cost Results Including:
 - (1) Life Cycle Cost of the Baseline Condition
 - (2) Life Cycle Cost of Each Alternative Evaluated
 - (3) Simple Payback Calculations for Each Alternative
 - (4) Savings to Investment Ratio for Each Alternative
 - (5) Study Period Utilized
 - (6) Net Savings for Each Alternative (As Applicable)
- (7) Narrative Discussion/Analysis of Results
- (8) Uncertainty Analysis
- (9) Certification that the analysis conducted and documented is compliant with the terms, instructions, and conditions of 10 CFR 436 Subpart A.

3.5.3. Geotechnical Investigations and Reports:

3.5.3.1. The contractor's licensed geotechnical engineer shall prepare a final geotechnical evaluation report, to be submitted along with the first foundation design submittal. Make this information available as early as possible during the over-the-shoulder progress review process. Summarize the subsurface conditions and provide recommendations for the design of appropriate utilities, foundations, floor slabs, retaining walls, embankments, and pavements. Include compaction requirements for fill and backfill under buildings, sidewalks, other structures and open areas. Recommend foundation systems to be used, allowable bearing pressures for footings, lateral load resistance capacities for foundation systems, elevations for footings, grade beams, slabs, etc. Provide an assessment of post-construction settlement potential including total and differential. Provide recommendations regarding lateral earth pressures (active, at-rest, passive) to be used in the design of retaining walls. Include the recommended spectral accelerations and Site Class for seismic design along with an evaluation of any seismic hazards and recommendations for mitigation, if required. Include calculations to support the recommendations for bearing capacity, settlement, and pavement sections. Include supporting documentation for all recommended design parameters such as Site Class, shear strength, earth pressure coefficients, friction factors, subgrade modulus, California Bearing Ratio (CBR), etc. Provide earthwork recommendations, expected frost penetration, expected groundwater levels, recommendations for dewatering and groundwater control and the possible presence of any surface or subsurface features that may affect the construction of the project such as sinkholes, boulders, shallow rock, old fill, old structures, soft areas, or unusual soil conditions. Include pH tests, salinity tests, resistivity measurements, etc., required to design corrosion control and grounding systems. Include the raw field data. Arrange a meeting with the Government subsequent to completion and evaluation of the site specific geotechnical exploration to outline any differences encountered that are inconsistent with the Government provided preliminary soils

information. Clearly outline differences which require changes in the foundation type, or pavement and earthwork requirements from that possible and contemplated using the Government furnished preliminary soils investigation, which result in a change to the design or construction. Any equitable adjustment is subject to the provisions of the contract's Differing Site Conditions Clause.

3.5.3.2. Vehicle Pavements: The Contractor's geotechnical report shall contain flexible and rigid pavement designs, as applicable for the project, including design CBR and modulus of subgrade reaction and the required compaction effort for subgrades and pavement layers. Provide Information on the types of base course materials available in the area and design strengths.

3.5.3.3. The Contractor and the professional geotechnical engineer consultant shall certify in writing that the design of the project has been developed consistent with the Contractor's final geotechnical report. The certification shall be stamped by the consulting professional geotechnical engineer and shall be submitted with the first design submission. If revisions are made to the initial design submission, a new certification shall be provided with the final design submission.

3.5.4. LEED Documentation:

Assign a LEED Accredited Professional, responsible to track LEED planning, performance and documentation for each LEED credit through construction closeout. Incorporate LEED credits in the plans, specifications and design analyses. Develop LEED supporting documentation as a separable portion of the Design Analysis and provide with each required design submittal. Include the LEED Project checklist for each non-exempt facility (one checklist may be provided for multiple facilities in accordance with the LEED-NC Application Guide for Multiple Buildings and On-Campus Building Projects and the LEED SUBMITTALS (Attachment E, herein) with each submittal. Final design submittal for each portion of the work must include all required design documentation relating to that portion of work (example - all site credit design documents with final site design). Submittal requirements are as indicated in Attachment E, LEED SUBMITTALS. Submit all documentation indicated on Attachment E as due at final design at final design submittal (for fast-track projects with multiple final design submittals, this shall be at the last scheduled final design submittal). All project documentation related to LEED shall conform to USGBC requirements for both content and format, including audit requirements and be separate from other design analyses. Maintain and update the LEED documentation throughout project progress to construction closeout and shall compile product data, receipts, calculations and other data necessary to substantiate and support all credits claimed. The Government may audit any or all individual credits. Audit documentation is not required to be submitted unless requested. These requirements apply to all projects. If the project requires the Contractor to obtain USGBC certification, the Contractor shall also be responsible for obtaining USGBC certification and shall provide written evidence of certification with the construction closeout LEED documentation submittal. Install the USGBC building plaque at the location indicated by the Government upon receipt. If Contractor obtains USGBC interim design review, submit the USGBC review to the Government within 30 days of receipt for information only.

3.5.4.1. LEED Documentation for Technology Solution Set. If the Solicitation provides a Prescriptive Technology Solution Set, use of the Technology Solution set has no effect on LEED documentation requirements. Provide all required LEED documentation, including energy analysis, in accordance with LEED requirements when using the Technology Solution Set.

3.5.5. Energy Conservation:

3.5.5.1. Refer to Section 01 10 00, Paragraph 5. Interim and Final Design submittals shall demonstrate that each building including the building envelope, HVAC systems, service water heating, power, and lighting systems meet the Mandatory Provisions and the Prescriptive Path requirements of ASHRAE 90.1. Use Compliance Documentation forms available from ASHRAE and included in the ASHRAE 90.1 User's Manual for this purpose. The Architectural Section of the Design Analysis shall include completed forms titled "Building Envelope Compliance Documentation Parts I and II". The Heating Ventilating and Air Conditioning (HVAC) Section of the Design Analysis shall include a completed form titled "HVAC Simplified Approach Option - Part I" if this approach is allowed by the Standard. Otherwise, the HVAC

Section of the Design Analysis shall include completed forms titled "HVAC Mandatory Provisions - Part II" and "HVAC Prescriptive Requirements - Part III". The Plumbing Section of the Design Analysis shall include a completed form titled "Service Water Heating Compliance Documentation". The Electrical Section of the Design Analysis shall include an explanatory statement on how the requirements of ASHRAE 90.1 Chapter 8 Power were met. The Electrical Section of the Design Analysis shall also include a completed form titled "Lighting Compliance Documentation".

3.5.5.2. Interim and Final Design submittals which address energy consuming systems, (heating, cooling, service hot water, lighting, power, etc.) must also include calculations in a separate Energy Conservation Section of the Design Analysis which demonstrate and document (a) the baseline energy consumption for the facility or facilities under contract, that would meet the requirements of ANSI/ASHRAE/IESNA Standard 90.1 and (b) the energy consumption of the facility or facilities under contract utilizing the materials and methods required by this construction contract. Use the USGBC Energy and Atmosphere (EA) Credit 1 compliance template / form or an equivalently detailed form for documenting compliance with the energy reduction requirements. This template / form is titled PERFORMANCE RATING METHOD and is available when the project is registered for LEED. The calculation methodology used for this documentation and analysis shall follow the guidelines set forth in Appendix G of ASHRAE 90.1, with two exceptions: a) receptacle and process loads may be omitted from the calculation; and b) the definition of the terms in the formula for Percentage Improvement found in paragraph G1.2 are modified as follows: Baseline Building Performance shall mean the annual energy consumption calculated for a building design intended for use as a baseline for rating above standard design meeting the minimum requirements of the energy standard, and Proposed Building Performance shall mean annual energy consumption calculated for the proposed building design intended for construction. This calculation shall address all energy consuming systems in a single integrated methodology. Include laboratory fume hoods and kitchen ventilation loads in the energy calculation. They are not considered process loads. Individual calculations for heating, cooling, power, lighting, power, etc. systems will not be acceptable. The following building simulation software is acceptable for use in calculating building energy consumption: Hourly Analysis Program (HAP) by Carrier Corp., TRACE 700 by Trane Corp., DOE-2 by US Department of Energy, EnergyPlus by DOD/DOE.

3.5.6. Specifications

Specifications may be any one of the major, well known master guide specification sources. Use only one source. Examples include specifications from MASTERSPEC from the American Institute of Architects, SPECTEXT from Construction Specification Institute or Unified Facility Guide Specifications (UFGS using MASTERFORMAT 2004 numbering system), etc. The UFGS are available through the "Whole Building Design Guide" website, using a websearch engine. Manufacturers' product specifications, utilizing CSI's Manu-Spec, three part format may be used in conjunction with the selected specifications. The designers of record shall edit and expand the appropriate Specifications to insure that all project design requirements, current code requirements, and regulatory requirements are met. Specifications shall clearly identify, where appropriate, specific products chosen to meet the contract requirements (i.e., manufacturers' brand names and model numbers or similar product information). Note that the UFGS are NOT written for Design-Build and must be edited appropriately. For instance, they assume that the Government will approve most submittals, whereas in Design-Build, the Designer of Record has that action, unless this Solicitation requires Government approval for specific submittals. The Designer of Record should also note that some UFGS sections might either prescribe requirements exceeding the Government's own design standards in applicable references or contain requirements that should be selected where appropriately required by the applicable references. At any rate, where the UFGS are consistent with other major, well known master commercial guide specifications, then generally retain such requirements, as good practices.

3.5.7. Building Rendering

Present and provide a draft color computer, artist, or hand drawn rendering with the conceptual design submittal of the building exterior. Perspective renderings shall include a slightly overhead view of the

entire building to encompass elevations and the roof configuration of the building. After Government review and acceptance, provide a final rendering, including the following:

Three (3) 18" x 24" color prints, framed and matted behind glass with project title underneath the print.

One (1) Image file (high resolution) in JPG format on CD for those in the submittal distribution list.

3.5.8. Interim Building Design Contents

The following list represents what the Government considers should be included in the overall completed design for a facility or project. It is not intended to limit the contractor from providing different or additional information as needed to support the design presented, including the require design analyses discussed above. As the Contractor develops individual design packages and submits them for Interim review, include as much of the applicable information for an individual design package as is developed at the Interim design level for review purposes. These pieces shall be developed as the design progresses toward the design complete stage.

3.5.8.1. Lawn and Landscaping Irrigation System

3.5.8.2. Landscape, Planting and Turfing

3.5.8.3. Architectural

- (a) Design Narrative
- (b) Architectural Floor Plans, Typical Wall and Roof Sections, Elevations
- (c) Finish schedule
- (d) All required equipment
- (e) Special graphics requirements
- (f) Door and Window Schedules
- (g) Hardware sets using BHMA designations
- (h) Composite floor plan showing all pre-wired workstations
- (i) Structural Interior Design (SID) package: See ATTACHMENT A for specific requirements
- (j) Furniture, Fixtures & Equipment (FF&E) design package: See ATTACHMENT B for specific requirements
- (k) Air Barrier Design: Details of all Air Barrier components, (i.e. window flashing details, penetrations in air barrier details, door flashing details, roofing/ceiling barrier interface details and etc.)

3.5.8.4. Structural Systems. Include:

- (a) Drawings showing principal members for roof and floor framing plans as applicable
- (b) Foundation plan showing main foundation elements where applicable
- (c) Typical sections for roof, floor, and foundation conditions

3.5.8.5. Plumbing Systems

- (a) Show locations and general arrangement of plumbing fixtures and major equipment
- (b) Plan and isometric riser diagrams of all areas including hot water, cold water, waste and vent piping. Include natural gas (and meter as required), (natural gas and meter as required), (LP gas), (fuel oil) and other specialty systems as applicable.

(c) Include equipment and fixture connection schedules with descriptions, capacities, locations, connection sizes and other information as required

3.5.8.6. HVAC Systems

(a) Mechanical Floor Plans: The floor plans shall show all principle architectural features of the building which will affect the mechanical design. The floor plans shall also show the following:

- (1) Room designations.
- (2) Mechanical legend and applicable notes.
- (3) Location and size of all ductwork and piping.
- (4) Location and capacity of all terminal units (i.e., registers, diffusers, grilles, hydronic baseboards).
- (5) Pre-Fabricated Paint Spray Booth (where applicable to project scope)
- (6) Paint Preparation Area (where applicable to project scope)
- (7) Exhaust fans and specialized exhaust systems.
- (8) Thermostat location.
- (9) Location of heating/cooling plant (i.e., boiler, chiller, cooling tower, etc).
- (10) Location of all air handling equipment.
- (11) Air balancing information.
- (12) Flue size and location.
- (13) Piping diagram for forced hot water system (if used).

(b) Equipment Schedule: Provide complete equipment schedules. Include:

- (1) Capacity
- (2) Electrical characteristics
- (3) Efficiency (if applicable)
- (4) Manufacturer's name
- (5) Optional features to be provided
- (6) Physical size
- (7) Minimum maintenance clearances

(a) Details: Provide construction details, sections, elevations, etc., only where required for clarification of methods and materials of design.

(b) HVAC Controls: Submit complete HVAC controls equipment schedules, sequences of operation, wiring and logic diagrams, Input/Output Tables, equipment schedules, and all associated information. See the Statement of Work for additional specific requirements.

3.5.8.7. Fire Protection and Life Safety.

(a) Provide plan for each floor of each building that presents a compendium of the total fire protection features being incorporated into the design. Include the following types of information:

- (1) The location and rating of any fire-resistive construction such as occupancy separations, area separations, exterior walls, shaft enclosures, corridors, stair enclosures, exit passageways, etc.
- (2) The location and coverage of any fire detection systems
- (3) The location and coverage of any fire suppression systems (sprinkler risers, standpipes, etc.)
- (4) The location of any other major fire protection equipment

- (5) Indicate any hazardous areas and their classification
- (6) Schedule describing the internal systems with the following information: fire hazard and occupancy classifications, building construction type, GPM/square foot sprinkler density, area of operation and other as required
- (b) Working plans and all other materials submitted shall meet NFPA 13 requirements, with respect to required minimum level of detail.

3.5.8.8. Elevators. Provide:

- (a) Description of the proposed control system
- (b) Description, approximate capacity and location of any special mechanical equipment for elevators.

3.5.8.9. Electrical Systems.

- (a) Electrical Floor Plan(s): Show all principle architectural features of the building which will affect the electrical design. Show the following:
 - (1) Room designations.
 - (2) Electrical legend and applicable notes.
 - (3) Lighting fixtures, properly identified.
 - (4) Switches for control of lighting.
 - (5) Receptacles.
 - (6) Location and designation of panelboards. Clearly indicate type of mounting required (flush or surface) and reflect accordingly in specifications.
 - (7) Service entrance (conduit and main disconnect).
 - (8) Location, designation and rating of motors and/or equipment which requires electrical service. Show method of termination and/or connection to motors and/or equipment. Show necessary junction boxes, disconnects, controllers (approximate only), conduit stubs, and receptacles required to serve the motor and/or equipment.
- (b) Building Riser Diagram(s) (from pad-mounted transformer to unit load center panelboard): Indicate the types and sizes of electrical equipment and wiring. Include grounding and metering requirements.
- (c) Load Center Panelboard Schedule(s): Indicate the following information:
 - (1) Panelboard Characteristics (Panel Designation, Voltage, Phase, Wires, Main Breaker Rating and Mounting).
 - (2) Branch Circuit Designations.
 - (3) Load Designations.
 - (4) Circuit Breaker Characteristics. (Number of Poles, Trip Rating, AIC Rating)
 - (5) Branch Circuit Connected Loads (AMPS).
 - (6) Special Features
- (d) Lighting Fixture Schedule(s): Indicate the following information:
 - (1) Fixture Designation.
 - (2) General Fixture Description.
 - (3) Number and Type of Lamp(s).

- (4) Type of Mounting.
- (5) Special Features.
- (e) Details: Provide construction details, sections, elevations, etc. only where required for clarification of methods and materials of design.

3.5.8.10. Electronic Systems including the following responsibilities:

- (a) Fire Detection and Alarm System. Design shall include layout drawings for all devices and a riser diagram showing the control panel, annunciator panel, all zones, radio transmitter and interfaces to other systems (HVAC, sprinkler, etc.)
- (b) Fire Suppression System Control. Specify all components of the Fire Suppression (FS) System in the FS section of the specifications. Clearly describe how the system will operate and interact with other systems such as the fire alarm system. Include a riser diagram on the drawings showing principal components and interconnections with other systems. Include FS system components on drawing legend. Designate all components shown on floor plans "FS system components" (as opposed to "Fire Alarm components"). Show location of FS control panels, HVAC control devices, sensors, and 120V power panel connections on floor plans. Indicate zoning of areas by numbers (1, 2, 3) and detectors sub-zoned for cross zoning by letter designations (A and B). Differentiate between ceiling mounted and under floor detectors with distinct symbols and indicate sub-zone of each.
- (c) Public Address System
- (d) Special Grounding Systems. Completely reflect all design requirements in the specifications and drawings. Specifications shall require field tests (in the construction phase), witnessed by the Government, to determine the effectiveness of the grounding system. Include drawings showing existing construction, if any.
- (e) Cathodic Protection.
- (f) Intrusion Detection, Card Access System
- (g) Central Control and Monitoring System
- (h) Mass Notification System
- (i) Electrical Power Distribution Systems

3.5.8.11. Separate detailed Telecommunications drawings for Information Systems including the following responsibilities:

- (a) Telecommunications Cabling
- (b) Supporting Infrastructure
- (c) Outside Plant (OSP) Cabling - Campus or Site Plans - Exterior Pathways and Inter-Building Backbones
- (d) Include a layout of the voice/data outlets (including voice only wall & pay phones) on telecommunication floor plan drawing, location of SIPRNET data outlets (where applicable), and a legend and symbol definition to indicate height above finished floor. Show size of conduit and cable type and size on Riser Diagram. Do not show conduit runs between backboard and outlets on the floor plans. Show underground distribution conduit and cable with sizing from point of presence to entrance facility of building.
- (e) Layout of complete building per floor - Serving Zone Boundaries, Backbone Systems, and Horizontal Pathways including Serving Zones Drawings - Drop Locations and Cable ID's
- (f) Communication Equipment Rooms - Plan Views - Tech and AMEP/Elevations - Racks and Walls. Elevations with a detailed look at all telecomm rooms. Indicate technology layout (racks, ladder-racks, etc.), mechanical/electrical layout, rack elevation and backboard elevation. They may also be an enlargement of a congested area of T1 or T2 series drawing.

