

01 10 00

STATEMENT OF WORK – DESIGN / BUILD REQUEST FOR PROPOSAL (D/B RFP)

Table of Contents

PART 1	PROJECT DESIGN CRITERIA.....	3
1.1	Design Requirements.....	3
1.2	Design Submittal	3
PART 2	GENERAL	4
2.1	General Conditions.....	4
2.2	General Facility Descriptions	4
PART 3	TECHNICAL REQUIREMENTS.....	6
3.1	General.....	6
3.2	Civil Design	8
3.3	Architectural Design	13
3.4	Structural Design.....	35
3.5	Mechanical Design	38
3.6	Plumbing Design	48
3.7	Fire Protection, Fire Alarm/Mass Notification (FA/MNS), and Life Safety Design	52
3.8	Electrical Design.....	64
3.9	Telecommunications Design	69
3.10	Special Systems Design	73
3.11	Antiterrorism (AT) and Force Protection (FP) Design	75
3.12	Cybersecurity	76

PART 4 EXECUTION 77

4.1 General..... 77

4.2 Site Construction Information..... 78

ATTACHMENTS

Attachment A.....Industry and Military Criteria and Governing Codes

Attachment B.....Concept Design Drawings

Attachment C.....Room Data Sheets

Attachment D.....Site Photos

*Attachment EAs-Built Drawings

Attachment FHydrant Flow Test Results

Attachment GMain Ramp Apron Clearances

Attachment HList of Pyro Room Contents

*Note: Attachment E is provided as a separate electronic file.

PART 1 PROJECT DESIGN CRITERIA

All applicable Federal, State and industry standards, including those not referenced, constitute design criteria for this project. This scope of work presents requirements for various renovations in five facilities located at Ebbing Air National Guard Base (ANGB) in Fort Smith, Arkansas. The five facilities are B201, B202, B214, B216, and B218.

1.1 Design Requirements

Comply with the requirements stated in this Scope of Work document and all applicable codes and regulations. Reference to Attachment A for a list of Industry and Military Criteria and Governing Codes. Comply with versions that are the most current at the time of the solicitation of this design-build contract. In the event of a conflict between requirements, the most stringent applies. The complete library of Unified Facilities Criteria (UFC) and Unified Facilities Guide Specifications (UFGS) is located at: <http://www.wbdg.org>. Also reference the United States Army Corps of Engineers (USACE) Engineering Construction Bulletins (ECBs) at <http://www.wbdg.org/ffc/dod/engineering-and-construction-bulletins-ecb> for recent updates.

1.1.1 Design Criteria

Facility design, materials, equipment, and installation must be in accordance with the requirements of listed codes, design manuals and military criteria (see Attachment A), and in conjunction with industry standard criteria, material and efficient practices. The latest version of building codes may be used as design guides as long as there are no conflicts between standards. In the event of conflicts, the Military and Industry standards take precedence. The building design and the materials selected must meet the specifications set forth in this Request for Proposal (RFP). Contractor is responsible for the code compliance, technical accuracy and coordination of all designs, drawings, specifications, and other documents or publications upon which the design and construction are based.

1.2 Design Submittal

Provide electronic design files for the project as part of design and construction responsibilities. Follow all guidelines, references, and indications in this report when preparing a bid proposal and when designing the five facilities at Ebbing ANGB. Deliver drawings, specifications, calculations, and details as required for a complete construction document package.

PART 2 GENERAL

2.1 General Conditions

Provide all supervision, labor, materials, equipment, supplies, and transportation necessary to perform the work specified within this Design Build Request for Proposal (DB RFP). The Contractor must be the architect/engineer and constructor of record on this project. For design and construction, utilize an integrated approach that meets the requirements of this RFP while, at the same time is cost effective and establishes synergy among the systems and spaces applicable to the structures as a whole. The design of all architectural and engineering features must be accomplished, reviewed, and approved by professionals licensed to practice in their respective professional field in the United States. Deliver a complete design and do not assume that the provided design criteria and drawings in this solicitation alleviate responsibility of performing any additional design as required to produce a complete set of construction documents.

Employ all design and construction criteria, including but not limited to industry and military criteria and governing codes, from the most current version of the reference that aligns with the date of issue of the solicitation for the design-build contract. The exception to this is if a Unified Facilities Criteria (UFC) document references a specific date of issue of a code or guide referenced therein.

The magnitude of construction for this project is \$25M - \$100M.

2.2 General Facility Descriptions

Construct the five facilities at Ebbing ANGB in accordance with all current and applicable codes. This includes, but is not limited to, accessibility complying with the Architectural Barriers Act (ABA), life safety, fire separations, energy, OSHA, Unified Facilities Code (UFC), and building codes, etc. A brief description of each building is listed below. A detailed description of the scope of work follows this section and is organized by technical discipline. Reference Attachment C for additional requirements.

Building 201 is an existing fire station being repurposed as a storage warehouse facility in support of the F-16 mission. The existing facility is 9,563 gross square feet. The exterior façade requires minor repairs and modification. The interior requires extensive demolition of non-load bearing walls and finishes. Remove and replace all interior finishes.

Building 202 is an existing three-bay hangar with administrative and support spaces. The hangar was originally designed in 2008 to support the A-10 mission and has since been decommissioned. The goal of this project is to renovate the 30,098 gross square foot facility to support the F-16 mission and to restore the three hangar bays to their original functions (Bay 1: Fuel Cell, Bay 2: General Purpose Maintenance, and Bay 3: Wash Bay). As part of this project, renovate existing support functions for current mission needs. The exterior façade requires minor repair. The existing interior configuration is to remain; however, minor modifications are required to meet current code requirements and specific mission needs. Remove and replace the majority of the interior finishes.

Building 214 will be repurposed to an engine repair shop and requires overall repair and renovations of the entire 12,962 SF facility. On the exterior, replace translucent panels and exterior doors. Replace roof. Repair and repaint the existing canopies located to the west and provide a new metal roof. The interior requires minor reconfiguration and the inclusion of a new conditioned parachute room.

Building 216 was originally designed as shop facility with the interior configured with large shop spaces, classroom, office, and support spaces. Renovate and restore to its original function the 17,500 gross square foot facility in support of the F-16 and F-35 missions. The exterior requires minor repair and modification. Provide an approximately 1,400 gross square foot addition to accommodate a distinguished visitor's (DV) meeting area. Add a screen wall on the south side of the sidewalk from the parking lot to the building to screen the view of the service vehicle parking area. This facility will have two secure areas; the first a United States Secret Clearance Access Area in accordance with DoDM 5200.01 V3, and the other to provide Special Access Program Facility (SAPF) space for F-35 secure operations in accordance with the Technical Specifications for Construction and Management of Sensitive Compartmented Information Facilities – IC Tech Spec for ICD/ICS 705 (ICD705) and the F-35 Lightning II Functional Requirements Document (FRD). Refer to Room Data Sheets and Conceptual Drawings. Selective demolition of interior partitions and modification of structural walls are required to create the spatial relationships of the new mission's program.

Building 218 was originally a 3,359 gross square foot low-slope pre-engineered metal building (PEMB). A 4,420 gross square foot addition was constructed circa the early 2000's. The facility will be extensively repaired and renovated. The original facility with a low slope roof is susceptible to water infiltration. Field observations show no air/vapor barrier has been installed in the original facility wall system and the roof system requires replacement. Remove and replace the exterior envelope (roof panels, metal wall panels, doors, and windows) to meet current codes and prevent further water infiltration. Reconfigure partition walls for the new layout. Design a hardened pyro room to meet material explosive classification as defined within Section 3.7.13 of this RFP. The existing addition requires minor repair work and replacement of damaged glazing

PART 3 TECHNICAL REQUIREMENTS

3.1 General

See below for the building locations and Attachment C for the project location. Coordinate construction limits with Base Civil Engineer Squadron to minimize impact on Base operations. Provide fencing and/or barriers to secure the work area from the airfield, apron, and sunshades.

3.1.1 Existing Conditions

3.1.1.1 Site

This project consists of the renovation of five (5) buildings (B201, B202, B214, B216, and B218) at Ebbing ANGB, Fort Smith, Arkansas.