3.6. FINAL DESIGN REVIEWS AND CONFERENCES

A final design review and review conference will be held upon completion of final design at the project installation, or – where equipment is available - by video teleconference or a combination thereof, for any design package to receive Government acceptance to allow release of the design package for construction. For smaller separate design packages, the parties may agree on alternative reviews and conferences (e.g., conference calls and electronic file sharing, etc.) through the Partnering process. Include the final design conference in the project schedule and shall indicate what part of the design work is at 100% completion. The final design conference will be held after the Government has had seven (7) calendar days after receipt of the submission to review the final design package and supporting data. For smaller packages, especially those involving only one or a few design disciplines the parties may agree on a shorter period.

3.7. FINAL DESIGN REQUIREMENTS

Final design deliverables for a design package shall consist of 100% complete drawings, specifications, submittal register and design analyses for Government review and acceptance. The 100% design submission shall consist of drawings, specifications, updated design analyses and any permits required by the contract for each package submitted. In order to expedite the final design review, prior to the conference, ensure that the design configuration management data and all review comment resolutions are up-to-date. Include the 100% SID and 100% FF&E binders for government approval. The Contractor shall have performed independent technical reviews (ITR's) and back-checks of previous comment resolutions, as required by Section 01 45 04.00 10 CONTRACTOR QUALITY CONTROL, including providing documentation thereof. Use DrChecks or other acceptable comment tracking system during the ITR and submit the results with each final design package

3.7.1. Drawings

3.7.1.1. Submit drawings complete with all contract requirements incorporated into the documents to provide a 100% design for each package submitted.

3.7.1.2. Prepare all drawings with the Computer-Aided Design and Drafting (CADD)/Computer-Aided Design (CAD) system, organized and easily referenced electronically, presenting complete construction information.

3.7.1.3. Drawings shall be complete. The Contractor is encouraged to utilize graphics, views, notes, and details which make the drawings easier to review or to construct but is also encouraged to keep such materials to those that are necessary.

3.7.1.4. Provide detail drawings that illustrate conformance with the contract. Include room finish schedules, corresponding color/finish/special items schedules, and exterior finish schedules that agree with the submitted SID binders.

3.7.1.5. The design documents shall be in compliance with the latest version of the A/E/C CAD Standard, available at <https://cadbim.usace.army.mil/CAD>. Use the approved vertical Corps of Engineers title blocks and borders on all drawings with the appropriate firm name included within the title block area.

3.7.1.6. CAD System and Building Information Modeling (BIM) (NOTE: If this is a Single Award or Multiple Award, Indefinite Delivery/Indefinite Quantity Contract, this information will be provided for each task order.)

All CAD files shall be fully compatible with MicroStation V8 format. Save all design CAD files as MicroStation V8 format files. All submitted BIM Models and associated Facility/Site Data shall be fully compatible with file formats. ~~All CAD files shall be fully compatible with MicroStation V8 or higher. Save all design CAD files as~~

~~MicroStation V8 or higher files. All submitted BIM Models and associated Facility Data shall be fully compatible with Bentley BIM file format and the USACE Bentley BIM v8 Workspace.~~

(a) CAD Data Final File Format: During the design development capture geo-referenced coordinates of all changes made to the existing site (facility footprint, utility line installations and alterations, roads, parking areas, etc) as a result of this contract. There is no mandatory methodology for how the geo-referenced coordinates will be captured, however, Engineering and Construction Bulletin No. 2006-15, Subject: Standardizing Computer Aided Design (CAD) and Geographic Information Systems (GIS) Deliverables for all Military Design and Construction Projects identifies the format for final as-built drawings and data sets to be delivered to the government. Close-out requirements at the as-built stage; require final geo-referenced GIS Database of the new facility along with all exterior modifications. The Government will incorporate this data set into the Installation's GIS Masterplan or Enterprise GIS System. See also, Section 01 78 02.00 10 Closeout Submittals.

(b) Electronic Drawing Files: In addition to the native CAD design files, provide separate electronic drawing files (in editable CAD format and Adobe Acrobat PDF version 7.0 or higher) for each project drawing.

(c) Each file (both CAD and PDF) shall represent one complete drawing from the drawing set, including the date, submittal phase, and border. Each drawing file shall be completely independent of any data in any other file, including fonts and shapes not included with the basic CAD software program utilized. Fonts that are not included as part of the default CAD software package installation or recognized as an allowable font by the A/E/C CAD Standard are not acceptable in delivered CAD files. All displayed graphic elements on all levels of the drawing files shall be part of the project drawing image. The drawing files shall not contain any graphic element that is not part of the drawing image.

(d) Deliver BIM Model and associated Facility Data files in their native format. At a minimum, BIM files shall address major architecture design elements, major structural components, mechanical systems and electrical/communication distribution and elements as defined in Attachment F. See Attachment F for additional BIM requirements.

(e) Drawing Index: Provide an index of drawings sheet in CAD as part of the drawing set, and an electronic list in Microsoft Excel of all drawings on the CD. Include the electronic file name, the sheet reference number, the sheet number, and the sheet title, containing the data for each drawing.

(f) Hard Copies: Plot submitted hard copy drawings directly from the "electronic drawing files" and copy for quantities and sizes indicated in the distribution list at the end of this specification section. The Designers of Record shall stamp, sign and date original hard copy sheets as Released For Construction, and provide copies for distribution from this set.

3.7.2. Design Analyses

3.7.2.1. The designers of record shall update, finalize and present design analyses with calculations necessary to substantiate and support all design documents submitted.

3.7.2.2. The responsible DOR shall stamp, sign and date the design analysis. Identify the software used where, applicable (name, version, vendor). Generally, provide design analyses, individually, in an original (file copy) and one copy for the assigned government reviewer.

3.7.2.3. All disciplines review the LEED design analysis in conjunction with their discipline-specific design analysis; include a copy of the separable LEED design analysis in all design analysis submittals.

3.7.2.4. Do not combine multi-disciplined volumes of design-analysis, unless multiple copies are provided to facilitate multiple reviewers (one copy per each separate design analysis included in a volume).

3.7.3. Specifications

Specifications shall be 100% complete and in final form.

3.7.4. Submittal Register

Prepare and update the Submittal Register and submit it with the 100% design specifications (see Specification Section 01 33 00, SUBMITTAL PROCEDURES) with each design package. Include the required submittals for each specification section in a design package in the submittal register.

3.7.5. Preparation of DD Form 1354 (Transfer of Real Property)

This form itemizes the types, quantities and costs of various equipment and systems that comprise the project, for the purpose of transferring the new construction project from the Corps Construction Division to the Installation's inventory of real property. The Government will furnish the DB Contractor's design manager a DD Form 1354 checklist to use to produce a draft Form 1354. Submit the completed checklist and prepared draft Form DD 1354 with the 100% design in the Design Analysis. The Corps will use these documents to complete the final DD 1354 upon completion of construction.

3.7.6. Acceptance and Release for Construction

3.7.6.1. At the conclusion of the Final Design Review (after resolutions to the comments have been agreed upon between DOR and Government reviewers), the Contracting Officer or the ACO will accept the Final Design Submission for the design package in writing and allow construction to start for that design package. The Government may withhold acceptance until all major corrections have been made or if the final design submission requires so many corrections, even though minor, that it isn't considered acceptably complete.

3.7.6.2. Government review and acceptance of design submittals is for contract conformance only and shall not relieve the Contractor from responsibility to fully adhere to the requirements of the contract, including the Contractor's accepted contract proposal, or limit the Contractor's responsibility of design as prescribed under Special Contract Requirement: "Responsibility of the Contractor for Design" or limit the Government's rights under the terms of the contract. The Government reserves the right to rescind inadvertent acceptance of design submittals containing contract deviations not separately and expressly identified in the submittal for Government consideration and approval.

3.8. DESIGN COMPLETE CONSTRUCTION DOCUMENT REQUIREMENTS

After the Final Design Submission and Review Conference and after Government acceptance of the Final Design submission, revise the design documents for the design package to incorporate the comments generated and resolved in the final review conference, perform and document a back-check review and submit the final, design complete documents. Label the final design complete documents "FOR CONSTRUCTION" or use similar language. In addition to the final drawings and specifications, the following deliverables are required for distribution and field use. The deliverable includes all documentation and supporting design analysis in final form, as well as the final review comments, disposition and the back-check. As part of the quality assurance process, the Government may perform a back-check of the released for construction documentation. Promptly correct any errors or omissions found during the Government back-check. The Government may withhold retainage from progress payments for work or materials associated with a final design package until this submittal has been received and the Government determines that it is complete.

3.9. SUBMITTAL DISTRIBUTION, MEDIA AND QUANTITIES

3.9.1. Submittal Distribution and Quantities

General: The documents which the Contractor shall submit to the Government for each submittal are listed and generally described in preceding paragraphs in this Section. Provide copies of each design submittal and design substantiation as follows (NOTE: If this is a Single Award or Multiple Award, Indefinite Delivery/Indefinite Quantity Contract, this information will be provided for each task order):

Activity and Address	Drawing Size (Full Size) 22x34 Full Sets/ *Partial Sets	Design Analyses & Specs Full Sets/ *Partial Sets	Drawing Size (Half Size) 11x17 Full Sets/ *Partial Sets	Non-BIM Data CD-ROM or DVD as Necessary (PDF & .dgn)	Furniture Submittal (Per Attachment B)	Structural Interior Design Submittal	BIM Data DVD (Per Attachment F)
Commander, U.S.Army Engineer District Savannah	1/1	5/5	5/5	5	1	1	2
Commander, U.S.Army Engineer District, Center of Standardization Fort Worth	1/1	5/5	5/5	2	1	1	1
Installation	2/2	14/14	14/14	2	2	1	0
U.S.Army Corps of Engineers Construction Area Office	2/2	5/5	5/5	5	1	2	0
Information Systems Engineering Command (ISEC)	0/0	0/0	0/0	1	*Partial Set (Work Station/System Furniture- IT Details)	N/A	1
Huntsville Engineer & Support Center, Central Furnishings Program	N/A	N/A	N/A	N/A	1 Interim/Refer to attachment B for the final submission Qty	N/A	N/A
Other Offices	0/0	0/0	0/0	0	N/A	0	0

***NOTE: For partial sets of drawings, specifications and design analyses, see paragraph 3.9.3.3, below.**

****NOTE: When specified below in 3.9.2, furnish Installation copies of Drawings as paper copies, in lieu of the option to provide secure web-based submittals.**

3.9.2. Web based Design Submittals

Web based design submittals will be acceptable as an alternative to the paper copies listed in the Table above, provided a single hard-copy PDF based record set is provided to the Contracting Officer for record

purposes. Where the contract requires the Contractor to submit documents to permitting authorities, still provide those authorities paper copies (or in an alternate format where required by the authority). Web based design submittal information shall be provided with adequate security and availability to allow unlimited access those specifically authorized to Government reviewers while preventing unauthorized access or modification. File sizes must be of manageable size for reviewers to quickly download or open on their computers. As a minimum, drawings shall be full scale on American National Standards Institute (ANSI) D sheets (34" x 22"). In addition to the optional website, provide the BIM data submission on DVD to each activity and address noted above in paragraph 3.9.1 for each BIM submission required in Attachment F.

3.9.3. Mailing of Design Submittals

3.9.3.1. Mail all design submittals to the Government during design and construction, using an overnight mailing service. The Government will furnish the Contractor addresses where each copy shall be mailed to after award of the contract (or individual task order if this is an indefinite delivery/indefinite quantity, task order contract). Mail the submittals to five (5) different addresses. Assemble drawing sheets, specs, design analyses, etc. into individual sets; do not combine duplicate pages from individual sets so that the government has to assemble a set.

3.9.3.2. Each design submittal shall have a transmittal letter accompanying it indicating the date, design percentage, type of submittal, list of items submitted, transmittal number and point of contact with telephone number.

3.9.3.3. Provide partial sets of drawings, specifications, design analyses, etc., as designated in the Table in paragraph 3.9.1, to those reviewers who only need to review their applicable portions of the design, such as the various utilities. The details of which office receives what portion of the design documentation will be worked out after award.

3.10. AS-BUILT DOCUMENTS

Provide as-built drawings and specifications in accordance with Section 01 78 02.00 10, CLOSEOUT SUBMITTALS. Update LEED design phase documentation during construction as needed to reflect construction changes and advancing project completion status (example - Commissioning Plan updates during construction phase) and include updated LEED documentation in construction closeout submittal.

ATTACHMENT A STRUCTURAL INTERIOR DESIGN (SID) REQUIREMENTS

1.0 GENERAL INFORMATION

Structural Interior Design includes all building related elements and components generally part of the building itself, such as wall finishes, ceilings finishes, floor coverings, marker/bulletin boards, blinds, signage and built in casework. Develop the SID in conjunction with the furniture footprint.

2.0 STRUCTURAL INTERIOR DESIGN (SID) REQUIREMENTS FOR THE INTERIM AND FINAL DESIGN SUBMITTALS

2.1. FORMAT AND SCHEDULE

Prepare and submit for approval an interior and exterior building finishes scheme for an interim design submittal. The DOR shall meet with and discuss the finish schemes with the appropriate Government officials prior to preparation of the schemes to be presented. Present original sets of the schemes to reviewers at an interim design conference.

At the conclusion of the interim phase, after resolutions to the comments have been agreed upon between DOR and Government reviewers, the Contractor may proceed to final design with the interior finishes scheme presented.

The SID information and samples are to be submitted in 8 ½" x 11" format using three ring binders with pockets on the inside of the cover. When there are numerous pages with thick samples, use more than one binder. Large D-ring binders are preferred to O-ring binders. Use page protectors that are strong enough to keep pages from tearing out. Anchor large or heavy samples with mechanical fasteners, Velcro, or double-faced foam tape rather than rubber cement or glue. Fold out items must have a maximum spread of 25 ½". Provide cover and spine inserts sheets identifying the document as "Structural Interior Design" package. Include the project title and location, project number, Contractor/A/E name and phone number(s), submittal stage and date.

Design submittal requirements include, but are not limited to:

2.1.1. Narrative of the Structural Interior Design Objectives

The SID shall include a narrative that discusses the building related finishes. Include topics that relate to base standards, life safety, sustainable design issues, aesthetics, durability and maintainability, discuss the development and features as they relate to the occupants requirements and the building design.

2.1.2. Interior Color Boards

Identify and key each item on the color boards to the contract documents to provide a clear indication of how and where each item will be used. Arrange finish samples to the maximum extent possible by room type in order to illustrate room color coordination. Label all samples on the color boards with the manufacturer's name, patterns and colors name and number. Key or code samples to match key code system used on contract drawings.

Material and finish samples shall indicate true pattern, color and texture. Provide photographs or colored photocopies of materials or fabrics to show large overall patterns in conjunction with actual samples to show the actual colors. Finish samples must be large enough to show a complete pattern or design where practical.

Color boards shall include but not be limited to original color samples of the following:

All walls finishes and ceiling finishes, including corner guards, acrylic wainscoting and wall guards/chair rail finishes

All tile information, including tile grout color and tile patterns.

- All flooring finishes, including patterns.
- All door, door frame finishes and door hardware finishes
- All signage, wall base, toilet partitions, locker finishes and operable/folding partitions and trim
- All millwork materials and finishes (cabinets, counter tops, etc.)
- All window frame finishes and window treatments (sills, blinds, etc.)

Color board samples shall reflect all actual finish textures, patterns and colors required as specified. Patterned samples shall be of sufficient size to adequately show pattern and its repeat if a repeat occurs.

2.1.3. Exterior Color Boards

Prepare exterior finishes color boards in similar format as the interior finishes color boards, for presentation to the reviewers during an interim design conference. Provide original color samples of all exterior finishes including but not limited to the following:

- All Roof Finishes
- All Brick and Cast Stone Samples
- All Exterior Insulation and Finish Samples
- All Glass Color Samples
- All Exterior Metals Finishes
- All Window & Door Frame Finishes
- All Specialty Item Finishes, including trim

Identify each item on the exterior finishes color boards and key to the building elevations to provide a clear indication of how and where each item will be used.

2.2. STRUCTURAL INTERIOR DESIGN DOCUMENTS

2.2.1. General

Structural interior design related drawings must indicate the placement of extents of SID material, finishes and colors and must be sufficiently detailed to define all interior work. The following is a list of minimum requirements:

2.2.2. Finish Color Schedule

Provide finish color schedule(s) in the contract documents. Provide a finish code, material type, manufacturer, series, and color designations. Key the finish code to the color board samples and drawings.

2.2.3. Interior Finish Plans

Indicate wall and floor patterns and color placement, material transitions and extents of interior finishes.

2.2.4. Furniture Footprint Plans

Provide furniture footprint plans showing the outline of all freestanding and systems furniture for coordination of all other disciplines.

2.2.5. Interior Signage

Include interior signage plans or schedules showing location and quantities of all interior signage. Key each interior sign to a quantitative list indicating size, quantity of each type and signage text.

2.2.6. Interior Elevations, Sections and Details

Indicate material, color and finish placement.

**ATTACHMENT B
FURNITURE, FIXTURES & EQUIPMENT (FF&E) REQUIREMENTS**

1.0 FF&E REQUIREMENTS FOR THE INTERIM AND FINAL DESIGN SUBMITTALS

1.1. NOT USED

1.2. NOT USED

1.3. FURNITURE SELECTION

1.3.1. Select furniture from the GSA Schedules. Specify furniture available open market when an item is not available on the GSA Schedules. Provide justification for items not available on the GSA Schedules.

1.3.2. To the greatest extent possible when specifying furniture work within a manufacturer's family of furniture for selections, example: Steelcase, Turnstone, Brayton International, Metro, and Vecta are all Steelcase companies. Each alternate should also be specified from a manufacturer's family of furniture, example: first set of alternates would be specified from Knoll's family of furniture and the second from Herman Miller family of furniture. It may be necessary to make some selections from other than a manufacturer's family of furniture if costs are not reasonable for particular items, some items are not available or appropriate for the facility or the items are not on GSA Schedule. If this occurs, consider specifying product from an open line that is accessible by numerous dealerships. Select office furniture including case goods, tables, storage, seating, etc. that is compatible in style, finish and color. Select furniture that complies with ANSI/BIFMA and from manufacturer's standard product line as shown in the most recent published price list and/or amendment and not custom product.