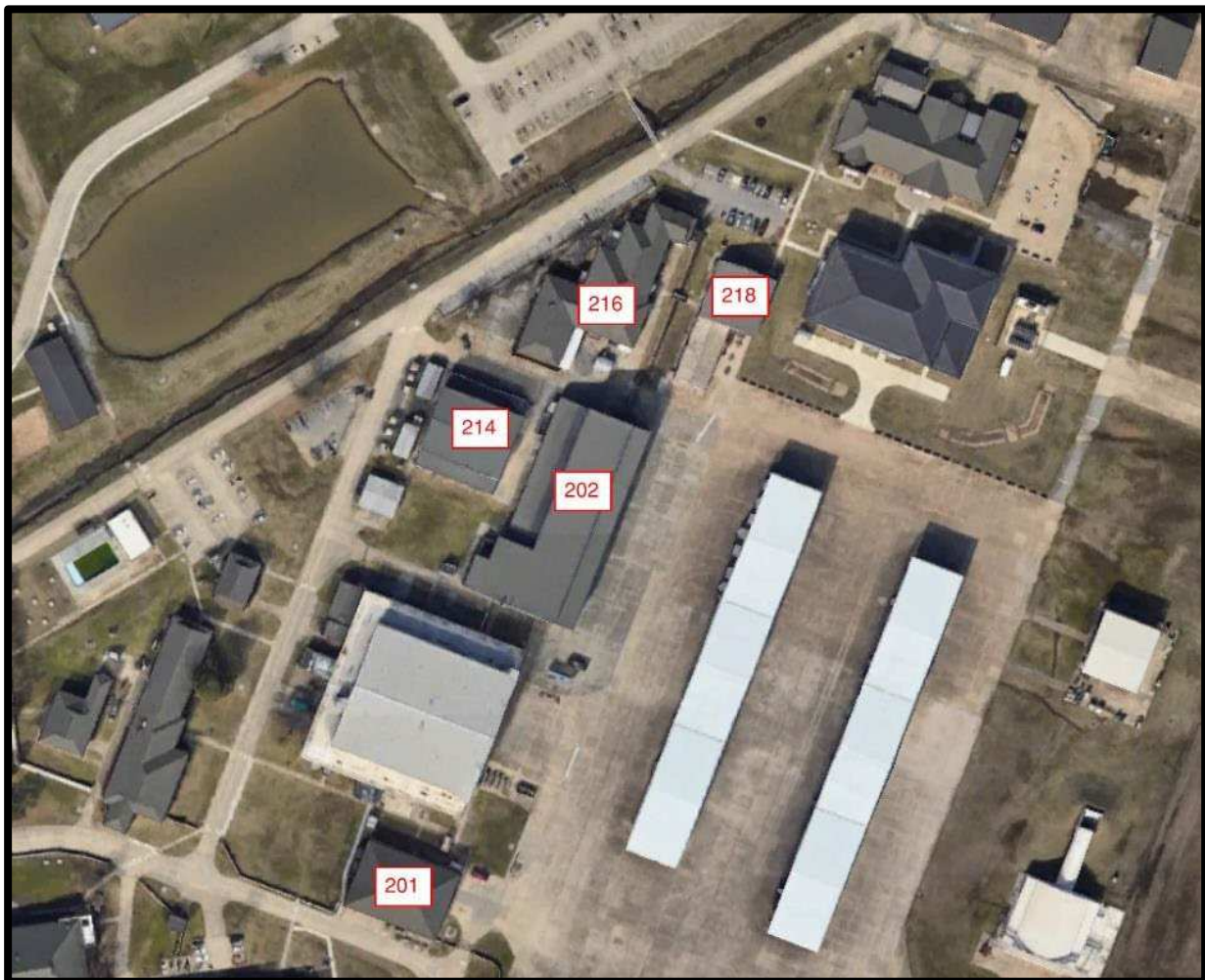


Figure 3.1.1.1-1 - Building Locations

3.1.1.2 Surface Conditions

- 3.1.1.2.1 Building 201 is an existing fire station. It is currently bordered by aircraft or vehicular concrete pavement on the south and east sides. The north and west sides are primarily concrete sidewalks, bordered by areas of lawn.
- 3.1.1.2.2 Building 202 is bordered on the north, east, and south sides by aircraft or vehicular concrete pavement, and on the west by concrete sidewalks and vehicular pavement. There is an area of lawn on the west side of Building 202.
- 3.1.1.2.3 Building 214 is bordered on the north, east, and west sides by concrete vehicular pavement. The area to the south is lawn.
- 3.1.1.2.4 Building 216 is bordered on its north side by a rectangular concrete flume that separates it from a parking lot and an area of lawn. The east side is bordered by concrete sidewalk that separates it from the lawn area. The concrete flume continues down the east side of the building, separating it from Building 218. The south side of the building is bordered by concrete pavement, with a section having a landscaped strip adjacent to the building. The southern portion of the west side is adjacent to the service yard parking area. The northern portion of the west side is a landscaped area. The landscaped area is separated from an elevated parking area by a V-shaped concrete channel that connects to the rectangular concrete flume. The primary access to Building 216 is from steps from the elevated parking lot.
- 3.1.1.2.5 Building 218 is bordered on the north side by a landscaped area and parking lot. The northern portion of the east side is landscaped, changing to concrete pavement for the south east area. The south side is concrete pavement and the west side is the landscaped area and drainage flume separating Building 218 from Building 216.

3.1.1.3 Utility Services

All of the buildings currently have utility services. Existing utility service information was provided by Ebbing ANGB GIS data. Only Buildings 202 and 216 have fire water service. There are no known deficiencies in utility services.

3.1.1.4 Drainage

The site currently drains by surface and storm drain. Add splash blocks to all downspouts that discharge to grade. Replace the V-shaped channel at Building 216 with a rectangular flume in the area of the addition to improve drainage. Reroute existing downspouts in the area of the Building 216 addition to the flume.

3.1.1.5 Fire Hydrants

Adequate fire hydrants are available to serve the facilities. All buildings are served by at least two fire hydrants.

3.2 Civil Design

3.2.1 Demolition

Demolition activities are needed as a part of the addition to Building 216. In addition to removing two trees and the horseshoe pits, remove and replace approximately 165 linear feet of the existing V-shaped channel.

The proposed addition to Building 218 is in an area of existing concrete aircraft pavement which must be sawcut and removed. Only sawcut at existing joints. Perform concrete pavement demolition in a manner that prevents damage to the existing pavement to remain. Repair any damage to existing pavement at no cost to the Government. Extend the limits of concrete pavement and subgrade removal beyond the addition footprint to an existing pavement joint.

3.2.2 Site Design

Building 201's site work is limited to trenching and restoration for the fire water service connection. There is no site work proposed for Building 202. Building 214's site work is limited to trenching and trench restoration for the fire water service connection. Site design for Building 216 includes adding approximately 165 linear feet of rectangular concrete flume along the west side of the addition, and a brick screen wall separating the building access sidewalk from the service vehicle parking area. Site design for Building 218 is limited to grading and replacement of aircraft paving removed for the new addition.

3.2.2.1 Design Responsibility

Design and construct the site and facilities within the specific site responsibility areas defined.

3.2.2.2 Existing Conditions

Accept the site as-is and be solely responsible for any field survey work required for verification, design, and construction. Do not waste excess soil from within the work area without written approval of the Contracting Officer Representative (COR).

3.2.2.3 Field Office and Laydown Area

Provide a field office and lay down area in accordance with UFGS specification requirements. Use of B201 and B202 for field office and laydown areas is allowed. Stage/phase construction such that new finishes are not damaged.

3.2.2.4 Permanent Utility Connections

Connect all utilities from the buildings to the service lines. All buildings are sub-metered for electricity and natural gas. The Base does not sub-meter for water or sewer.

3.2.2.5 Post-Construction Site Restoration

Upon completion of the project, remove all trailers, materials and equipment. Restore to original or better condition areas used for the storage of equipment or material, or construction use. Remove gravel used to traverse grassed areas and restore the area to its original condition, including top soil, sodding, and seeding as necessary.

3.2.2.6 Temporary Utilities

All temporary utilities are the responsibility of the Contractor. Provide temporary utility services in accordance with UFGS Specification 01 50 00.

3.2.3 Base Utility Information and Design Requirements

On-site utilities are the responsibility of the Base Civil Engineer Squadron. Water and sanitary sewer services to the Base are provided by Fort Smith Utilities Department (FSUD). FSUD provides water service to the water tower; Ebbing ANGB is the water service provider after the water tower. Ebbing ANGB provides sanitary sewer collection on the Base and connects to a FSUD main. Coordinate and plan utility information with the Installation's Civil Engineer Squadron. Obtain a dig permit prior to construction. Verify utility locations and sizes prior to digging. Bring any discrepancies between the drawings and actual conditions to the COR's attention. Determine if the existing services serving the buildings are adequate for the new distribution within the building. Reference Section 3.8 of this RFP for information on electrical utility scope of work.

3.2.3.1 Specification and Regulation Compliance

Comply with Unified Facilities Criteria and Arkansas Department of Environmental Quality specifications and regulations for utility design and construction. Where utilities are not owned by the Installation, comply with the specifications and regulations of the individual utility owner. Comply with Arkansas Department of Environmental Quality regulations regarding the minimum separation distance between water and sanitary sewer facilities.

3.2.3.2 Water

Water distribution and service is owned and operated by the Base. All of the buildings have water meters. Design and install all water systems in accordance with appropriate Unified Facilities Criteria and state of Arkansas regulations. Water distribution systems must conform to all Federal and State Requirements. Where there is a conflict between specifications, the most stringent applies.

3.2.3.2.1 Water Service: Verify current service and the projected redesign loading of the buildings. If required, provide a new water service connection between the buildings and the water main on the buildings. Domestic service and the fire service must be separate taps from the main. Provide shutoff valves on all new domestic water service lines.

3.2.3.2.2 Fire Service Line: Provide a new fire service line connection between B201, B214 and B218 and the existing water mains. Place a Post Indicator Valve (PIV) on the fire line. Wall-mount the PIV on the building. Install new Fire Department Connections (FDCs) for B201 and B214. Meet the requirements of UFC-3-600-01 for location of the FDC relative to a fire hydrant. Locate all FDCs within 150 feet of a fire hydrant.

3.2.3.2.3 Fire Hydrants: No new fire hydrants are required.

3.2.3.3 Sanitary Sewer:

No issues have been reported with the existing laterals. No site sanitary sewer work is required.

3.2.3.4 Natural Gas

Based on current service and the projected redesign of the buildings, it is anticipated that the existing natural gas service is adequate.

3.2.4 Siting

Comply with UFC 3-201-01 Civil Engineering and UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings for site design. Verify that the exterior of the building complies with UFC 3-600-01 Paragraph 2-10, Fire Department (Emergency) Vehicle Access. Meet the requirements of ASHRAE 189.1 Section 5.3.2.1 for site hardscaping (sidewalks, courtyards, parking areas, and accesses.)