1.4. CONSTRUCTION

1.4.1. Provide knee space at workstations and tables that is not obstructed by panels/legs that interfere with knee space of seated person and specify modesty panels at walls to be of a height or be hinged to allow access to building wall electrical outlets and communication jacks. Provide desks, storage and tables with leveling devices to compensate for uneven floors.

1.4.2. Unless otherwise noted, specify workstations and storage of steel construction. Provide high pressure laminate worksurface tops constructed to prevent warpage (thermally fused worksurfaces are not acceptable). Provide user friendly features such as radius edges. Do not use sharp edges and exposed connections and ensure the underside of desks, tables and worksurfaces are completely and smoothly finished. Provide abutting worksurfaces that mate closely and are of equal heights when used in side-by-side configurations in order to provide a continuous and level worksurface.

1.4.3. Drawers shall stay securely closed when in the closed position and protect wires from damage during drawer operation. Include a safety catch to prevent accidental removal when fully open

1.4.4. Unless otherwise noted, provide lockable desks and workstations, filing cabinets and storage. Key all locks within a one person office the same; key all one person offices within a building differently. If an office or open office area has more than one workstation, key all the workstations differently, but key all locks within an individual workstation the same. Use tempered glass glazing when glazing is required. Use light-emitting diode (LED)/solid state lighting where task lighting is required in furniture.

1.5. FINISHES AND UPHOLSTERY

1.5.1. Specify neutral colors for casegoods, furniture systems, storage and tables. Specify desk worksurfaces and table tops that are not too light or too dark in color and have a pattern to help hide soiling. Accent colors are allowed in break and lounge areas. Keep placement of furniture systems panel

fabric accent colors to a minimum. All finishes shall be cleanable with ordinary household cleaning solutions.

1.5.2. Use manufacturer's standard fabrics; including textile manufacturers fabrics that have been graded into the furniture manufactures fabric grades and are available through their GSA Schedule. Customers Own Material (COM) can be used in headquarter buildings in command suites with executive furniture. Coordinate specific locations with Corps of Engineers Interior Designer.

1.5.3. Specify seating upholstery that meets Wyzenbeek Abrasion Test, 55,000 minimum rubs. Specify a soil retardant finish for woven fabrics if Crypton or vinyl upholstery is not provided for seating in dining areas. Use manufacturer's standard fabrics. This includes textile manufacturers fabrics that have been graded into the furniture manufactures fabric grades and are available through their GSA Schedule. Specify upholstery and finish colors and patterns that help hide soiling. Specify finishes that can be cleaned with ordinary household cleaning solutions.

1.6. ACCESSORIES

1.6.1. Specify all accessories required for completely finished furniture installation. Provide filing cabinets and storage for office supplies. Provide tack surfaces at workstations with overhead storage. Provide tackable surfaces at workstations with overhead storage.

1.6.2. Not Used.

1.6.3. Workstations are to be equipped with stable keyboard trays that have height adjustability, tilting capability, including negative tilt, have a mouse pad at same height as the keyboard tray that can accommodate both left and right handed users, and retractable under worksurface.

1.7. MISSION UNIQUE EQUIPMENT

Funding for FF&E furniture items and mission unique equipment (MUE) items are from two different sources. Separate the designs and procurement documentation for FFE items and MUE. MUE includes, but is not limited to, items such as commercial appliances, fitness equipment, IT equipment and supporting carts. The User will purchase and install mission unique equipment items, unless otherwise noted. Identify locations of known MUE items such as commercial appliances, etc. for space planning purposes.

1.8. SUSTAINABILITY

1.8.1. For all designs provided regardless of facility type, make every effort to implement all aspects of sustainability to the greatest extent possible for all the selections made in the FF&E package. This includes but is not limited to the selection of products that consider: **Material Chemistry and Safety of Inputs** (What chemicals are used in the construction of the selections?); **Recyclability** (Do the selections contain recycled content?); **Disassembly** (Can the selections be disassembled at the end of their useful life to recycle their materials?).

1.8.2. Make selections to the greatest extent possible of products that possess current McDonough Braungart Design Chemistry ([MBDC](#)) certification or other "third-party" certified Cradle to Cradle program, Forest Stewardship Council (FSC) certification, GREENGAURD certification or similar "third-party" certified products consisting of low-emitting materials.

1.9. FURNITURE SYSTEMS

1.9.1. General.

Where appropriate, design furniture systems in open office areas. Coordinate style and color of furniture systems with other storage, seating, etc. in open office areas. Minimize the number of workstation typicals and the parts and pieces required for the design to assist in future reconfiguration and inventorying.

1.9.2. Connector Systems.

Specify a connector system that allows removal of a single panel or spine wall within a typical workstation configuration without requiring disassembly of the workstation or removal of adjacent panels. Specify connector system with tight connections and continuous visual seals. When Acoustical panels are used, provide connector system with continuous acoustical seals. Specify concealed clips, screws, and other construction elements, where possible.

1.9.3. Panels and Spine Walls

Specify panels and spine walls with hinged or removable covers that permit easy access to the raceway when required but are securely mounted and cannot be accidentally dislodged under normal conditions. Panels shall be capable of structurally supporting more than 1 fully loaded component per panel per side. Raceways are to be an integral part of the panel and must be able to support lay-in cabling and have a large capacity for electrical and IT. Do not thread cables through the frame.

1.9.4. Electrical And Information/Technology (IT)

Design furniture with electrical systems that meets requirements of UL 1286 when powered panels are required and UL approved task lights that meet requirements of NFPA 70. Dependent on user requirements and Section 01 10 00, paragraph 3 requirements, it is recommended that workstation electrical and IT wiring entry come from the building walls to eliminate the use of power poles and access at the floor. Design electrical and IT systems that are easily accessed in the spine wall and panels without having to move return panels and components. Electrical and IT management will be easily accessible by removable wall covers which can be removed while workstation components are still attached. Specify connector system that has continuation of electrical and IT wiring within workstations and workstation to workstation.

1.9.5. Pedestals

Specify pedestals that are interchangeable from left to right, and right to left, and retain pedestal locking system capability.

1.10. EXECUTIVE FURNITURE

1.10.1. Design for executive furniture in command areas, coordinate specific locations with Corps of Engineers Interior Designer. Use upgraded furniture, upholsteries and finishes in command suites. This includes but is not limited to wood casegoods, seating and tables. Select executive furniture casegoods from a single manufacturer and style line, to include workstations, credenzas, filing, and storage, etc.

1.10.2. Specify furniture with wood veneer finish with mitered solid wood edge of same wood type. Other executive office furniture such as seating, tables, executive conference room furniture, etc. shall be compatible in style, finish and color with executive furniture casegoods.

1.11. SEATING

1.11.1. General

Specify appropriate chair casters and glides for the floor finish where the seating is located. All task seating shall support up to a minimum of 250 lbs.

1.11.2. Desk and Guest Seating

Select ergonomic desk chairs with casters, waterfall front, swivel, tilt, variable back lock, adjustable back height or adjustable lumbar support, pneumatic seat height adjustment, and padded, contoured upholstered seat and back. Desk and guest chair backs may be other than upholstered such as mesh fabric if it is ergonomically designed, forms to back and is comfortable. Depending on scale of desk chair provide seat pan forward and back adjustment to increase or decrease depth of seat pan. All desk chairs shall have an adjustable seat height range of 4 1/2", range to include 16 1/2-20". Select guest chairs that are compatible in style, finish and color with the desk chairs.

1.11.3. Conference Room Seating

At tables, select ergonomic conference seating with casters, non-upholstered arms, waterfall front, swivel, tilt, pneumatic seat height adjustment, and padded, contoured seat and back, unless otherwise noted. Select arm height and/or design that allows seating to be moved up closely to the table top. Conference chair backs may be other than upholstered such as mesh fabric if it is ergonomically designed, forms to back and is comfortable. Perimeter conference chairs shall be compatible in style, finish and color with conference seating at the tables.

1.11.4. Lounge, Waiting and Reception Area Seating

Select seating with arms and cushioned, upholstered seat and back. In heavy use areas, arms shall be easily cleaned such as non-upholstered arms or upholstered arms with wood arm caps unless otherwise noted.

1.11.5. Break Room Seating

Select stackable seating that is easily cleaned. Seating shall be appropriate for table and counter heights as applicable with non-upholstered arms if arms are required. Chairs shall have metal legs and composite materials for seats.

1.12. FILING AND STORAGE.

Select storage and shelving units that meet customer's functional load requirements for stored items. Specify counterweights for filing cabinets when required by the manufacturer for stability. File drawers shall allow only one drawer to be opened at a time. Provide heavy duty storage and shelving if information is not available.

1.13. TRAINING TABLES.

Training tables shall be reconfigurable, moveable and storable; lighter weight folding with dollies or casters as necessary. Plastic laminate self edges are unacceptable. Specify power and data requirements and dollies as required.

1.14. FURNITURE WARRANTIES.

Specify manufacturer's performance guarantees or warranties that include parts, labor and transportation as follows:

Furniture System, unless otherwise noted – 10 year minimum
Furniture System Task Lights – 2 year minimum, excluding bulbs
Furniture System Fabric – 3 year minimum
Wood Desks - 10 year minimum

Metal Desks – 12 year minimum
Seating, unless otherwise noted - 10 year minimum
Seating Mechanisms and Pneumatic Cylinders - 10 years
Seating Fabric - 3 years minimum
Wood Filing and Storage - 10 year minimum

Tables, unless otherwise noted - 10 year minimum
Table Mechanisms – 5 year minimum
Table Ganging Device - 1 year minimum
Items not listed above - 1 year minimum

ATTACHMENT C TRACKING COMMENTS IN DRCHECKS

1.0 General

The Government and DB Contractor shall set up the project in Dr Checks. Throughout the design process, the parties shall enter, track, and back-check comments using the DrChecks system. Government and Contractor reviewers enter design review comments into DrChecks. Designers of Record shall annotate comments timely and specifically to indicate for the review conference exactly what action will be taken or why the action is not required. After the design review conference and prior to the next design submittal for the package, the DOR's will annotate those comments that require DOR action, design revision, etc. to show how and where it has been addressed in the design documents, This shall be part of the required design configuration management plan. Comments considered critical by the conference participants shall be flagged as such.

2.0 DrChecks Review Comments

The Contractor and the Government shall monitor DrChecks to assure all comments are annotated and resolved prior to the next submittal. Print and include the DrChecks comments and responses and included in the design analysis for record in the next design submittal for that package.

2.1. Upon review of comments prior to the design review conference, the DOR(s) shall identify whether they concur, non-concur, mark it "for information only" or mark it "check and resolve". Indicate exactly what action will be taken or why the action is not required.

2.2. Conference participants (reviewers) will expect coordination between Design Analysis calculations and the submitted design. Reviewers will also focus on the design submittal's satisfaction of the contract requirements.

2.3. After the conference, the DOR(s) shall formally respond to each applicable comment in DrChecks a second time prior to the next submittal, clearly indicating what action was taken and what drawing/spec/design analysis changed. Designers of Record are encouraged to directly contact reviewers to discuss and agree to the formal comment responses rather than relying only on DrChecks and review meetings to discuss comments. With the next submittal, reviewers will back-check answers to the comments against the new submittal, in addition to reviewing additional design work.

2.4. Clearly annotate in DrChecks those comments that, in the DB Contractor's opinion, require effort outside the scope of the contract. Do not proceed with work outside the contract until a modification to the contract is properly executed, if one is necessary.

3.0 DrChecks Initial Account Set-Up

To initialize an office's use of DrChecks, choose a contact person within the office to call the DrChecks Help Desk at 800-428-HELP, M-F, 8AM-5PM, Central time. This POC will be given an office password to distribute to others in the office. Individuals can then go to the hyperlink at <http://www.projnet.org> and register as a first time user. Upon registration, each user will be given a personal password to the DrChecks system.

3.1. Once the office and individuals are registered, the COE's project manager or lead reviewer will assign the individuals and/or offices to the specific project for review. At this point, persons assigned can make comments, annotate comments, and close comments, depending on their particular assignment.

4.0 DrChecks Reviewer Role

The Contractor is the technical reviewer and the Government is the compliance reviewer of the DB's design documents. Each reviewer enters their own comments into the Dr Checks system. To enter comments:

- 4.1. Log into DrChecks.
- 4.2. Click on the appropriate project.
- 4.3. Click on the appropriate review conference. An Add comment screen will appear.
- 4.4. Select or fill out the appropriate sections (particularly comment discipline and type of document for sorting) of the comment form and enter the comment in the space provided.
- 4.5. Click the Add Comment button. The comment will be added to the database and a fresh screen will appear for the next comment you have.
- 4.6. Once comments are all entered, exit DrChecks by choosing "My Account" and then Logout.

5.0 DrChecks Comment Evaluation (Step 1 of 2)

The role of the DOR(s) is to evaluate and respond to the comments entered by the Government's and DB Contractor's reviewers. To respond to comments:

- 5.1. Log into DrChecks.
- 5.2. Click on the appropriate project.
- 5.3. Under "Evaluate" click on the number under "Pending".
- 5.4. Locate the comments that require your evaluation. (Note: If you know the comment number you can use the Quick Pick window on your home page in DrChecks; enter the number and click on go.)
- 5.5. Select the appropriate evaluation radio button (concur, non-concur, for information only, or check and resolve) and respond with a brief explanation in the Discussion field. An explanation other than to say "concur" is not necessary for "Concur", but may be useful for the Design Configuration Management purposes.
- 5.6. Click on the Add button. The evaluation will be added to the database and a fresh screen will appear with the next comment.
- 5.7. Once evaluations are all entered, exit DrChecks by choosing "My Account" and then Logout.

6.0 DrChecks Comment Evaluation (Step 2 of 2)

This is where the DOR(s) respond to each applicable comment in DrChecks after the design review conference, prior to the next submittal, clearly indicating what action was taken and what drawing/spec/design analysis changed. Respond to the previous comments, following the same steps as above, adding the narrative in the discussion field.

7.0 DrChecks Back-Check

At the following design conference, (where applicable) or at some other agreed time, Government and Contractor reviewers will back-check comment annotations against newly presented documents to verify that the designers' responses are acceptable and that all revisions have been completed. Reviewers

shall either enter additional back-check comments, if necessary, or close those where actions are complete.

- 7.1. Log into DrChecks.
- 7.2. Click on the appropriate project.
- 7.3. Under "My Backcheck" click on the number under "Pending".
- 7.4. If you agree with the designer's response select "Close Comment" and add a closing response if desired.
- 7.5. If you do not agree with the designer's response or the submittal does not reflect the response given, select "Issue Open", enter additional information.
- 7.6. Click on the Add button. The back-check will be added to the database and a fresh screen will appear with the next comment.
- 7.7. Once back-checks are all entered, exit DrChecks by choosing "My Account" and then Logout. The design is completed and final when there are no pending comments to be evaluated and there are no pending or open comments under back-check.

ATTACHMENT D
SAMPLE FIRE PROTECTION AND LIFE SAFETY CODE REVIEW

Instructions: Use the information outlined in this document to provide the minimum requirement for development of Fire Protection and Life Safety Code submittals for all building projects. Additional and supplemental information may be used to further develop the code review. Insert N/A after criteria, which may be "not applicable".

1.0 SAMPLE FIRE PROTECTION AND LIFE SAFETY CODE REVIEW

- 1.1. Project Name (insert name and location)
- 1.2. Applicable Codes and Standards
 - 1.2.1. Unified Facilities Criteria (UFC): 3-600-01, Design: Fire Protection Engineering For Facilities
 - 1.2.2. International Building Code (IBC) for fire resistance requirements, allowable floor area, building height limitations and building separation distance requirements, except as modified by UFC 3-600-01.
 - 1.2.3. National Fire Protection Association (NFPA) 101 Life Safety Code (latest edition), for building egress and life safety and applicable criteria in UFC 3-600-01.
 - 1.2.4. ADA and ABA Accessibility Guidelines. For Buildings and Facilities See Section 01 10 00, Paragraph 3 for facility specific criteria.
- 1.3. Occupancy Classification
IBC chapters 3 and 4
- 1.4. Construction Type
IBC chapter 6
- 1.5. Area Limitations
IBC chapter 5, table 503
- 1.6. Allowable Floor Areas
IBC section 503, 505
- 1.7. Allowable area increases
IBC section 506, 507
- 1.8. Maximum Height of Buildings
IBC section 504
- 1.9. Fire-resistive substitution
- 1.10. Occupancy Separations
IBC table 302.3.2
- 1.11. Fire Resistive Requirements
 - 1.11.1. Exterior Walls - [] hour rating, IBC table 601, 602

- 1.11.2. Interior Bearing walls - [] hour rating
- 1.11.3. Structural frame - [] hour rating
- 1.11.4. Permanent partitions - [] hour rating
- 1.11.5. Shaft enclosures - [] hour rating
- 1.11.6. Floors & Floor-Ceilings - [] hour rating
- 1.11.7. Roofs and Roof Ceilings - [] hour rating
- 1.12. Automatic Sprinklers and others used to determine the need for automatic Extinguishing Equipment, Extinguishing Systems, Foam Systems, Standpipe
- 1.12.1. UFC 3-600-01, chapters 4 and 6 systems, wet chemical systems, etc. State which systems are required and to what criteria they will be designed.
- 1.12.2. UFC 3-600-01, Appendix B Occupancy Classification. Note the classification for each room. This may be accomplished by classifying the entire building and noting exceptions for rooms that differ (E.g. The entire building is Light Hazard except boiler room and storage rooms which are [], etc.)
- 1.12.3. UFC 3-600-01, Chapter 3 Sprinkler Design Density, Sprinkler Design Area, Water Demand for Hose Streams (supply pressure and source requirements).
- 1.12.4. UFC 3-600-01, Chapter 4 Coverage per sprinkler head. Extended coverage sprinkler heads are not permitted.
- 1.12.5. Available Water Supply. Provide the results of the water flow tests showing the available water supply static pressure and residual pressure at flow. Based on this data and the estimated flow and pressure required for the sprinkler system, determine the need for a fire pump.
- 1.12.6. NFPA 13, Para. 8.16.4.6.1. Provide backflow preventer valves as required by the local municipality, authority, or water purveyor. Provide a test valve located downstream of the backflow preventer for flow testing the backflow preventer at full system demand flow. Route the discharge to an appropriate location outside the building.
- 1.13. Kitchen Cooking Exhaust Equipment
Describe when kitchen cooking exhaust equipment is provided for the project. Type of extinguishing systems for the equipment should be provided. per NFPA 96. Show all interlocks with manual release switches, fuel shutoff valves, electrical shunt trips, exhaust fans, and building alarms.
- 1.14. Portable Fire Extinguishers, fire classification and travel distance. per NFPA 10
- 1.15. Enclosure Protection and Penetration Requirements. - Opening Protectives and Through Penetrations
- 1.15.1. IBC Section 712, 715 and Table 715.3. Mechanical rooms, exit stairways, storage rooms, janitor [] hour rating. IBC Table 302.1.1
- 1.15.2. Fire Blocks, Draft Stops, Through Penetrations and Opening Protectives
- 1.16. Fire Dampers. Describe where fire dampers and smoke dampers are to be used (IBC Section 716 and NFPA 90A). State whether isolation smoke dampers are required at the air handler.