3.2.5 Site Grading

Verify exterior elevations versus the addition finished floor elevation of Buildings 216 and 218 to provide positive drainage away from the structures. Finish the grade adjacent to the building in accordance with UFCs and geotechnical engineering recommendations and requirements. Slope site grading to drain away from the building and door openings. Convey runoff to existing ditches or piped drainage systems. Slope non-paved drainage away from the building and structures with a minimum of 5 percent slope and a maximum of 10 percent slope at a horizontal distance of 10 feet. Where applicable, provide a drop of 6 to 8 inches at personnel doors without structural stoops. Do not use single riser steps. When steps are required, provide at least three risers and handrails. Meet the requirements of Table 3.1 in UFC 3-201-01, Civil Engineering for all grading. Resolve existing drainage issues at the north end of B218 where the landscape bed adjacent to the building is lower than the sidewalk, trapping water against the building.

3.2.6 Geotechnical

Include on the team a licensed geotechnical engineer to develop earthwork and foundation requirements and design parameters on which to base the proposal. Present foundation type, pavement and earthwork requirements on which the bid is based in the proposal along with the resume of the geotechnical engineer. Subsequent to award, perform and provide a complete geotechnical exploration of the proposed site to develop the final design. Perform the geotechnical exploration under the direction of a licensed professional engineer with at least 10 years of experience specializing in geotechnical engineering. This exploration is the full responsibility of the Contractor and detailed requirements are outlined below.

3.2.6.1 Final Geotechnical Evaluation after Award

Submit a final geotechnical evaluation report prepared by a licensed geotechnical engineer with the first foundation design submittal. This report must summarize the subsurface conditions; provide recommendations for the design of appropriate foundations, floor slabs, retaining walls, embankments, and pavements. In the report, recommend the type of foundation system to be used, lateral load resistance capacities for foundation systems, allowable bearing elevations for footings, grade beams, and slabs. Provide an assessment of post-construction settlement potential including total and differential settlement. Provide recommendations regarding lateral earth pressures (active, at-rest, passive) to be used in the design of retaining walls. Include the 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, sub-grade modulus, and California Bearing Ratio (CBR). In addition, provide earthwork recommendations, expected frost penetration, expected groundwater levels, recommendations for dewatering and groundwater control, possible presence of any surface or

subsurface features that may affect the construction of the project such as karst geohazards, sinkholes, boulders, mustow rock, old fill, old structures, soft areas, or unusual soil conditions. The geotechnical recommendation report must be sealed by the engineer of record, who must be licensed as a civil engineer and must have at least 10 years continuous experience in the region. Experience must include evaluation for potential shrink-swell movements of the subsurface materials.

3.2.6.2 Dewatering

In the report, determine project dewatering requirements. If temporary construction dewatering is required due to a high water table, the prepare and present a dewatering plan. Secure all the required information necessary for the design of the system.

3.2.6.3 Additional Borings

Sample any borings with a split spoon sampler in accordance with ASTM D-1586, with samples visually classified at 1.5-foot intervals in accordance with the Unified Soil Classification System (ASTM D 2487). Record the depth to water and Standard Penetration Blow counts. Provide a dated drilling log for each boring drilled. On the contract drawings, present soils information obtained from field logs, laboratory test and geologist's logs in the form of boring plan, final boring logs and explanatory notes.

3.2.6.4 Certification of Compliance with Final Geotechnical Evaluations

Certify in writing that the design of the project has been developed consistent with the geotechnical engineer's final geotechnical report. The certification must be stamped by the consulting professional geotechnical engineer and submitted with the first design submission. If revisions are made to the initial design submission, provide a new certification with the final design submission.

3.2.6.5 Pavements and Parking

Provide in the geotechnical report rigid pavement design(s) including design CBR and modulus of sub-grade reaction and the required compaction effort for sub-grades. Offer information on the types of base course materials available in the area and their design strengths. Include pavement designs in the report. Comply with appropriate Unified Facilities Criteria for the pavement design, including UFC 3-201-01 Civil Engineering and UFC 3-250-01 Pavement Design for Roads and Parking Areas, UFC 3-260-02 Pavement Design for Airfields, and UFGS 32 13 14.14 Concrete Paving For Small Airfield Projects. Conform to one of the following for pavement design: 1) the USACE Pavement Transportation Computer Assisted Structural Engineering (PCASE) program or 2) American Association of State Highway and Transportation Officials (AASHTO) standard pavement design procedures. Base the design thickness on the soils boring data taken for this project. Do not include increased stiffness from subgrade modification in the pavement thickness design. Use a minimum flexural strength of 650psi for concrete pavement design. Submit a complete and detailed pavement analysis for each design pavement section. The link to Corps Guidance Documents is <http://www.usace.army.mil/publications/>. Specific aggregates for aircraft paving may not be available from local sources.

3.2.6.5.1 Section Thicknesses: Conform to the specified requirements for the pavement design section thickness.

3.2.6.5.2 Portland Cement Concrete (PCC): Regardless of the geotechnical report pavement design, a minimum rigid concrete pavement section for areas required to support fire trucks and organizational vehicles and equipment traffic must consist of at least 8 inches of rigid concrete pavement, on 4 inches of aggregate base course, on 4 inches of aggregate subbase. The minimum rigid concrete pavement design for areas required to support passenger automobile traffic must consist of at least 6 inches of rigid concrete pavement, on 4 inches of aggregate base course, on 4 inches of aggregate subbase.

3.2.7 Landscaping Design

Project landscaping is to be limited to soil stabilization with seeding or sod and tree replacement. Replace trees as required in Specification Section 01 35 10.00. Match existing grass species.

3.2.8 Civil Design Antiterrorism (AT) Measures

Comply with the minimum standards in the AT UFC for the building construction. Eliminate locations of concealment. Design any recessed areas, concealed spaces, and landscape features on the exterior of the buildings with security in mind. Include well-lit alcoves and avoidance of large objects in the landscaped areas. Provide interesting visual features while still providing a safe, accessible and secure environment.

3.2.8.1 Landscape

Do not install landscaping items that could conceal packages within the unobstructed space of the building, per UFC requirements. Provide lockable or screw-type systems for structures, like manholes, located within the unobstructed space of the building to deter opening by unauthorized personnel. Locate trash receptacles and dumpsters outside of the building's unobstructed space per UFC requirements.

3.2.8.2 Flightline Access

Provide Access Control (ACS) and Intrusion Detection (IDS) systems infrastructure in the facilities to control access to the flightline. B201 and B218 require emergency exits that discharge to the flightline. Alarm these doors to deter unauthorized access. The hangar bays of B202 are considered part of the controlled area and do not require additional security measures for egress doors accessing the flightline.

3.2.8.3 Utility Enclosures

Secure electrical transformers and mechanical equipment placed within the building's unobstructed space per UFC 4-010-01 requirements. Although B201 is exempt from the minimum antiterrorism standards, replace the existing utility enclosures with six sided enclosures.

3.3 Architectural Design

3.3.1 General Description

The proposed design for the five facilities at Ebbing ANGB, and their associated site development is indicated in Attachment B. The drawings included in this RFP are conceptual in nature but have been developed with input from the facility users and the Installation to reflect their preferences and requirements. Consider the functional relationships between all buildings to ensure items such as sidewalks, entryways, and building facades enable and enhance interactions of the facilities supporting the F-16 mission.

3.3.1.1 Building 201 Modifications are as follows:

- a. Convert B201 from a fire station to a storage facility in support of the F-16 mission.
- b. Perform minor repairs and selective demolition.
- c. Remove and replace all exterior control and expansion joint sealants.
- d. Completely replace the SSMR system down to structural decking. The original roof is a low-slope roof with parapet. Structure was previously added to support the current standing seam metal roof (SSMR). Refer to the SSMR requirements provided in the roofing section below.
- e. Remove all windows and infill with CMU block with brick veneer to match adjacent construction. Give special attention to waterproofing and flashing at all infilled sections.
- f. Replace six overhead doors; three located on the east elevation and three on the south elevation. The replacement doors are to be solid insulated sectional panels. Sections with vision panels or glazing will not be accepted. The existing rails and motors are in good working order. Contractor may reuse the existing motors provided that a warranty for the replacement doors is provided.
- g. Remove the existing glazed paired entry doors on the south façade. Infill opening with CMU block and brick veneer to match adjacent construction.
- h. Remove the north existing apparatus bay personnel door. Infill opening with CMU and brick veneer to match adjacent construction.
- i. Remove existing west glazed entrance door system and replace with flush insulated metal doors. Paint new doors and new insulated metal frame.
- j. Remove all wood fencing at the existing utility enclosures. Provide metal wall panels and doors that match the utility enclosures near B202. The brick pilasters are to remain. All utility enclosures are within the 33-foot unobstructed space and require a new chain link top in accordance with the construction requirements in UFC 4-010-01.
- k. Provide an ABA compliant single occupant restroom with an ABA compliant water closet, grab bars, lavatory, mirror, service sink, and plumbing accessories. Renovate the existing sleeping room restroom to provide the minimum plumbing fixtures in accordance with UFC 3-420-01.
- l. Demolish interior partitions as indicated in the attachments. Provide double door widths to accommodate a pallet jack at openings in the existing structural walls that are to remain.
- m. Provide a dedicated telecommunications room (TR). The existing facility does not currently have a dedicated TR. There is a comm rack in the existing conference room. Refer to the Telecommunications section of this RFP for additional information.

- n. The existing electrical room is centrally located. The electrical room is to remain. Refer to the Electrical section of this RFP for additional requirements.
- o. Provide all new finishes inside the facility.