- 1.17. Detection Alarm and Communication. UFC 3-600-01, (Chapter 5); NFPA 101 para. 3.4 (chapters 12-42); NFPA 72
- 1.18. Mass Notification. Describe building/facility mass notification system (UFC 4-021-01) type and type of base-wide mass notification/communication system. State whether the visible notification appliances will be combined with the fire alarm system or kept separate. (Note: Navy has taken position to combine visible notification appliances with fire alarm).
- 1.19. Interior Finishes (classification). NFPA 101.10.2.3 and NFPA 101.7.1.4
- 1.20. Means of Egress
- 1.20.1. Separation of Means of Egress, NFPA 101 chapters 7 and 12-42; NFPA101.7.1.3
- 1.20.2. Occupant Load, NFPA101.7.3.1 and chapters 12-42.
- 1.20.3. Egress Capacity (stairs, corridors, ramps and doors) NFPA101.7.3.3
- 1.20.4. Number of Means of Egress, NFPA101.7.4 and chapters 12-42.
- 1.20.5. Dead end limits and Common Path of Travel, NFPA 101.7.5.1.6 and chapters 12-42.
- 1.20.6. Accessible Means of Egress (for accessible buildings), NFPA101.7.5.4
- 1.20.7. Measurement of Travel Distance to Exits, NFPA101.7.6 and chapters 12-42.
- 1.20.8. Discharge from Exits, NFPA101.7.7.2
- 1.20.9. Illumination of Means of Egress, NFPA101.7.8
- 1.20.10. Emergency Lighting, NFPA101.7.9
- 1.20.11. Marking of Means of Egress, NFPA101.7.10
- 1.21. Elevators, UFC 3-600-01, Chapter 6; IBC and ASME A17.1 - 2000,(Safety Code for Elevators and Escalators)
- 1.22. Accessibility Requirements, ADA and ABA Accessibility Guidelines for Buildings and Facilities
- 1.23. Certification of Fire Protection and Life Safety Code Requirements. (Note: Edit the Fire team membership if necessary). Preparers of this document certify the accuracy and completeness of the Fire Protection and Life Safety features for this project in accordance with the attached completed form(s).
- 1.24. Designer of Record. Certification of Fire protection and Life Safety Code Requirements. (Note: Edit the Fire team members if necessary). Preparers of this document certify the accuracy and completeness of the Fire Protection and Life Safety features of this project.

Fire Protection Engineer of Record:

Signature and Stamp

Date

OR

Architect of Record:

Signature and Stamp

Date

Mechanical Engineer of Record:

Signature and Stamp

Date

Electrical Engineer of Record:

Signature/Date

**ATTACHMENT E
LEED SUBMITTALS**

LEED Credit Paragraph	Contractor Check Here if Credit is Claimed	LEED 2.2 Documentation Requirements and Submittals Checklist for Government-Validated Project	Provide for Credit Audit Only	REQUIRED DOCUMENTATION	DATE	REV
PAR		FEATURE	DUE AT			
GENERAL						
GENERAL - All calculations shall be in accordance with LEED 2.2 Reference Guide.						
GENERAL: Obtain excel version of this spreadsheet at http://en.sas.usace.army.mil , "Engineering Criteria".						
GENERAL - For all credits, narrative/comments may be added to describe special circumstances or considerations regarding the project's credit approach.						
GENERAL - Include all required LEED drawings indicated below in contract drawings with applicable discipline drawings, labeled For Reference Only.						
NOTE: Each submittal indicated with "*" differs from USGBC certified project submittals by either having a different due date or being an added submittal not required by USGBC.						
			Closeout	List of all Final Design submittals revised after final design to reflect actual closeout conditions. Revised Final Design submittals. - OR - Statement confirming that no changes have been made since final design that effect final design submittal documents.		
CATEGORY 1 - SUSTAINABLE SITES						
SSPR1		Construction Activity Pollution Prevention (PREREQUISITE)	**Final Design	List of drawings and specifications that address the erosion control, particulate/dust control and sedimentation control measures to be implemented.		
			**Final Design	Narrative that indicates which compliance path was used (NPDES or Local standards) and describes the measures to be implemented on the project. If a local standard was followed, provide specific information to demonstrate that the local standard is equal to or more stringent than the NPDES program.		
SS1		Site Selection	Final Design	Statement confirming that project does not meet any of the prohibited criteria.		
			Final Design	LEED Site plan drawing that shows all proposed development, line depicting boundary of all bodies of water and/or wetlands within 100 feet of project boundary and a line depicting 5' elevation above 100 year flood line that falls within project boundary. Not required if neither condition applies.		
SS2		Development Density & Community Connectivity	Final Design	Option 1: LEED Site vicinity plan showing project site and surrounding development. Show density boundary or note drawing scale.		
			Final Design	Option 1: Table indicating, for project site and all surrounding sites within density radius (keyed to site vicinity plan), site area and building area. Project development density calculation. Density radius calculation. Development density calculation within density radius.		
			Final Design	Option 2: LEED Site vicinity plan showing project site, the 1/2 mile community radius, pedestrian walkways and the locations of the residential development(s) and Basic Services surrounding the project site.		
			Final Design	Option 2: List (including business name and type) of all Basic Services facilities within the 1/2 mile radius, keyed to site vicinity plan.		
SS3		Brownfield Redevelopment	Final Design	Narrative describing contamination and the remediation activities included in project. Include statement indicating how site was determined to be a brownfield.		
SS4.1		Alternative Transportation: Public Transportation Access	Final Design	Statement indicating which option for compliance applies. State whether public transportation is existing or proposed and, if proposed, cite source of this information.		
			Final Design	Option 1: LEED Site vicinity plan showing project site, mass transit stops and pedestrian path to them with path distance noted.		
			Final Design	Option 2: LEED Site vicinity plan showing project site, bus stops and pedestrian path to them with path distance noted.		
SS4.2		Alternative Transportation: Bicycle Storage & Changing Rooms	Final Design	FTE calculation. Bicycle storage spaces calculation. Shower/changing facilities calculation.		
			Final Design	List of drawings that show the location(s) of bicycle storage areas. Statement indicating distance from building entrance.		
			Final Design	List of drawings that show the location(s) of shower/changing facilities and, if located outside the building, statement indicating distance from building entrance.		
SS4.3		Alternative Transportation: Low Emitting & Fuel Efficient Vehicles	Final Design	Statement indicating which option for compliance applies. FTE calculation. Statement indicating total parking capacity of site.		
			Final Design	Option 1: Low-emission & fuel-efficient vehicle calculation.		
			Final Design	Option 1: List of drawings and specification references that show location and number of preferred parking spaces for low-emission & fuel-efficient vehicles and signage.		
			Final Design	Option 1: Statement indicating quantity, make, model and manufacturer of low-emission & fuel-efficient vehicles to be provided. Statement confirming vehicles are zero-emission or indicating ACEEE vehicle scores.		

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			Final Design	Option 2: Low-emission & fuel-efficient vehicle parking calculation.		
			Final Design	Option 2: List of drawings and specification references that show location and number of preferred parking spaces and signage.		
			Final Design	Option 3: Low-emission & fuel-efficient vehicle refueling station calculation.		
			Final Design	Option 3: List of drawings and specifications indicating location and number of refueling stations, fuel type and fueling capacity for each station for an 8-hour period.		
			Closeout	Option 3: Construction product submittals indicating what was provided and confirming compliance with respect to fuel type and fueling capacity for each station for an 8-hour period.		
SS4.4		Alternative Transportation: Parking Capacity	Final Design	Statement indicating which option for compliance applies.		
			Final Design	Option 1: Preferred parking calculation including number of spaces required, total provided, preferred spaces provided and percentage.		
			Final Design	Option 2: FTE calculation. Preferred parking calculation including number of spaces provided, preferred spaces provided and percentage.		
			Final Design	Options 1 and 2: List of drawings and specification references that show location and number of preferred parking spaces and signage.		
			Final Design	Option 3: Narrative indicating number of spaces required and provided and describing infrastructure and support programs with description of project features to support them.		
SS5.1		Site Development: Protect or Restore Habitat	**Final Design	Option 1: List of drawing and specification references that convey site disturbance limits.		
			**Final Design	Option 2: LEED site plan drawing that delineates boundaries of each preserved and restored habitat area with area (sf) noted for each.		
			**Final Design	Option 2: Percentage calculation of restored/preserved habitat to total site area. List of drawings and specification references that convey restoration planting requirements.		
SS5.2		Site Development: Maximize Open Space	Final Design	Option 2: LEED site plan drawing delineating boundary of vegetated open space adjacent to building with areas of building footprint and designated open space noted.		
SS6.1		Stormwater Design: Quantity Control	Final Design	Statement indicating which option for compliance applies.		
			Final Design	Option 1: Indicate pre-development and post-development runoff rate(cfs) and runoff quantity (cf) -OR- Narrative describing site conditions, measures and controls to be implemented to prevent excessive stream velocities and erosion.		
			Final Design	Option 2: Indicate pre-development and post-development runoff rate(cfs) and runoff quantity (cf). Indicate percent reduction in each.		
SS6.2		Stormwater Design: Quality Control	Final Design	For non-structural controls, list all BMPs used and, for each, describe the function of the BMP and indicate the percent annual rainfall treated. List all structural controls and, for each, describe the pollutant removal and indicate the percent annual rainfall treated.		
SS7.1		Heat Island Effect: Non-Roof	**Final Design	LEED site plan drawing indicating locations and quantities of each paving type, including areas of shaded pavement. Percentage calculation indicating percentage of reflective/shaded/open grid area.		
SS7.2		Heat Island Effect: Roof	Final Design	Option 1: Percentage calculation indicating percentage of SRI compliant roof area. List of drawings and specification references that convey SRI requirements and roof slopes.		
			Closeout	Option 1: List of installed roof materials indicating, for each, manufacturer, product name and identification, SRI value and roof slope.		
			Closeout	X Option 1: Manufacturer published product data or certification confirming SRI		
			Final Design	Option 2: Percentage calculation indicating percentage of vegetated roof area.		
			Final Design	Option 3: Combined reflective and green roof calculation.		
			Closeout	Option 3: List of installed roof materials indicating, for each, manufacturer, product name and identification, SRI value and roof slope.		

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			Closeout	X Option 3: Manufacturer published product data or certification confirming SRI		
SS8		Light Pollution Reduction	Final Design	Interior Lighting: List of drawings and specification references that convey interior lighting requirements (location and type of all installed interior lighting, location of non-opaque exterior envelope surfaces, allowing confirmation that maximum candela value from interior fixtures does not intersect non-opaque building envelope surfaces). - OR - List of drawings and specification references that show automatic lighting controls that turn off non-essential lighting during non-business hours.		
			Final Design	Exterior Lighting: List of drawings and specification references that convey exterior lighting requirements (location and type of all site lighting and building facade/landscape lighting).		
			Final Design	Exterior Site Lighting Power Density (LPD): Tabulation for exterior site lighting indicating, for each location identification or description, units of measure, area or distance of the location, actual LPD using units consistent with ASHRAE 90.1, and the ASHRAE allowable LPD for that type of location. Percentage calculation of actual versus allowable LPD for all site lighting.		
			Final Design	Exterior Building Facade/Landscape Lighting Power Density (LPD): Tabulation for exterior building facade/landscape lighting indicating, for each location identification or description, units of measure, area or distance of the location, actual LPD using units consistent with ASHRAE 90.1, and the ASHRAE allowable LPD for that type of location. Percentage calculation of actual versus allowable LPD for all building facade/landscape lighting.		
			Final Design	Exterior Lighting IESNA Zone: Indicate which IESNA zone is applicable to the project.		
			Final Design	Exterior Lighting Site Lumen table indicating, for each fixture type, quantity installed, initial lamp lumens per luminaire, initial lamp lumens above 90 degrees from Nadir, total lamp lumens and total lamp lumens above 90 degrees. Percentage of site lamp lumens above 90 degrees from nadir to total lamp lumens.		
			Final Design	Exterior Lighting Narrative describing analysis used for addressing requirements for light trespass at site boundary and beyond.		
CATEGORY 2 – WATER EFFICIENCY						
WE1.1		Water Efficient Landscaping: Reduce by 50%	Final Design	Statement indicating which option for compliance applies.		
			Final Design	Calculation indicating, for baseline and design case, total water applied, total potable water applied, total non-potable water applied. Design case percent potable water reduction. If nonpotable water is used, indicate source of nonpotable water.		
			Final Design	List of landscape plan drawings.		
			Final Design	Narrative describing landscaping and irrigation design strategies, including water use calculation methodology used to determine savings and, if non-potable water is used, specific information about source and available quantity.		
WE1.2		Water Efficient Landscaping: No Potable Water Use or No Irrigation	Same as WE1.1	Same as WE1.1		
WE2		Innovative Wastewater Technologies	Final Design	Statement confirming which option for compliance applies.		
			Final Design	Statement confirming which occupancy breakdown applies (default or special). For special occupancy breakdown, indicate source and explanation for ratio.		
			Final Design	Occupancy calculation including male/female numbers for FTEs, visitors, students, customers, residential and other type occupants/users		
			Final Design	Statement indicating percent of male restrooms with urinals. Statement indicating annual days of operation.		
			Final Design	Baseline flush fixture calculation spreadsheet indicating, for each fixture type, gender, flush rate, daily uses per person for each occupant type identified in occupancy calculation and annual baseline flush fixture water usage.		
			Final Design	Design case flush fixture calculation spreadsheet indicating, for each fixture type, gender, fixture manufacturer, fixture model number, flush rate, percent of occupants using this fixture type, daily uses per person for each occupant type identified in occupancy calculation and annual design case flush fixture water usage.		

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PAR		FEATURE	DUE AT					
			Final Design	Option 1: If onsite non-potable water is used, identify source(s), indicate annual quantity from each source and indicate total annual quantity from all onsite non-potable water sources.				
			Final Design	Option 1: Summary calculation indicating baseline annual water consumption, design case annual water consumption, non-potable annual water consumption and total percentage annual water savings.				
			Final Design	Option 2: Statement confirming on-site treatment of all generated wastewater to tertiary standards and all treated wastewater is either infiltrated or used on-site.				
			Final Design	Option 2: List of drawing and specification references that convey design of on-site wastewater treatment features.				
			Final Design	Option 2: On-site water treatment quantity calculation indicating all on-site wastewater source(s), annual quantity treated, annual quantity infiltrated and annual quantity re-used on site from each source and totals for annual quantity treated, annual quantity infiltrated and annual quantity re-used on site from all sources.				
			Final Design	Option 2: Wastewater summary calculation indicating design case annual flush fixture water usage, annual on-site water treatment and percentage sewage conveyance reduction.				
			Final Design	Narrative describing project strategy for reduction of potable water use for sewage conveyance, including specific information on reclaimed water usage and treated wastewater usage.				
WE3.1		Water Use Reduction: 20% Reduction	Final Design	Statement confirming which occupancy breakdown applies (default or special). For special occupancy breakdown, indicate source and explanation for ratio.				
			Final Design	Occupancy calculation including male/female numbers for FTEs, visitors, students, customers, residential and other type occupants/users				
			Final Design	Statement indicating percent of male restrooms with urinals. Statement indicating annual days of operation.				
			Final Design	Baseline flush fixture calculation spreadsheet indicating, for each fixture type, gender, flush rate, daily uses per person for each occupant type identified in occupancy calculation and annual baseline flush fixture water usage.				
			Final Design	Design case flush fixture calculation spreadsheet indicating, for each fixture type, gender, fixture manufacturer, fixture model number, flush rate, percent of occupants using this fixture type, daily uses per person for each occupant type identified in occupancy calculation and annual design case flush fixture water usage.				
			Closeout	X Manufacturer published product data or certification confirming fixture water usage.				
WE3.2		Water Use Reduction: 30% Reduction	Same as WE3.1	Same as WE3.1				
CATEGORY 3 – ENERGY AND ATMOSPHERE								
EAPR1		Fundamental Commissioning of the Building Energy Systems (PREREQUISITE)	**Final Design	**Owner's Project Requirements document				
			**Final Design	**Basis of Design document for commissioned systems				
			**Final Design	**Commissioning Plan				
			Closeout	Statement confirming all commissioning requirements have been incorporated into construction documents.				
			Closeout	Commissioning Report				
EAPR2		Minimum Energy Performance (PREREQUISITE)	Final Design	Statement listing the mandatory provisions of ASHRAE 90.1 that project meets relative to compliance with this prerequisite and indicating which compliance path was used.				
EAPR3		Fundamental Refrigerant Management (PREREQUISITE)	Final Design	Statement indicating which option for compliance applies.				
			Final Design	Option 2: Narrative describing phase out plan, including specific information on phase out dates and refrigerant quantities.				
EA1		Optimize Energy Performance	Final Design	Statement indicating which compliance path option applies.				
			Final Design	Option 1: Statement confirming simulation software capabilities and confirming assumptions and methodology.				
			Final Design	Option 1: General information including simulation program, principal heating source, percent new construction and renovation, weather file, climate zone and Energy Start Target Finder score.				