3.3.1.2 Building 202 Modifications are as follows:

- a. Repair and renovate facility to restore the original function as an aircraft fuel cell, general purpose maintenance, and wash bay hangar facility in support of the F-16 mission.
- b. Minor repairs, modifications, and selective demolition are required.
- c. Add new egress doors in the hangar bays to meet current life safety and UFC requirements.
- d. Add new emergency shower/eyewash stations in the hangar bays, paint booth, and tank bay.
- e. The SSMR system is existing to remain. A roof replacement is not in scope for B202. Repair existing gutter and downspout at the covered personnel entry. Repair water damage seen at brick veneer in this location.
- f. Provide new fall protection system for the F-16 parked in the tail-in configuration for three bays.
- g. Infill existing door connecting the Men's Restroom to Bay 1.
- h. Reconfigure administrative section north of Hangar Bay 1 to provide a support tool crib and supervisors office.
- i. Provide three overhead doors at the support counter.
- j. Repurpose space within the existing fire pump room created by demolishing foam suppression equipment as a new, enclosed storage room. Provide access via the main corridor. Provide fire rated assemblies as required by NFPA.
- k. Convert two existing CMU block storage rooms in Bay 1 to Secret Collateral Vaults (US Vault and RSAF Vault). The perimeter construction of the rooms will serve as the vault enclosure. The existing CMU block walls will remain. Replace the existing metal deck ceiling and associated structure with a cast-in-place concrete ceiling. Infill overhead door openings with CMU block and provide a new GSA vault door for each vault. No caged day gate is required. Refer to the Concept Design Drawings for additional information.
- l. Convert the existing janitor room and laundry room to a single storage/janitor room. The existing service sink is to remain to satisfy minimum plumbing fixture requirements.
- m. Provide two 5-ton bridge cranes with a 22'-0" minimum hook height. Provide one bridge crane in Bay 2 and a second bridge crane in Bay 3. Provide independent structural columns, new footings, and rails for the bridge crane. Coordinate overhead clearances of the bridge crane model selected with other systems, such as fall protection. The bridge crane coverage area is limited by the existing storage rooms and ramps. Provide a coverage area to the maximum extent possible. The user will primarily use the bridge crane over the nose end of the aircraft in the parked position.
- n. Repair and recertify the existing hoist in the tank bay.
- o. Disassemble and remove all existing equipment and materials in the paint booth room. Provide new finishes – refer to the Room Data Sheets for additional information. Replace the existing paint exhaust/ventilation fans in kind. Existing ductwork associated with the paint room exhaust system are to remain. Repair to ductwork that is associated with the replacement of the fans and connection to the new paint booth. Disconnect all infrastructure from the existing paint booth, capping and protecting during construction, and prepare all existing building/infrastructure

systems for connection by Government. New paint booth equipment will be Government provided and Government installed (GFGI). Coordinate infrastructure connection and scheduling requirements with the Contracting Officer Representative (COR) for new paint booth equipment.

3.3.1.3 Building 214 modifications are as follows:

- a. Patch and repair areas resulting from demolition work to match adjacent surfaces and finishes.
- b. Code upgrades are required, including stairs, handrails, fire separations, and a new communications room.
- c. Remove the offices on the mezzanine and replace with a new conditioned structure. Upgrade the mezzanine stairs to meet NFPA 101.
- d. Recondition existing spaces along the plan south of the facility to be storage spaces.
- e. Demolish the restrooms and upgrade to ABA compliant facilities. Provide a new janitor closet adjacent to them. Meet International Plumbing Code requirements for all fixtures.
- f. Install new fuel resistance resinous five coat epoxy hangar flooring in accordance with UFC 4-211-01 for ground floor areas identified in the room data sheets.
- g. Install a new conditioned parachute room with table for rigging and access to storage along the north portion of the facility.
- h. Replace the exterior doors of the facility. They have impeded functionality due to excessive corrosion. The two large main service doors in the work bay are in good working order and to remain.
- i. Minor upgrades and repairs to the envelope are required. Remove and replace the insulation along the work bay, roof, and walls. Replace the existing translucent panels with new.
- j. Reference demolition section of this RFP for demolition scope. Reference roof and exterior wall requirements section of this RFP for the percentage of the exterior envelope to be replaced.
- k. Existing cranes are to remain. Inspect, service, test, and certify the existing crane. Load capacity is unknown.
- l. Existing clerestory windows are to remain.
- m. Existing canopies located to the west are to remain and require minor repairs including repainting and replacing the metal roof.
- n. Provide a new hydrostatic low slope standing seam metal roof.
- o. Patch and repair areas resulting from demolition work to match adjacent surfaces and finishes.
- p. Remove all existing exterior doors as noted on the concept drawings.

3.3.1.4 Building 216 work includes but is not limited to:

- a. Construct a new addition with a low slope roofing system. See civil site design section of this RFP for site work requirements.
- b. Configure restrooms and showers per ABA.

- c. Provide a United States Secret Clearance Access Area – U.S. Secret Clearance Open Storage Area (Secure Room) in the northwest corner of B216 in accordance with Department of Defense Manual (DoDM) 5200.01 Volume 3, DoD Information Security Program: Protection of Classified Information.
- d. Provide a Special Access Program Facility compliant with F-35 Facility Requirements Document / TEMPEST Area in accordance with UFC 4-010-05 SCIF/SAPF Planning, Design, and Construction and UFC 4-026-01 Design to Resist Forced Entry. Coordinate design, construction, and accreditation with Ebbing ANGB AR Site Security Manager (SSM) and Accrediting Official (AO).
- e. Construct a simulator area and F-35 admin offices.
- f. Construct a command suite and large conference room.
- g. Provide new interior finishes and repair existing walls and floors to receive new finishes.
- h. Infill exterior wall at overhead doors and louvers.
- i. Replace existing roof.