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PAR		FEATURE	DUE AT	REQUIRED DOCUMENTATION	DATE	REV
			Final Design	Option 1: Space summary listing, for each building use, the conditioned area, unconditioned area and total area and include total area for each category		
			Final Design	Option 1: List of all simulation output advisory message data and show difference between baseline and proposed design		
			Final Design	Option 1: Comparison summary for energy model inputs including description of baseline and design case energy model inputs, showing both by element type		
			Final Design	Option 1: Energy type summary listing, for each energy type, utility rate description, units of energy and units of demand		
			Final Design	Option 1: Statement indicating whether project uses on-site renewable energy. If yes, list all sources and indicate, for each source, backup energy type, annual energy generated, rated capacity and renewable energy cost		
			Final Design	Option 1: If analysis includes exceptional calculation methods, statement describing how exceptional calculation measure cost savings is determined		
			Final Design	Option 1: If analysis includes exceptional calculation methods, for each exceptional calculation method indicate energy types and, for each energy type, annual energy savings, annual cost savings, and brief descriptive narrative		
			Final Design	Option 1: Baseline performance rating compliance report table indicating, for each energy end use, whether it is a process load, energy type, annual and peak energy demand for all four orientations. For each orientation indicate total annual energy use for each orientation and total annual process energy use.		
			Final Design	Option 1: Baseline energy cost table indicating, for each energy type, annual cost for all four orientations and building total energy cost.		
			Final Design	Option 1: Proposed Design performance rating compliance report table indicating, for each energy end use, whether it is a process load, energy type, annual and peak energy demand, baseline annual and peak energy demand and percent savings. Indicate total annual energy use and total annual process energy use for both proposed design and baseline and percent savings.		
			Final Design	Option 1: Proposed Design energy cost table indicating, for each energy type, annual cost for all four orientations and building total energy cost.		
			Final Design	Option 1: Energy cost and consumption by energy type report indicating, for each energy type, proposed design and baseline annual use and annual cost, percent savings annual use and annual cost. Indicate for renewable energy annual energy generated and annual cost. Indicate exceptional calculations annual energy savings and annual cost savings. Indicate building total annual energy use, annual energy cost for proposed design and baseline and indicate percent savings annual energy use and annual energy cost.		
			Final Design	Option 1: Compliance summaries from energy simulation software. If software does not produce compliance summaries provide output summaries and example input summaries for baseline and proposed design supporting data in the tables. Output summaries must include simulated energy consumption by end use and total energy use and cost by energy type. Example input summaries should represent most common systems and must include occupancy, use pattern, assumed envelope component sizes and descriptive features and assumed mechanical equipment types and descriptive features		
			Final Design	Option 1: Energy rate tariff from project energy providers (only if not using LEED Reference Guide default rates)		
EA2.1		On-Site Renewable Energy	Final Design	Statement indicating which compliance path option applies.		
			Final Design	List all on-site renewable energy sources and indicate, for each source, backup energy type, annual energy generated, rated capacity and renewable energy cost. Indicate total annual energy use (all sources), total annual energy cost (all sources) and percent renewable energy cost.		
			Final Design	Option 1: Indicate, for renewable energy, proposed design total annual energy generated and annual cost.		
			Final Design	Option 2: Indicate CBECS building type and building gross area. Provide the following CBECS data: median annual electrical intensity, median annual non-electrical fuel intensity, average electric energy cost, average non-electric fuel cost, annual electric energy use and cost, annual non-electric fuel use and cost.		
			Final Design	Option 2: Narrative describing renewable systems and explaining calculation method used to estimate annual energy generated, including factors influencing performance.		
EA2.2		On-Site Renewable Energy	Same as EA2.1	Same as EA2.1		

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EA2.3		On-Site Renewable Energy	Same as EA2.1	Same as EA2.1		
EA3		Enhanced Commissioning	**Final Design	**Owner's Project Requirements document (OPR)		
			**Final Design	**Basis of Design document for commissioned systems (BOD)		
			**Final Design	**Commissioning Plan		
			**Final Design	Statement confirming all commissioning requirements have been incorporated into construction documents.		
			Closeout	**Commissioning Report		
			**Final Design	Statement by CxA confirming Commissioning Design Review		
			Closeout	Statement by CxA confirming review of Contractor submittals for compliance with OPR and BOD		
			Closeout	**Systems Manual		
			Closeout	Statement by CxA confirming completion of O&M staff and occupant training		
			Closeout	**Scope of work for post-occupancy review of building operation, including plan for resolution of outstanding issues		
			**Predesign	Statement confirming CxA qualifications and contractual relationships relative to work on this project, demonstrating that CxA is an independent third party.		
EA4		Enhanced Refrigerant Management	Final Design	Refrigerant impact calculation table with all building data and calculation values as shown in LEED 2.2 Reference Guide Example Calculations		
			Final Design	Narrative describing light trespass analysis conducted to determine compliance		
			Closeout	X Cut sheets highlighting refrigerant data for all HVAC components.		
EA5		Measurement & Verification	Closeout	Statement indicating which compliance path option applies.		
			Closeout	Measurement and Verification Plan		
			Closeout	**Scope of work for post-occupancy implementation of M&V plan		
EA6		Green Power	Closeout	Statement indicating which compliance path option applies.		
			Closeout	Option 1: Indicate proposed design total annual electric energy usage		
			Closeout	Option 2: Indicate actual total annual electric energy usage		
			Closeout	Option 3: Calculation indicating building type, total gross area, median electrical intensity and annual electric energy use		
			Closeout	Green power provider summary table indicating, for each purchase type, provider name, annual quantity green power purchased and contract term. Indicate total annual green power use and indicate percent green power		
			Closeout	Narrative describing how Green Power or Green Tags are purchased		
CATEGORY 4 – MATERIALS AND RESOURCES						
MRPR1		Storage & Collection of Recyclables (PREREQUISITE)	Final Design	Statement confirming that recycling area will accommodate recycling of plastic, metal, paper, cardboard and glass. Narrative indicating any other materials addressed and coordination with pickup.		
MR1.1		Building Reuse: Maintain 75% of Existing Walls, Floors & Roof	**Final Design	If project includes a building addition, confirm that area of building addition does not exceed 2x the area of the existing building.		
			**Final Design	Spreadsheet listing, for each building structural/envelope element, the existing area and reused area. Total percent reused.		
MR1.2		Building Reuse: Maintain 95% of Existing Walls, Floors & Roof	Same as MR1.1	Same as MR1.1		
MR1.3		Building Reuse: Maintain 50% of Interior Non-Structural Elements	**Final Design	If project includes a building addition, confirm that area of building addition does not exceed 2x the area of the existing building.		
			**Final Design	Spreadsheet listing, for each building interior non-structural element, the existing area and reused area. Total percent reused.		
MR2.1		Construction Waste Management: Divert 50% From Disposal	**Preconstruction	Waste Management Plan		
			**Construction Quarterly and Closeout	Spreadsheet calculations indicating material description, disposal/diversion location (or recycling hauler), weight, total waste generated, total waste diverted, diversion percentage		
			Preconstruction	**Implementation Strategy Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal.		

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			**Construction Quarterly and Closeout	Receipts/tickets for all items on spreadsheet				
MR2.2		Construction Waste Management: Divert 75% From Disposal	Same as MR2.1	Same as MR2.1				
MR3.1		Materials Reuse: 5%	Closeout	Statement indicating total materials value and whether default or actual.				
			Closeout	Spreadsheet calculations indicating, for each reused/salvaged material, material description, source or vendor, cost. Total reused/salvaged materials percentage.				
MR3.2		Materials Reuse: 10%	Same as MR3.1	Same as MR3.1				
MR4.1		Recycled Content: 10% (post-consumer + 1/2 pre-consumer)	Closeout	Statement indicating total materials value and whether default or actual.				
			Closeout	Spreadsheet calculations indicating, for each recycled content material, material name/description, manufacturer, cost, post-consumer recycled content percent, pre-consumer recycled content percent, source of recycled content data. Total post-consumer content materials cost, total pre-consumer content materials cost, total combined recycled content materials cost, recycled content materials percentage.				
			Final Design or NLT Preconstruction	**Implementation Strategy Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal.				
			Closeout	Manufacturer published product data or certification, confirming recycled content percentages in spreadsheet				
MR4.2		Recycled Content: 20% (post-consumer + 1/2 pre-consumer)	Same as MR4.1	Same as MR4.1				
MR5.1		Regional Materials:10% Extracted, Processed & Manufactured Regionally	Closeout	Statement indicating total materials value and whether default or actual.				
			Closeout	Spreadsheet calculations indicating, for each regional material, material name/description, manufacturer, cost, percent compliant, harvest distance, manufacture distance, source of manufacture and harvest location data. Total regional materials cost, regional materials percentage.				
			Final Design or NLT Preconstruction	**Implementation Strategy Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal.				
			Closeout	Manufacturer published product data or certification confirming regional material percentages in spreadsheet				
MR5.2		Regional Materials:20% Extracted, Processed & Manufactured Regionally	Same as MR5.1	Same as MR5.1				
MR6		Rapidly Renewable Materials	Closeout	Statement indicating total materials value and whether default or actual.				
			Closeout	Spreadsheet calculations indicating, for each rapidly renewable material, material name/description, manufacturer, cost, rapidly renewable content percent, rapidly renewable product value. Total rapidly renewable product value, rapidly renewable materials percentage.				
			Final Design or NLT Preconstruction	**Implementation Strategy Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal.				
			Closeout	Manufacturer published product data or certification confirming rapidly renewable material percentages in spreadsheet				
MR7		Certified Wood	Closeout	Statement indicating total materials value and whether default or actual.				
			Closeout	Spreadsheet calculations indicating, for each certified wood material, material name/description, vendor, cost, wood component percent, certified wood percent of wood component, FSC chain of custody certificate number. Total certified wood product value, certified wood materials percentage.				

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			Final Design or NLT Preconstruction	**Implementation Strategy Plan consisting of spreadsheet indicated above, filled in with estimated quantities to show strategy for achieving goal.		
			Closeout	Vendor invoices, FSC chain of custody certificates and manufacturer published product data or certification confirming all certified wood materials percentages in spreadsheet.		
CATEGORY 5 – INDOOR ENVIRONMENTAL QUALITY						
EQPR1		Minimum IAQ Performance (PREREQUISITE)	Final Design	Statement indicating which option for compliance applies, stating applicable criteria/requirement, and confirming that project has been designed to meet the applicable requirements.		
			Final Design	Narrative describing the project's ventilation design, including specifics about fresh air intake volumes and special considerations.		
EQPR2		Environmental Tobacco Smoke (ETS) Control (PREREQUISITE)	Final Design	Statement indicating which option for compliance applies, stating applicable criteria/requirement, and confirming that project has been designed to meet the applicable requirements.		
			Final Design	List of drawing and specification references that convey conformance to applicable requirements (signage, exhaust system, room separation details, etc).		
EQ1		Outdoor Air Delivery Monitoring	Final Design	Statement indicating which option for compliance applies and confirming that project has been designed to meet the applicable requirements.		
			Final Design	List of drawing and specification references that convey conformance to applicable requirements.		
			Final Design	Narrative describing the project's ventilation design and CO2 monitoring system, including specifics about monitors, operational parameters and setpoints.		
			Closeout	X Cut sheets for CO2 monitoring system.		
EQ2		Increased Ventilation	Final Design	Statement indicating which option for compliance applies and confirming that project has been designed to meet the applicable requirements.		
			Final Design	Narrative describing the project's ventilation design, including specifics about zone fresh air intake volumes and demonstrating compliance.		
			Final Design	Option 2: Narrative describing design method used for determining natural ventilation design, including calculation methodology/model results and demonstrating compliance.		
			Final Design	List of drawing and specification references that convey conformance to applicable requirements.		
EQ3.1		Construction IAQ Management Plan: During Construction	**Preconstruction	Construction IAQ Management Plan		
			Closeout	Statement confirming whether air handling units were operated during construction		
			Closeout	Dated jobsite photos showing examples of IAQ management plan practices being implemented. Label photos to indicate which practice they demonstrate. Minimum one photo of each practice at each building.		
			Closeout	Spreadsheet indicating, for each filter installed during construction, the manufacturer, model number, MERV rating, location installed, and if it was replaced immediately prior to occupancy.		
EQ3.2		Construction IAQ Management Plan: Before Occupancy	**Preconstruction	Construction IAQ Management Plan		
			Closeout	Statement indicating which option for compliance applies and confirming that required activities have occurred that meet the applicable requirements.		
			Closeout	Option 1a: Narrative describing the project's flushout process, including specifics about temperature, airflow and duration, special considerations (if any) and demonstrating compliance.		
			Closeout	Option 1b: Narrative describing the project's pre-occupancy and post-occupancy flushout processes, including specifics about temperature, airflow and duration, special considerations (if any) and demonstrating compliance.		
			Closeout	Option 2: Narrative describing the project's IAQ testing process, including specifics about contaminants tested for, locations, remaining work at time of test, retest parameters and special considerations (if any).		
			Closeout	Option 2: IAQ testing report demonstrating compliance.		

LEED Credit Paragraph	Contractor Check Here if Credit is Claimed	LEED 2.2 Documentation Requirements and Submittals Checklist for Government-Validated Project	Provide for Credit Audit Only	REQUIRED DOCUMENTATION	Date Submitted (to be filled in by Contractor)	Government Reviewer's Use - Comments/Approved
PAR		FEATURE	DUE AT		DATE	REV
EQ4.1		Low Emitting Materials: Adhesives & Sealants	Closeout	Spreadsheet indicating, for each applicable indoor adhesive, sealant and sealant primer used, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data.		
			Closeout	Spreadsheet indicating, for each applicable indoor aerosol adhesive, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data - OR - Statement confirming no indoor aerosol adhesives were used for the project.		
			Closeout	Manufacturer published product data or certification confirming material VOCs in spreadsheet		
EQ4.2		Low Emitting Materials: Paints & Coatings	Closeout	Spreadsheet indicating, for each applicable indoor paint and coating used, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data.		
			Closeout	Spreadsheet indicating, for each applicable indoor anti-corrosive/anti-rust paint and coating used, the manufacturer, product name/model number, VOC content, LEED VOC limit, and source of VOC data - OR - Statement confirming no indoor anti-corrosive/anti-rust paints were used for the project .		
			Closeout	Manufacturer published product data or certification confirming material VOCs in spreadsheet		
EQ4.3		Low Emitting Materials: Carpet Systems	Closeout	Spreadsheet indicating, for each indoor carpet used, the manufacturer, product name/model number, if it meets LEED requirement (yes/no) and source of LEED compliance data.		
			Closeout	Spreadsheet indicating, for each indoor carpet cushion used, the manufacturer, product name/model number, if it meets LEED requirement (yes/no) and source of LEED compliance data - OR - Statement confirming no indoor carpet cushion was used for the project.		
			Closeout	Manufacturer published product data or certification confirming material CRI label in spreadsheet		
EQ4.4		Low Emitting Materials: Composite Wood & Agrifiber Products	Closeout	Spreadsheet indicating, for each indoor composite wood and agrifiber product used, the manufacturer, product name/model number, if it contains added urea formaldehyde (yes/no) and source of LEED compliance data.		
			Closeout	Manufacturer published product data or certification confirming material urea formaldehyde in spreadsheet		
EQ5		Indoor Chemical & Pollutant Source Control	Final Design	Spreadsheet indicating, for each permanent entryway system used, the manufacturer, product name/model number and description of system. Roll-up and carpet systems requiring weekly cleaning to earn this credit are not a permitted option for Army projects.		
			Final Design	List of drawing and specification references that convey locations and installation methods for entryway systems.		
			Final Design	Spreadsheet indicating, for each chemical use area, the room number, room name, description of room separation features (walls, floor/ceilings, openings) and pressure differential from surrounding spaces with doors closed - OR - Statement confirming that project includes no chemical use areas and that no hazardous cleaning materials are needed for building maintenance.		
			Final Design	If project includes chemical use areas: List of drawing and specification references that convey locations of chemical use areas, room separation features and exhaust system.		
			Final Design	If project includes chemical use areas: Spreadsheet indicating, for AHUs/mechanical ventilation equipment serving occupied areas, the manufacturer, model number, MERV rating, location installed, and if it was replaced immediately prior to occupancy (yes/no) - OR - Statement confirming that project does not use mechanical equipment for ventilation of occupied areas.		
EQ6.1		Controllability of Systems: Lighting	Final Design	Calculation indicating total number of individual workstations, number of workstations with individual lighting controls and the percentage of workstations with individual lighting controls.		
			Final Design	For each shared multi-occupant space, provide a brief description of lighting controls.		

LEED Credit Paragraph	Contractor Check Here if Credit is Claimed	LEED 2.2 Documentation Requirements and Submittals Checklist for Government-Validated Project	Provide for Credit Audit Only		Date Submitted (to be filled in by Contractor)	Government Reviewer's Use - Comments/Approved
PAR		FEATURE	DUE AT	REQUIRED DOCUMENTATION	DATE	REV
			Final Design	Narrative describing lighting control strategy, including type and location of individual controls and type and location of controls in shared multi-occupant spaces.		
EQ6.2		Controllability of Systems: Thermal Comfort	Final Design	Calculation indicating total number of individual workstations, number of workstations with individual thermal comfort controls and the percentage of workstations with individual thermal comfort controls.		
			Final Design	For each shared multi-occupant space, provide a brief description of thermal comfort controls.		
			Final Design	Narrative describing thermal comfort control strategy, including type and location of individual and shared multi-occupant controls.		
EQ7.1		Thermal Comfort: Design	Final Design	Design criteria spreadsheet indicating, for spring, summer, fall and winter, maximum indoor space design temperature, minimum indoor space design temperature and maximum indoor space design humidity.		
			Final Design	Narrative describing method used to establish thermal comfort control conditions and how systems design addresses the design criteria, including compliance with the referenced standard.		
EQ7.2		Thermal Comfort: Verification	Final Design	Narrative describing the scope of work for the thermal comfort survey, including corrective action plan development		
EQ8.1		Daylight & Views: Daylight 75% of Spaces	Final Design	Option 1: Table indicating all regularly occupied spaces with space area and space area with 2% daylighting factor. Sum of regularly occupied areas and regularly occupied areas with 2% daylighting factor. Percentage calculation of areas with 2% daylighting factor to total regularly occupied areas.		
			Final Design	Option 1: Glazing factor calculation table		
			Final Design	Option 2: Simulation model method, software and output data		
			Final Design	Option 2: Table indicating all regularly occupied spaces with space area, space area with minimum 25 footcandles daylighting illumination, and method of providing glare control. Sum of regularly occupied areas and regularly occupied areas with 25 fc daylighting. Percentage calculation of areas with 25 fc daylighting to total regularly occupied areas.		
			Final Design	For all occupied spaces excluded from the calculation, provide narrative indicating reasons for excluding the space.		
			Final Design	List of drawing and specification references that convey exterior glazed opening head and sill heights and glazing performance properties.		
			Closeout	Manufacturer published product data or certification confirming glazing Tvis in spreadsheet		
EQ8.2		Daylight & Views: Views for 90% of Spaces	Final Design	Table indicating all regularly occupied spaces with space area and space area with access to views. Sum of regularly occupied areas and regularly occupied areas with access to views. Percentage calculation of areas with views to total regularly occupied areas.		
			Final Design	For all occupied spaces excluded from the calculation, provide narrative indicating reasons for excluding the space.		
			Final Design	LEED Floor plan drawings showing line of sight diagramming of views areas in each regularly occupied space. List of drawing/specification references that convey exterior glazed opening head and sill heights.		
CATEGORY 6 – FACILITY DELIVERY PROCESS						
IDc1.1		Innovation in Design	Varies	Narrative describing intent, requirement for credit, project approach to the credit. List of drawings and specification references that convey implementation of credit. All other documentation that validates claimed credit.		
IDc1.2		Innovation in Design	Varies			
IDc1.3		Innovation in Design	Varies			
IDc1.4		Innovation in Design	Varies			
IDc2		LEED Accredited Professional	Final Design	Narrative indicating name of LEED AP, company name of LEED AP, description of LEED AP's role and responsibilities in the project.		

ATTACHMENT F
Version 09-13-2012

BUILDING INFORMATION MODELING REQUIREMENTS

1.0 Section 1 - General

1.1. Definitions. See Section 7 for definitions of terms used in this document.

1.2. Submittal Format

1.2.1. The Model shall be developed using Building Information Modeling (“BIM”) supplemented with Computer Aided Design (“CAD”) content as necessary to produce a complete set of Construction Documents. Submitted drawings shall be 22x34 size, suitable for half-size scaled reproduction.

1.2.2. BIM submittals shall conform to the requirements of Sections 3.0 and 4.0 below.

1.2.3. For each Center of Standardization (CoS) facility type included in this Project, all Models and associated Facility/Site Data shall be submitted in the BIM format and version as determined by the Customer, Geographic District BIM Manager, and the CoS District BIM Manager. For this project, the BIM submittal format will be . The submittals shall be fully operable, compatible, and editable within the native BIM tools.

2.0 Section 2 – BIM Requirements

2.1. Use of BIM. Contractor shall use BIM application(s) and software(s) to develop Projects consistent with the following requirements.

2.1.1. Baseline Model. The Contractor will not be provided a baseline multi-discipline BIM Project Model.

2.1.2. BIM Program Configuration Standards.

2.1.3. Reference. Refer to ERDC TR-06-10, “U.S. Army Corps of Engineers Building Information Modeling Road Map” from the CAD/BIM Technology Center website for more information on the USACE BIM implementation goals.

2.1.4. Industry Foundation Class (IFC) Support. The Contractor’s selected BIM application(s) and software(s) must be consistent with the current IFC property sets. Any deviations from or additions to the IFC property sets for any new spaces, systems, and equipment must be submitted for Government acceptance.

2.1.5. BIM Project Execution Plan.

2.1.5.1. Develop a BIM Project Execution Plan (“Plan” or “PxP”) documenting mandatory and Contractor-elected BIM Uses, analysis technologies and workflows.

2.1.5.2. Contractors shall use the USACE BIM PROJECT EXECUTION PLAN (PxP) Template located at <https://caddim.usace.army.mil> to develop an acceptable Plan.

2.2. BIM Content.

2.2.1. Facility/Site Data. Develop the Facility/Site Data to include material definitions and attributes that are necessary for the Project facility design and construction as described in Section 4.0. Additional data in support of Section 6.0 Contractor Electives is encouraged to be added to the Model.

2.2.2. Model Content. The Model and Facility/Site Data shall include, at a minimum, the requirements of Section 4.0 below.

2.3. Output. Submitted Drawings (e.g., plans, elevations, sections, schedules, details, etc.) shall be derived (commonly known as extractions, views or sheets) from the Model and Facility/Site Data. Drawings derived from the Model shall remain connected to the Model for the life of the Project and documented in the PxP. Drawings not derived from the Model shall also be documented in the PxP.

2.3.1. Drawings derived from the Model shall be compliant with the A/E/C CAD Standard. Deliver electronic CAD files used for the creation of the Construction Documents per requirements in Section 01 33 16, the criteria of the USACE Fort Worth District, and as noted herein.

2.3.2. The CAD file format specified for drawings shall not dictate which application(s) are used for development and execution of the Model and Facility/Site Data. Application(s) used shall be documented in the PxP.

2.4. Quality Control Parameters. Implement quality control ("QC") parameters for the Model, including:

2.4.1. Model Standards Checks. Provide QC checks demonstrating that the Project Facility/Site Data set has no undefined, incorrectly defined or duplicated elements. Identify and report non-compliant elements and submit a corrective action plan. Provide the Government with detailed justification and request Government acceptance for any non-compliant element that the Contractor proposes to be allowed to remain in the Model.

2.4.2. CAD Standards Checks. Provide QC checks demonstrating that the fonts, dimensions, line styles, levels and other construction document formatting issues are followed per requirements in Section 01 33 16. Identify and report non-compliant content and submit a corrective action plan.

2.4.3. Other Parameters. Develop such other QC parameters as Contractor deems appropriate for the Project and provide to the Government for acceptance.

2.5. Design and Construction Reviews. The Model and Facility/Site Data will be used to perform reviews at each submittal stage under Section 3.0 to test the Model, including Over-The-Shoulder Progress Reviews:

2.5.1. Visual Checks. Checking to demonstrate the design intent has been followed and that there are no unintended elements in the Model.

2.5.2. Interference Management Checks. Locate conflicting spatial data in the Model where two elements are occupying the same space. Log hard interferences (e.g., mechanical vs. structural, or mechanical vs. mechanical, overlaps in the same location) and soft interferences, (e.g., conflicts regarding equipment clearance, service access, fireproofing, insulation, code space requirements) in a written report and resolve.

2.5.3. Over-The-Shoulder Progress Reviews. Periodic quality control meetings or construction progress review meetings shall include quality control reviews on the implementation and use of the Model, including interference management and design change tracking information.

2.6. Other Parameters. Develop other design and construction review parameters as the Contractor deems appropriate for the Project and provide to the Government for acceptance.

3.0 Section 3 – BIM Submittal Requirements

3.1. General Submittal Requirements.

3.1.1. Provide submittals in compliance with the PxP deliverables at stages as described below.

3.1.2. For each Submittal as set forth in Paragraphs 3.3 through 3.5, provide a Contractor-certified written report confirming that consistency checks as identified in Paragraphs 2.4 and 2.5 above have been completed. This report shall be discussed as part of the review process and shall address cross-discipline interferences, if any.

3.1.3. At each Submittal as set forth in Paragraphs 3.3 through 3.5, provide the Government with:

3.1.3.1. The Model, Facility/Site Data, Workspace and CAD Data files in the native BIM/CAD format.

3.1.3.2. A copy of the Model in an interactive review format such as Bentley Navigator, Autodesk Navisworks, Adobe 3D PDF 7.0 (or later), Google Earth KMZ or other format per PxP requirements. The format for reviews can change between submittals.

3.1.3.3. A list of all submitted electronic files including a description, directory, and file name for each file submitted. For all CAD printed sheets, include a list of the sheet titles and sheet numbers. Identify which files have been produced from the Model and Facility/Site Data.

3.1.3.4. IFC Coordination View. Provide an IFC Coordination View in IFC Express format for all deliverables. Provide exported property set data for all IFC supported named building elements.

3.1.4. The Government shall confirm acceptability of all submittals identified in Section 3.0 in coordination with the USACE Geographic District BIM Manager.

3.2. Initial Design Conference Submittal.

3.2.1. Submit a digital copy of the PxP and M3 where, in addition to Paragraph 3.1.4, the USACE Geographic District BIM Manager will coordinate with the USACE CoS BIM Manager to confirm acceptability of the Plan or advise as to additional processes or activities necessary to be incorporated into the PxP.

3.2.2. Within thirty (30) days after the acceptance of the PxP and M3, conduct a demonstration to review the Plan for clarification, and to verify the functionality of planned Model technology workflow and processes. If modifications are required, the Contractor shall complete the modifications and resubmit the PxP performing a subsequent demonstration for Government acceptance. There will be no payment for design or construction until the PxP is completed and accepted by the Government. The Government may also withhold payment if there is design and construction for unacceptable performance in executing the accepted PxP.

3.3. Interim Design Submittals.

3.3.1. BIM and CAD Data. Submit the Model with Facility/Site Data per the requirements identified in Paragraphs 2.2 and 2.3 as applicable to the Interim Design package(s).

3.4. Final Design Submissions and Design Complete Submittals.

3.4.1. BIM and CAD Data. Submit the Model with Facility/Site Data per the requirements identified in Paragraphs 2.2 and 2.3. Acceptance according to Paragraph 3.1.4 is required before commencement of construction, as described in Paragraph 3.7.6 of Section 01 33 16.

3.5. Final As-Built BIM and CAD Data Submittal. Submit the final Model, Facility/Site Data, and CAD files reflecting as-built construction conditions for Government acceptance, as specified in Section 01 78 02.00 10, Closeout Submittals.

4.0 Section 4 – Minimum Modeling and Data Requirements

4.1. Minimum Modeling Matrix (M3)

4.1.1. Develop an M3 documenting elements included in the facility and site. The M3 describes the minimum modeling and data requirements by defining the Level of Development (“LOD”) and Element Grade.

4.1.2. Contractors shall use the USACE Minimum Modeling Matrix (M3) Template located at <https://cadbim.usace.army.mil> and submitted as part of the PxP.

4.2. Additional Requirements.

4.2.1. Classification. All modeled elements shall include Facility/Site Data referencing one or more classification system(s).

4.2.2. Spatial Data. The Model shall include spatial data defining actual net square footage and net volume, and holding data to develop the room finish schedule including room names and numbers. Include program information to verify design space against programmed space, using this information to validate area quantities.

4.2.3. Schedules. Schedules shall be produced from the Facility/Site Data within the Model. Any exceptions should be documented in the PxP and submitted to the USACE for review.

4.2.4. Details and Enlarged Sections. All details and enlarged sections necessary for construction shall be derived from the Model when possible. For those details and enlarged sections not derived directly from the Model, Contractor must verify that geometry and data depicting the details and enlarged sections are consistent with Model elements. Details with significant drafted content such as 'standard' and 'typical' details shall not contradict the model and shall utilize the model as an underlay when possible for the purposes of verification and coordination. Three dimensional, isometric, and section isometric details derived from the model are preferred.

4.2.5. Legends. Model Elements shall be used to produce representations shown in the legends and shall match graphical representations shown in plans, sections, and elevations.

4.2.6. Drawing Indices. Where BIM authoring platform supports it, drawing indexes should be derived from a model-driven schedule.

5.0 Section 5 - Ownership and Rights in Data

5.1. Ownership. The Government has ownership of and rights at the date of Closeout Submittal to all CAD files, BIM Model, and Facility/Site Data developed for the Project in accordance with FAR Part 27, clauses incorporated in Section 00 72 00, Contract Clauses and Special Contract Requirement 1.14 GOVERNMENT RE-USE OF DESIGN (Section 00 73 00). The Government may make use of this data following any deliverable.

6.0 Section 6 – Contractor Electives

6.1. Applicable Criteria. If the Contractor elected to include one or more of the following features as an elective in its accepted contract proposal for additional credit, as described in the proposal submission requirements and evaluation criteria, the requirements of paragraphs 6.2 through 6.5 are as applicable for those elective feature(s) that will be included in the project.

6.2. COBIE Compliance. The Model and Facility/Site Data for the Project shall fulfill Construction Operations Building Information Exchange (COBIE) requirements on the Whole Building Design Guide

website (www.wbdg.org) , including all requirements for the indexing and submission of Portable Document Format (PDF) and other appropriate records that would otherwise be printed and submitted in compliance with Project operations and maintenance handover requirements.

6.3. Project Scheduling using the Model. In the PxP and during the Initial Design Conference Submittal Demonstration, provide an overview of the use of BIM in the development and support of the Project construction schedule.

6.3.1. Submittal Requirements. During the Stages identified in Paragraphs 3.3 through 3.4, the Contractor shall deliver the construction schedule linked to the Model.

6.3.1.1. Construction Submittals – Over-The-Shoulder Progress Reviews. Periodic quality control meetings or construction progress review meetings shall include quality control reviews on the implementation and use of the Model for Project scheduling.

6.4. Cost Estimating. In the PxP and during the Initial Design Conference Submittal Demonstration, provide an overview of the use of BIM in the development and support of cost estimating, or other costing applications such as comparative cost analysis for proposed changes and estimate validation.

6.4.1. Submittal Requirements. During the Stages identified in Paragraphs 3.3 through 3.5, the Contractor shall deliver cost estimating information derived from the Model.

6.4.2. Project Completion. At Project completion, the Contractor shall provide an Micro Computer Aided Cost Estimating System Generation II ("MII") Cost Estimate that follows the USACE Cost Engineering Military Work Breakdown System ("WBS"), a modified Unifomat, to at least the sub-systems level and uses quantity information supplied directly from Model output to the maximum extent possible, though other "gap" quantity information will be included by the contractor as necessary for a complete and accurate Cost Estimate. (See Paragraph 6.4.2.2).

6.4.2.1. Sub system level extracted quantities from the Model for use within the Estimate shall be provided according to how detailed line items or tasks should be installed/built so that accurate costs can be developed and/or reflected. When developing a Model, the contractor shall be cognizant of construction sequencing at the beginning stages of Model development, such as recognizing tasks performed on the first floor versus the same task on higher floors that will be more labor intensive and, therefore, need to have a separate quantity and be priced differently. Tasks and their extracted quantities from the Model shall be broken down by their location (proximity in the structure) as well as the complexity of installation.

6.4.2.2. At all design Stages it shall be acknowledged that BIM output will not generate all quantities that are necessary in order to develop a complete and accurate cost estimate of the Project based on the design alone. (An example of this would be plumbing that is less than 1.5" diameter and, therefore, not expected to be modeled due to permitted level of design granularity; this information is commonly referred to as "The Gap". Quantities addressing "The Gap" and their associated costs shall be included in the final Project actual Cost Estimates as well even though not derived directly from the Model data).

6.5. Other Analyses and Reports. Structural, energy and efficiency, EPACT 2005 & EISA 2007, lighting design, daylighting, electrical power, psychrometric processing, shading, programming, LEED, fire protection, code compliance, Life Cycle Cost, acoustic, plumbing and other analyses that may be generated from the Model or reports summarizing the data compiled from these analyses shall be submitted in the form established by contractor in its accepted PxP.

7.0 Definitions

7.1. The following definitions apply specifically to the USACE BIM Requirements.

7.2. “Model”: A digital representation of physical and functional characteristics of a facility or a part thereof, comprised of “Model Elements” with “Facility/Site Data”.

7.3. “Model Element”: A self-contained element with a unique identification, whose behavior and properties are defined by Facility/Site Data and software processes. Model Elements can represent a physical entity, such as a pump or a concrete wall, and range from the simple to the complex.

7.4. “Facility/Site Data”: The non-graphical information attached to objects in the Model that defines various characteristics of the object. Facility/Site Data can include properties such as parametric values that drive physical sizes, material definitions and characteristics (e.g. wood, metal), manufacturer data, industry standards (e.g. AISC steel properties), and project identification numbers. Facility/Site Data can also define supplementary physical entities that are not shown graphically in the Model, such as insulation around a duct, hardware on a door, content of conduit, or transformer properties.

7.5. “Workspace”: A collection of content libraries and supporting files that define and embody a BIM standard. A workspace includes BIM libraries such as wall types, standard steel shapes, furniture, HVAC fittings, and sprinkler heads. It also contains sheet libraries such as print/plot configurations, font and text style libraries, and sheet borders and title blocks. The USACE has developed Workspaces specific to USACE BIM standards; these workspaces are dependent on specific versions of the BIM applications they serve. All USACE BIM Workspaces can be downloaded from the CAD/BIM Technology Center (<https://cadbim.usace.army.mil>). In some cases, there is a specific Workspace for a given CoS Facility Standard Design.

7.6. “IFC”: Industry Foundation Class, a standard and file format used for the exchange of BIM data; see www.iai-tech.org. Note: In the context of this attachment, IFC does not mean “Issued For Construction.”

ATTACHMENT G**DESIGN SUBMITTAL DIRECTORY AND SUBDIRECTORY FILE ARRANGEMENT**

Organize electronic design submittal files in a subdirectory/file structure in accordance with the following table.

The Contractor may suggest a slightly different structure, subject to the discretion of the government.

Design Submittal Directory and Subdirectory File Arrangement.

Directory	Sub-Directory	Sub-Directory or Files	Files
Submittal/Package Name	Narratives	PDF file or files with updated design narrative for each applicable design discipline	
	Drawings	PDF (subdirectory)	Single PDF file with all applicable drawing sheets - bookmarked by sheet number and name
		BIM (subdirectory) See Attachment F.	BIM project folder (with files) per the USACE Workspace. Include an Excel drawing index file with each drawing sheet listed by sheet #, name and corresponding dgn file name (Final Design & Design Complete only)
	Design Analysis & Calculations	Individual PDF files containing design analysis and calculations for each discipline applicable to the submittal	
		PDF file with Fire Protection and Life Safety Code Review checklist	
	LEED	PDF file with updated Leed Check List	
		PDF file or files with LEED Templates for each point with applicable documentation included in each file.	
		LEED SUBMITTALS	
	Energy Analysis	PDF with baseline energy consumption analysis	
		PDF with actual building energy consumption analysis	
	Specifications	Single PDF file with table of contents and all applicable specifications sections.	
		Submittal Register (Final Design & Design Complete submittal only)	
	Design Quality Control	PDF file or files with DQC checklist(s) and/or statements	
	Building Rendering(s)	PDF file of rendering for each building type included in contract (Final Design & Design Complete).	

ATTACHMENT H
REV 1.0 31 May 2011

USACE BIM Project Execution Plan (PxP) Template Version 1.0

This template is a tool that is provided to assist in the development of a USACE BIM Project Execution Plan as required per contract. The template provides a standard format for organizations to establish their general means and methods for meeting the scope and deliverable requirements in Attachment F. It was adapted from the buildingSMART alliance™ (bSa) Project “BIM Project Execution Planning” as developed by The Computer Integrated Construction (CIC) Research Group of The Pennsylvania State University. The bSa project is sponsored by The Charles Pankow Foundation, Construction Industry Institute (CII), Penn State Office of Physical Plant (OPP), and The Partnership for Achieving Construction Excellence (PACE). The template can be found at the following link:

https://mrsi.usace.army.mil/rfp/Shared%20Documents/USACE_BIM_PXP_TEMPLATE_V1.0.pdf

Please note: Instructions and examples to assist with the completion of this template are currently in grey. The text can and should be modified to suit the needs of the organization filling out the template. If modified, the format of the text should be changed to match the rest of the document. This can be completed, in most cases, by selecting the normal style in the template styles.

SECTION 01 45 04.00 10
REV 2.15- 15 DEC 2011
CONTRACTOR QUALITY CONTROL

1.0 GENERAL

1.1. REFERENCES

1.2. PAYMENT

2.0 PRODUCTS (NOT APPLICABLE)

3.0 EXECUTION

3.1. GENERAL REQUIREMENTS

3.2. QUALITY CONTROL PLAN

3.3. COORDINATION MEETING

3.4. QUALITY CONTROL ORGANIZATION

3.5. SUBMITTALS AND DELIVERABLES

3.6. CONTROL

3.7. TESTS

3.8. COMPLETION INSPECTION

3.9. DOCUMENTATION

3.10. NOTIFICATION OF NONCOMPLIANCE

1.0 GENERAL

1.1. REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. Refer to the latest edition, as of the date of the contract solicitation.

- ASTM INTERNATIONAL (ASTM)
- ASTM D 3740 Minimum Requirements for Agencies
Engaged in the Testing and/or Inspection
of Soil and Rock as Used in Engineering
Design and Construction
- ASTM E 329 Agencies Engaged in the Testing
and/or Inspection of Materials Used in
Construction
- U.S. ARMY CORPS OF ENGINEERS (USACE)
ER 1110-1-12 Quality Management

1.2. PAYMENT

There will be no separate payment for providing and maintaining an effective Quality Control program. Include all costs associated therewith in the applicable unit prices or lump-sum prices contained in the Contract Line Item Schedule.

2.0 PRODUCTS (Not Applicable)

3.0 EXECUTION

3.1. GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product, which complies with the contract requirements. The system shall cover all design and construction operations, both onsite and offsite, and shall be keyed to the proposed design and construction sequence. The site project superintendent is responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the contract. The site project superintendent in this context shall be the highest level manager at the site, responsible for the overall site activities, including but not limited to quality and production. The site project superintendent shall maintain a physical presence at the site at all times, except as otherwise acceptable to the Contracting Officer, and shall be responsible for all construction and construction related activities at the site. Different contractors have different names for the on-site overall project supervisor. For clarification, the term "site project superintendent" refers to the Contractor's senior site representative or "on-site manager", or other similar title, as those terms are used in contract Clause 52.236-7, "Superintendence by the Contractor" and in the Division 00 Section(s) of the solicitation for this contract or task order, or elsewhere in the contract. It does not refer to a construction superintendent, unless that person is also the Contractor's permanently assigned senior site representative in charge of all on-site activities.

3.2. QUALITY CONTROL PLAN

Furnish for Government review, not later than 30 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Design and construction may begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. The Government will not permit work outside of the features of work included in an accepted interim plan to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started. Where the applicable Code issued by the International Code Council calls for an inspection by the Building Official, the Contractor shall include the inspections in the Quality Control Plan and shall perform the inspections. The Designer of Record shall develop a program for any special inspections required by the applicable International Codes and the Contractor shall perform these inspections, using qualified inspectors. Include the special inspection plan in the QC Plan.

3.2.1. Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all design and construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents subcontractors, designers of record, consultants, architect/engineers (AE), fabricators, suppliers, and purchasing agents:

3.2.1.1. A description of the quality control organization. Include a chart showing lines of authority and an acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. A CQC System Manager shall report to the project superintendent or someone higher in the contractor's organization.

3.2.1.2. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function. Also include those responsible for performing and documenting the inspections required by the International Codes and the special inspection program developed by the designer of record.

3.2.1.3. A copy of the letter to the CQC System Manager, signed by an authorized official of the firm, which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Furnish copies of these letters.

3.2.1.4. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents subcontractors, designers of record, consultants, architect engineers (AE), offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

3.2.1.5. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. Use only Government approved Laboratory facilities.

3.2.1.6. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

3.2.1.7. Procedures for tracking design and construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.

3.2.1.8. Reporting procedures, including proposed reporting formats.

3.2.1.9. A list of the definable features of work. A definable feature of work is a task, which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting.

3.2.1.10. A list of all inspections required by the International Codes and the special inspection program required by the code and this contract.

3.2.2. Additional Requirements for Design Quality Control (DQC) Plan

The following additional requirements apply to the Design Quality Control (DQC) plan:

3.2.2.1. The Contractor's QCP Plan shall provide and maintain a Design Quality Control (DQC) Plan as an effective quality control program which will assure that all services required by this design-build contract are performed and provided in a manner that meets professional architectural and engineering quality standards. As a minimum, competent, independent reviewers identified in the DQC Plan shall review all documents. Use personnel who were not involved in the design effort to produce the design to perform the independent technical review (ITR). The ITR is intended as a quality control check of the design. Include, at least, but not necessarily limited to, a review of the contract requirements (the accepted contract or task order proposal and amended RFP), the basis of design, design calculations, the design configuration management documentation and check the design documents for errors, omissions, and for coordination and design integration. The ITR team is not required to examine, compare or comment concerning alternate design solutions but should concentrate on ensuring that the design meets the contract requirements. Correct errors and deficiencies in the design documents prior to submitting them to the Government.

3.2.2.2. Include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. Submit these completed checklists at each design phase as part of the project documentation.

3.2.2.3. A Design Quality Control Manager, who has the responsibility of being cognizant of and assuring that all documents on the project have been coordinated, shall implement the DQC Plan. This individual shall be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect. Notify the Government, in writing, of the name of the individual, and the name of an alternate person assigned to the position.

3.2.2.4. Develop and maintain effective, acceptable design configuration management (DCM) procedures to control and track all revisions to the design documents after the Interim Design Submission through submission of the As-Built documents. Include the DCM plan as a subset of the DQC Plan. See Section 'Design After Award'.

3.2.3. Acceptance of Plan

Government acceptance of the Contractor's plan is required prior to the start of design and construction. Acceptance is conditional and will be predicated on satisfactory performance during the design and construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4. Notification of Changes

After acceptance of the CQC Plan, notify the Government in writing of any proposed change. Proposed changes are subject to Government acceptance.

3.3. COORDINATION MEETING

After the Postaward Conference, before start of design or construction, and prior to acceptance by the Government of the CQC Plan, the Contractor and the Government shall meet and discuss the Contractor's quality control system. Submit the CQC Plan for review a minimum of 7 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, design activities, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. The Government will prepare minutes of the meeting for signature by both parties. . The minutes shall become a part of the contract file. There may be occasions when either party will call for subsequent conferences to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4. QUALITY CONTROL ORGANIZATION

3.4.1. Personnel Requirements

The requirements for the CQC organization are a CQC System Manager, a Design Quality Manager, and sufficient number of additional qualified personnel to ensure contract compliance. The CQC organization shall also include personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly. The Contractor's CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure contract compliance. The CQC staff shall be subject to acceptance by the Contracting Officer. Provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Promptly furnish complete records of all letters, material submittals, shop drawing submittals, schedules and all other project documentation to the CQC organization. The CQC organization shall be responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2. CQC System Manager

Identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a BA/BS graduate of an ACCE accredited construction management college program. The CQC system Manager may alternately be an engineering technician with at least 2 years of college and an ICC certification as a Commercial Building Inspector (Residential Building Inspector certification will be required for Military Family Housing projects). In addition, the CQC system manager shall have a minimum of 5 years construction experience on construction similar to this contract. The CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. Assign the CQC System Manager no other duties (except may also serve as Safety and Health Officer, if qualified and if allowed by Section 00 73 00, or by Section 00 73 10 if this is a task order). Identify an alternate for the CQC System Manager in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager but the alternate may have other duties in addition to serving in a temporary capacity as the acting QC manager.

3.4.3. CQC Personnel

3.4.3.1. In addition to CQC personnel specified elsewhere in the contract provide specialized CQC personnel to assist the CQC System Manager in accordance with paragraph titled Area Qualifications.

3.4.3.2. These individuals may be employees of the prime or subcontractor; be responsible to the CQC System Manager; **are not intended to be full time, but must be physically present at the construction site during work on their areas of responsibility**; have the necessary education and/or

experience in accordance with the experience matrix listed herein. These individuals may perform other duties but must be allowed sufficient time to perform their assigned quality control duties as described in the Quality Control Plan. **One person may cover more than one area, provided that they are qualified to perform QC activities for the designated areas below and provided that they have adequate time to perform their duties:**

3.4.4. Experience Matrix

3.4.4.1. Area Qualifications

3.4.4.1.1. Civil - Graduate Civil Engineer or (BA/BS) graduate in construction management with 4 years experience in the type of work being performed on this project or engineering technician with 5 yrs related experience.

3.4.4.1.2. Mechanical - Graduate Mechanical Engineer or (BA/BS) graduate in construction management with 4 yrs related experience or engineering technician with an ICC certification as a Commercial Mechanical Inspector with 5 yrs related experience.

3.4.4.1.3. Electrical - Graduate Electrical Engineer or (BA/BS) graduate in construction management with 4 yrs related experience or engineering technician with an ICC certification as a Commercial Electrical Inspector with 5 yrs related experience.

3.4.4.1.4. Structural - Graduate Structural Engineer or (BA/BS) graduate in construction management with 4 yrs related experience or person with an ICC certification as a Reinforced Concrete Special Inspector and Structural Steel and Bolting Special Inspector (as applicable to the type of construction involved) with 5 yrs related experience.

3.4.4.1.5. Plumbing - Graduate Mechanical Engineer or (BA/BS) graduate in construction management with 4 yrs related experience, or person with an ICC certification as a Commercial Plumbing Inspector with 5 yrs related experience.

3.4.4.1.6. Concrete, Pavements and Soils Materials Technician (present while performing tests) with 2 yrs experience for the appropriate area

3.4.4.1.7. Testing, Adjusting and Balancing Specialist must be a member (TAB) Personnel of AABC or an experienced technician of the firm certified by the NEBB (present while testing, adjusting, balancing).

3.4.4.1.8. Design Quality Control Manager Registered Architect or Professional Engineer (not required on the construction site)

3.4.4.1.9. Registered Fire Protection Engineer with 4 years related experience or engineering technician with 5 yrs related experience (but see requirements for Fire Protection Engineer of Record to witness final testing in Section 01 10 00, paragraph 5.10, Fire Protection).

3.4.4.1.10. QC personnel assigned to the installation of the telecommunication system or any of its components shall be Building Industry Consulting Services International (BICSI) Registered Cabling Installers, Technician Level. Submit documentation of current BICSI certification. In lieu of BICSI certification, QC personnel shall have a minimum of 5 years experience in the installation of the specified copper and fiber optic cable and components. They shall have factory or factory approved certification from each equipment manufacturer indicating that they are qualified to install and test the provided products. QC personnel shall witness and certify the testing of telecommunications cabling and equipment.

3.4.5. Additional Requirement

In addition to the above experience and/or education requirements the CQC System Manager shall have completed the course entitled "Construction Quality Management for Contractors". This course is periodically offered at Corps of Engineers, Savannah District, Savannah, GA. Inquire of the District or Division sponsoring the course for fees and other expenses involved, if any, for attendance at this course.

3.4.6. Organizational Changes

When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5. SUBMITTALS AND DELIVERABLES

Make submittals as specified in Section 01 33 00 **SUBMITTAL PROCEDURES**. The CQC organization shall certify that all submittals and deliverables are in compliance with the contract requirements.

3.6. CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. The CQC organization shall conduct at least three phases of control for each definable feature of the construction work as follows:

3.6.1. Preparatory Phase

Perform this phase prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

3.6.1.1. A review of each paragraph of applicable specifications, reference codes, and standards. Make a copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field at the preparatory inspection. Maintain these copies in the field, available for use by Government personnel until final acceptance of the work.

3.6.1.2. A review of the contract drawings.

3.6.1.3. A check to assure that all materials and/or equipment have been tested, submitted, and approved.

3.6.1.4. Review of provisions that have been made to provide required control inspection and testing.

3.6.1.5. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

3.6.1.6. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

3.6.1.7. A review of the appropriate activity hazard analysis to assure safety requirements are met.

3.6.1.8. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

3.6.1.9. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

3.6.1.10. Discussion of the initial control phase.

3.6.1.11. Notify the Government at least 24 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. Document the results of the preparatory phase actions by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2. Initial Phase

Accomplish this phase at the beginning of a definable feature of work. Include the following actions:

3.6.2.1. Check work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.

3.6.2.2. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.

3.6.2.3. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

3.6.2.4. Resolve all differences.

3.6.2.5. Check safety to include compliance with and upgrading of the Accident Prevention plan and activity hazard analysis. Review the activity analysis with each worker.

3.6.2.6. Notify the Government at least 24 hours in advance of beginning the initial phase. The CQC System Manager shall prepare and attach to the daily CQC report separate minutes of this phase. Indicate exact location of initial phase for future reference and comparison with follow-up phases.

3.6.2.7. Repeat the initial phase any time acceptable specified quality standards are not being met.

3.6.3. Follow-up Phase

Perform daily checks to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Conduct final follow-up checks and correct deficiencies prior to the start of additional features of work which may be affected by the deficient work. Do not build upon nor conceal non-conforming work.

3.6.4. Additional Preparatory and Initial Phases

Conduct additional preparatory and initial phases on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7. TESTS

3.7.1. Testing Procedure

Perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements and project design documents. Upon request, furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory, or establish an approved testing laboratory at the project

site. The Contractor may elect to use a laboratory certified and accredited by the Concrete and cement Reference Laboratory (CCRL) or by AASHTO Materials Reference Laboratory (AMRL) for testing procedures that those organizations certify. The Contractor shall perform the following activities and record and provide the following data:

3.7.1.1. Verify that testing procedures comply with contract requirements and project design documents.

3.7.1.2. Verify that facilities and testing equipment are available and comply with testing standards.

3.7.1.3. Check test instrument calibration data against certified standards.

3.7.1.4. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.

3.7.1.5. Include results of all tests taken, both passing and failing tests, recorded on the CQC report for the date taken. Include specification paragraph reference, location where tests were taken, and the sequential control number identifying the test. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. Provide an information copy of tests performed by an offsite or commercial test facility directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2. Testing Laboratories

3.7.2.1. Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2. Capability Recheck

If the selected laboratory fails the capability check, the Government will assess the Contractor a charge of \$1,375 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3. Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4. Furnishing or Transportation of Samples for Government Quality Assurance Testing

The Contractor is responsible for costs incidental to the transportation of samples or materials. Deliver samples of materials for test verification and acceptance testing by the Government to the Corps of Engineers Laboratory, f.o.b., at the following address:

- For delivery by mail:
US Army Engineer District, Savannah
Environmental and Materials Unit
200 North Cobb Parkway Building 400, Suite

- Marietta, GA 30062
- For other deliveries:
 - Not Applicable
 - Not Applicable
 - Not Applicable
 - Not Applicable

The area or resident office will coordinate, exact delivery location, and dates for each specific test.

3.8. COMPLETION INSPECTION

3.8.1. Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the SPECIAL CONTRACT REQUIREMENTS Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. Prepare a punch list of items which do not conform to the approved drawings and specifications and include in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2. Pre-Final Inspection

As soon as practicable after the notification above, the Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Correct any items noted on the Pre-Final inspection in a timely manner. Accomplish these inspections and any deficiency corrections required by this paragraph within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3. Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall attend the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups and major commands may also attend. The Government will formally schedule the final acceptance inspection based upon results of the Pre-Final inspection. Provide notice to the Government at least 14 days prior to the final acceptance inspection and include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9. DOCUMENTATION

3.9.1. Maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers using

government-provided software, QCS (see Section 01 45 01.10). The report includes, as a minimum, the following information:

3.9.1.1. Contractor/subcontractor and their area of responsibility.

3.9.1.2. Operating plant/equipment with hours worked, idle, or down for repair.

3.9.1.3. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.

3.9.1.4. Test and/or control activities performed with results and references to specifications/drawings requirements. Identify the applicable control phase (Preparatory, Initial, Follow-up). List deficiencies noted, along with corrective action.

3.9.1.5. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.

3.9.1.6. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.

3.9.1.7. Offsite surveillance activities, including actions taken.

3.9.1.8. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

3.9.1.9. Instructions given/received and conflicts in plans and/or specifications.

3.9.1.10. Provide documentation of design quality control activities. For independent design reviews, provide, as a minimum, identity of the ITR team, the ITR review comments, responses and the record of resolution of the comments.

3.9.2. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. Furnish the original and one copy of these records in report form to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, submit one report for every 7 days of no work and on the last day of a no work period. Account for all calendar days throughout the life of the contract. The first report following a day of no work shall be for that day only. The CQC System Manager shall sign and date reports. The report shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel. The Contractor may submit these forms electronically, in lieu of hard copy.

3.10. NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

End of Section 01 45 04.00 10

SECTION 01 50 02.0004

REV 1.4 - 30 APR 2010

TEMPORARY CONSTRUCTION FACILITIES

1.0 OVERVIEW

1.1. GENERAL REQUIREMENTS

1.3. BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.0 OVERVIEW

1.1. GENERAL REQUIREMENTS

1.1.1. This section contains requirements specifically applicable to this task order. The requirements of Base ID/IQ contract Section 01 50 02 apply to this task order, except as otherwise specified herein.

1.3. BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

1.3.1. Bulletin Board (As Specified in Base contract)

1.3.2. Project and Safety Signs (Added to Stress standardization of signs, in the event that the Base ID/IQ Section 01 50 02 does not contain this information)

Erect a project sign and a site safety sign with informational details as provided by the Government at the Post award conference, within 15 days prior to any work activity on project site. Update the safety sign data daily, with light colored metallic or non-metallic numerals. Remove the signs from the site upon completion of the project. Engineer Pamphlet EP 310-1-6a contains the standardized layout and construction details for the signs. It can be found through a GOOGLE Search or try <http://www.usace.army.mil/publications/eng-pamphlets/ep310-1-6a/s-16.pdf>.

End of Section 01 50 02.0004

APPENDIX A
Geotechnical Information

Not Used

APPENDIX B
List of Drawings

Not Used

APPENDIX C
Utility Connections

Not Used

APPENDIX D
Results of Fire Flow Tests

Not Used

APPENDIX E
Environmental Information

Not Used

APPENDIX F
Conceptual Aesthetic Considerations

Not Used

APPENDIX G
GIS Data

Not Used

APPENDIX H
Exterior Signage

Not Used

APPENDIX I
Acceptable Plants List

Not Used

APPENDIX J
Drawings

Not Used

APPENDIX K Fuel Cost Information

The following utility rates for this installation are provided for design

Electrical:

Demand Charge - \$xx.xx per kilowatt

Energy Charge - \$ x.xx per kilowatt-hour Blended Rate - \$ x.xx per kilowatt-hour (blended annual energy and demand cost)

Natural Gas:

Commodity Charge Rate - \$ x.xx per thousand cubic feet

Water:

Commodity Charge Rate - \$x.xx per [volume]

Sewer:

Commodity Charge Rate - \$x.xx per [volume]

Purchased/Central Steam:

Commodity Charge Rate - \$x.xx per [unit of measure]

Purchased High Temperature Water:

Commodity Charge Rate - \$x.xx per [unit of measure]

Purchased Chilled Water:

Commodity Charge Rate - \$x.xx per [unit of measure]

APPENDIX L

LEED Project Credit Guidance

This spreadsheet indicates Army required credits, Army preferred credits, project-specific ranking of individual point preferences, assumptions guidance for individual credits, and references to related language in the RFP for individual credits.

LEED Credit Paragraph	LEED Project Credit Guidance	Army Guidance: Required - Preferred - Avoid		Project Preference Ranking: (1=most preferred, blank=no preference, X=preference not applicable to this credit; Rqd=required)
PAR	FEATURE			REMARKS
<u>SUSTAINABLE SITES</u>				
SSPR1	Construction Activity Pollution Prevention (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met.
SS1	Site Selection		X	See paragraph LEED CREDITS COORDINATION.

SS2	Development Density & Community Connectivity - OPTION 1 DENSITY		X	See paragraph LEED CREDITS COORDINATION.
	Development Density & Community Connectivity - OPTION 2 CONNECTIVITY		X	See paragraph LEED CREDITS COORDINATION.
SS3	Brownfield Redevelopment		X	See paragraph LEED CREDITS COORDINATION.
SS4.1	Alternative Transportation: Public Transportation Access		X	See paragraph LEED CREDITS COORDINATION.
SS4.2	Alternative Transportation: Bicycle Storage & Changing Rooms	Pref		Bike racks are prohibited at certain facilities, as indicated in Statement of Work. Assume that non-transient building occupants are NOT housed on Post unless indicated otherwise.
SS4.3	Alternative Transportation: Low Emitting & Fuel Efficient Vehicles - OPTION 1			Requires provision of vehicles, which cannot be purchased with construction funds. Assume Government will not provide vehicles unless indicated otherwise. Assume that 50% of GOV fleet is NOT alternative fuel vehicles unless indicated otherwise.
SS4.3	Alternative Transportation: Low Emitting & Fuel Efficient Vehicles - OPTION 2	Pref		
SS4.3	Alternative Transportation: Low Emitting & Fuel Efficient Vehicles - OPTION 3			Requires provision of vehicle refueling stations. Installation must support type of fuel and commit to maintaining/supporting refueling stations.

SS4.4	Alternative Transportation: Parking Capacity	Pref		
SS5.1	Site Development: Protect or Restore Habitat			
SS5.2	Site Development: Maximize Open Space	Pref		Assume AGMBC option for aggregated open space at another location on the installation is not available to the project unless indicated otherwise.
SS6.1	Stormwater Design: Quantity Control	Pref		See paragraph STORMWATER MANAGEMENT AND LOW IMPACT DESIGN.
SS6.2	Stormwater Design: Quality Control	Rqd		See paragraph STORMWATER MANAGEMENT AND LOW IMPACT DESIGN.
SS7.1	Heat Island Effect: Non-Roof			
SS7.2	Heat Island Effect: Roof	Pref		See paragraph SITE SELECTION
SS8	Light Pollution Reduction	Pref		
<u>WATER EFFICIENCY</u>				
WEPR1	Water Use Reduction (Version 3 only)	Rqd	Rqd	All LEED prerequisites are required to be met.
WE1	Water Efficient Landscaping:	Rqd		See paragraph IRRIGATION. Project must include landscaping to be eligible for this credit.
WE2	Innovative Wastewater Technologies - OPTION 1			
WE2	Innovative Wastewater Technologies - OPTION 2			
WE3	Water Use Reduction	Rqd		See paragraph PLUMBING AND WATER CONSUMING

				EQUIPMENT.
<u>ENERGY AND ATMOSPHERE</u>				
EAPR1	Fundamental Commissioning of the Building Energy Systems (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met.
EAPR2	Minimum Energy Performance (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met.
EAPR3	Fundamental Refrigerant Management (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met.
EA1	Optimize Energy Performance	Rqd	1	Earning of LEED EA1 points as indicated in paragraph ENERGY CONSERVATION , as a minimum, is required.
EA2	On-Site Renewable Energy	Pref		See paragraph ENERGY CONSERVATION .
EA3	Enhanced Commissioning			See paragraph COMMISSIONING .
EA4	Enhanced Refrigerant Management			See paragraph MATERIALS AND RESOURCES .
EA5	Measurement & Verification	Rqd		Assume Government will not provide post-occupancy activities unless indicated otherwise.
EA6	Green Power		X	See paragraph LEED CREDITS COORDINATION .
<u>MATERIALS AND RESOURCES</u>				

MRPR1	Storage & Collection of Recyclables (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met. Coordinate with Installation during design development on collection service and receptacles.
MR1	Building Reuse			
MR2	Construction Waste Management:	Rqd		See paragraph CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT.
MR3	Materials Reuse			
MR4	Recycled Content:	Pref		See paragraph MATERIALS AND RESOURCES.
MR5	Regional Materials			See paragraph MATERIALS AND RESOURCES.
MR6	Rapidly Renewable Materials	Pref		See paragraph MATERIALS AND RESOURCES.
MR7	Certified Wood	Pref		See paragraph MATERIALS AND RESOURCES.
INDOOR ENVIRONMENTAL QUALITY				
EQPR1	Minimum IAQ Performance (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met.
EQPR2	Environmental Tobacco Smoke (ETS) Control (PREREQUISITE)	Rqd	Rqd	All LEED prerequisites are required to be met. Assume all buildings are smoke free unless indicated otherwise (family housing, barracks and other lodging are facility types where smoking may be

				permitted in some cases).
EQ1	Outdoor Air Delivery Monitoring			See paragraph BUILDING INTERIOR.
EQ2	Increased Ventilation			
EQ3.1	Construction IAQ Management Plan: During Construction	Pref		See paragraph BUILDING ENVELOPE SEALING PERFORMANCE REQUIREMENT.
EQ3.2	Construction IAQ Management Plan: Before Occupancy	Pref		See paragraph BUILDING ENVELOPE SEALING PERFORMANCE REQUIREMENT.
EQ4.1	Low Emitting Materials: Adhesives & Sealants	Pref		See paragraph DAYLIGHTING AND LOW EMITTING MATERIALS
EQ4.2	Low Emitting Materials: Paints & Coatings	Pref		See paragraph DAYLIGHTING AND LOW EMITTING MATERIALS
EQ4.3	Low Emitting Materials: Carpet/Flooring Systems	Pref		See paragraph DAYLIGHTING AND LOW EMITTING MATERIALS
EQ4.4	Low Emitting Materials: Composite Wood & Agrifiber Products	Pref		See paragraph DAYLIGHTING AND LOW EMITTING MATERIALS
EQ5	Indoor Chemical & Pollutant Source Control	Pref		System requiring weekly cleaning to earn this credit is not a permitted option unless indicated otherwise.
EQ6.1	Controllability of Systems: Lighting			
EQ6.2	Controllability of Systems: Thermal Comfort			
EQ7.1	Thermal Comfort: Design	Rqd		See paragraph DAYLIGHTING AND LOW EMITTING MATERIALS.
EQ7.2	Thermal Comfort: Verification			Project must earn credit EQ7.1 to be eligible for this credit. Assume

				Government will not provide post-occupancy activities unless indicated otherwise..
EQ8.1	Daylight & Views: Daylight 75% of Spaces	Pref		See paragraph DAYLIGHTING AND LOW EMITTING MATERIALS.
EQ8.2	Daylight & Views	Pref		
INNOVATION & DESIGN PROCESS				
IDc1.1	Innovation in Design			See paragraph INNOVATION AND DESIGN CREDITS AND REGIONAL PRIORITY CREDITS. Assume Government will not provide any activities associated with ID credits.
IDc1.2	Innovation in Design			
IDc1.3	Innovation in Design			
IDc1.4	Innovation in Design			
IDc2	LEED Accredited Professional	Rqd	Rqd	LEED AP during design and construction is required.
REGIONAL PRIORITY CREDITS (Version 3 only)				See paragraph LEED CREDITS COORDINATION.

APPENDIX M
LEED Owner's Project Requirements

Not Used

APPENDIX N
LEED Requirements for Multiple Contractor Combined Projects

Not Used

APPENDIX O
LEED Strategy Tables

Not Used

APPENDIX P

LEED Registration of Army Projects

15 April 2010

Number of Registrations

Each building must be registered separately, except multiple instances of a standard building on a shared site may be registered as a single project. If a single registration for multiple buildings is chosen, all buildings under the single registration must earn exactly the same points. Do not register buildings that are exempt from a specific LEED achievement requirement.

Typical Registration Procedure

1. Login, complete the online registration form (see guidance below) at the GBCI LEED Online website <http://www.gbci.org/DisplayPage.aspx?CMSPageID=174> and submit it online.
2. Pay the registration fee via credit card (USACE staff: credit card PR&C is funded by project design or S&A funds).
3. GBCI will follow up with a final invoice, the LEED-online passwords and template information.
4. The individual who registers the project online is, by default, the Project Administrator.

Completing the Registration Form

BEFORE YOU BEGIN:

Create a personal account with USGBC if you do not have one.

You will need the following information:

Project name as it appears in P2 (obtain from USACE Project Manager)

Building number/physical address of project

Zip code for Installation/project location

Anticipated construction start and end dates

Total gross area all non-exempt buildings in registration

Total construction cost all non-exempt buildings only (see Project Details Section instructions below)

ACCOUNT/LOGIN INFORMATION

1. The person registering the project **must have an account with USGBC** (login and password) to complete the form. Go to <http://www.gbci.org/>, click on "register a project" at the drop-down menu for project certification (at the top of the page) and select "register now for LEED 2009" to start the project registration process. If you have an account, login with your email address and password and select "register new project" to proceed. If you do not have an account, you may select "register a new account" and follow the instructions. It is recommended that you create an account separately on the USGBC website before you start the form. **IMPORTANT: USACE team members are members of USGBC and are eligible for Member prices. USACE team members registering projects should be sure to include the USACE Corporate Access ID in their personal account profile (if you do not have it contact richard.l.schneider@usace.army.mil or judith.f.milton@usace.army.mil for the number).**
2. The Account/Login Information section is filled out by the person registering the project. It may be a Contractor or a USACE staff member.

ELIGIBILITY SECTION

Follow directions (accepting the terms and conditions)

Review your profile information and make corrections if needed

RATING SYSTEM SELECTION SECTION

Select single project registration and I know which rating system.

Select the rating system - currently only LEED-NC and LEED for Homes are approved for Army use without special approval.

LEED Minimum Program Requirements: select YES

RATING SYSTEM RESULTS SECTION

Confirm selected rating system.

PROJECT INFORMATION SECTION

Project Title: Begin the project title with a one-word identifier for the Installation. Do not include the word "Fort". After this match the project name used in P2 (contact the USACE Project Manager for this information) and identify the building being registered. Example: "Stewart 4th IBC - DFAC".

Project Address 1 and 2: This is the physical location of the project. Provide building number, street address, block number or whatever is known to best describe the location of the project on the Installation.

Project City: Installation Name

State, Country, Zip Code: Self-explanatory

Anticipated Construction Start and End Dates: Self-explanatory – give your best guess if unknown. Note that required data entry format is: 1 or 2 digit month/1 or 2 digit date/4 digit year (example 3/23/2010)

Gross Square Footage: Provide total area all buildings in LEED project. Exclude the area of any buildings that are exempt from the LEED achievement requirement (for example, exclude an unconditioned storage shed to be constructed with a barracks complex).

Is Project Confidential: Indicate NO except, if project has security sensitivity (elements that are FOUO or higher security), indicate YES.

Notification of Local Chapter: Indicate NO unless Government/USACE Project Manager requests you to indicate YES.

Anticipated Project Type: Select the most appropriate option from the drop-down menu.

Anticipated Certification Level: Select the applicable option from the drop-down menu (Silver is the usual level).

PROJECT OWNER INFORMATION SECTION

Project Owner First Name, Last Name, email, phone, address: The Project Owner is the USACE Project Manager. Obtain this info from the USACE Project Manager.

Organization: U.S. Army Corps of Engineers. This field MUST be completed this way because it will be used as a search field by higher HQ to find all USACE registered projects. You may supplement it with district name at the end but DO NOT revise or use an acronym.

May we publish Owner information: Indicate NO

Owner Type: Pick Federal Government from drop-down menu.

Project Owner Assertion: Check the box

PAYMENT INFORMATION

Self-explanatory

APPENDIX Q
REV 2.1 – 30 SEP 2010
AREA COMPUTATIONS

Computation of Areas: Compute the “gross area” and “net area” of facilities (excluding family housing) in accordance with the following subparagraphs:

(1) Enclosed Spaces: The “gross area” is the sum of all floor spaces with an average clear height $\geq 6'-11"$ (as measured to the underside of the structural system) and having perimeter walls which are $\geq 4'-11"$. The area is calculated by measuring to the exterior dimensions of surfaces and walls.

(2) Half-Scope Spaces: Areas of the following spaces shall count as one-half scope when calculating “gross area”:

- Balconies
- Porches
- Covered exterior loading platforms or facilities
- **Covered but not enclosed spaces, canopies, training, and assembly areas**
- Covered but not enclosed passageways and walks
- Open stairways (both covered and uncovered)
- Covered ramps
- Interior corridors (Unaccompanied Enlisted Personnel Housing Only)

(3) Excluded Spaces: The following spaces shall be excluded from the “gross area” calculation:

- Crawl spaces
- Uncovered exterior loading platforms or facilities
- Exterior insulation applied to existing buildings
- Open courtyards
- Open paved terraces
- Uncovered ramps
- Uncovered stoops
- Utility tunnels and raceways
- Roof overhangs and soffits measuring less than 3'-0" from the exterior face of the building to the fascia

(4) Net Floor Area: Where required, “net area” is calculated by measuring the inside clear dimensions from the finish surfaces of walls. If required, overall “assignable net area” is determined by subtracting the following spaces from the “gross area”:

- Basements not suited as office, special mechanical, or storage space
- Elevator shafts and machinery space
- Exterior walls
- Interior partitions
- Mechanical equipment and water supply equipment space
- Permanent corridors and hallways
- Stairs and stair towers
- Janitor closets
- Electrical equipment space
- Electronic/communications equipment space

APPENDIX R

Preliminary Submittal Register

NOTE TO SPECIFIER:

1. Appendix R" will be a Adobe Acrobat pdf version of the Specifier completed "Sample Preliminary Submittal Register." The Sample Register is Excel Spreadsheet format of the RMS Input Form 4288A, which serves two purposes.
2. First, The Register allows the both Government and the Proposers to see and estimate the cost of the Division 00 and Division 01 submittals required by the contract in addition to the Contractor generated submittal register items developed during Design After Award.
3. Secondly, after award, the Government will provide the Contractor the actual Excel Spreadsheet for the Contractor to input the data into RMS to create the Submittal Register used during contract performance. See Section 01 33 00 (Submittal Procedures), paragraph 1.8 (Submittal Register) for the contract requirements.
4. For the contract or task order Solicitation, the Specifier must complete APPENDIX R, found at the following link:
<http://mrsi.usace.army.mil/rfp/Shared%20Documents/Sample%20Preliminary%20Submittal%20Register.xls> , save it as a PDF file and then upload it into the Wizard as Appendix R.
5. The RMS Input Form initially includes submittals required by the standardized Model RFP Division 00 and Division 01 Sections, except Section 01 10 00, paragraph 3. Examine the Special Contract Requirements, paragraphs 3 and 6 and any other locally developed portions of the RFP for required submittals and add them to the Input Form. Do not duplicate submittals already listed in the standardized RMS Input Form, because the Contractor needs to submit this information only once.
6. After award, the Government provides the Excel spreadsheet to the selected contractor to develop and input the RMS Input form for the submittal register required by paragraph 1.8 of Section 01 33 00, Submittals.