3.3.1.5 Building 218 modifications are as follows:

- a. Provide new exterior envelope consisting of walls, roof, doors and glazing to align with existing low-slope PEMB structure to meet current codes.
- b. Construct a new 972 square foot facility expansion with a 240 square foot exterior overhang entry to the flight line to meet new program requirements.
- c. Include a new communication room in the building expansion area.
- d. Minor work to the large assembly room is required. Adjust the space to provide new sinks, refrigerators, and counters for microwaves to store personnel food and heat meals.
- e. Provide new ABA-compliant restroom facilities, showers, and an adjacent janitor closet. Provide all plumbing fixtures in accordance with International Plumbing Code requirements.
- f. Reconfigure partition walls in the existing circa 2000's expansion to meet RSAF program needs.
- g. Provide a hardened pyro room to be designed to meet the material explosive classification.
- h. Provide upgrades to fire separation partitions as required.
- i. Patch and repair areas resulting from demolition work to match adjacent surfaces and finishes. Reference demolition section of this RFP for requirements.

3.3.2 Demolition

The plans in Attachment B show the intended demolition extents. Inventory and coordinate with Contracting Officer Representative (COR) turn-over to the Government of any and all removed equipment. Dispose of any equipment not returned to the Government.

3.3.2.1 Building 201

- a. Demolish all equipment associated with the existing fire station as well as many interior partitions. Refer to attachments for additional information.

- b. Retain mechanical spaces and the single occupant restroom in their current locations.
- c. Remove existing concrete locker pad and repair concrete slab as required to provide a smooth finished surface along the west wall of the existing apparatus bay.
- d. Remove all plumbing fixtures in the facility.
- e. Remove all millwork and finishes in the facility.
- f. Remove existing mezzanine and associated structure/stairs in the existing northeast apparatus bay.
- g. Remove existing curb in the north restroom that currently holds the washer and dryer. Remove and cap all associated utilities.
- h. Remove all existing windows, glazed openings, and frames.
- i. Remove all existing overhead doors. Track and motors are to remain for reuse.
- j. Remove existing south entrance doors and north apparatus bay door and prepare for infill.
- k. Remove and replace existing west entrance door.

3.3.2.2 Building 202

- a. Minor reconfiguration is required. Refer to Attachment B Concept Design Drawings.
- b. Remove all non-loading bearing screen walls that were constructed in the tank bay, bay 1, and bay 2.
- c. Remove and prepare to infill the east personnel door in bay 1.
- d. Remove and prepare to infill the personnel door connecting the men's restroom to bay 1.
- e. Remove all existing utilities, shelving, brackets, etc. in the laundry room. Demolish partitions as shown in Attachment B between the laundry room and the adjoining janitor room.
- f. Remove all existing millwork, fixtures, appliances, and utilities for the kitchenette in the administrative room north of bay 2.
- g. Remove interior overhead doors for the two storage rooms in bay 1 and the overhead door in bay 3. Prepare to infill with CMU block and specified doors.
- h. Remove existing framing and metal decking at the two storage rooms in bay 1 and prepare to replace with concrete vault ceiling.
- i. Remove foam suppression system equipment in fire pump room. Refer to Fire Protection section of this RFP for additional information.
- j. All items in the existing Men's and Women's Restrooms/Locker Rooms are to remain.

3.3.2.3 Building 214

- a. While some selective demolition is required throughout the facility, much of B214 is to remain in its current configuration to operate as an engine shop. Reuse building elements to the maximum extent feasible.
- b. Demolish existing SSMR System.

- c. Demolish existing ground floor sealed finish of concrete slab in areas identified in Room Data Sheets. Grind and prep structural slab to receive new finish.
- d. Remove and replace interior insulation at work bay walls and roof insulation.
- e. Remove and replace translucent upper wall panels.
- f. Demolish wall panels enclosing the office space at the mezzanine.
- g. Modify/demolish the mezzanine stair railing in accordance with NFPA requirements.
- h. Remove and replace all exterior swinging doors and panels.
- i. Demolish existing kitchen space, restrooms, and adjacent wall for new space configuration.
- j. Conduct inspection, service maintenance, and load certification of existing cranes.
- k. Patch and repair masonry wall partitions as required for abandoned openings

3.3.2.4 Building 216

- a. Secure Areas within Building 216 require the most extensive alteration in accordance with the requirements of UFC 4-010-05 and F-35 FRD. One area is United States Secret Clearance Access Only and an F-35 SAPF/FRD Special Access Area. Selective demolition of interior partitions and modification of structural walls are required to create the spatial relationships of the new mission program. New exterior windows and doors are required in accordance with DoD Minimum Antiterrorism Standards in UFC 4-010-01. Civilian personnel occupy the facility, so it is to be accessible in accordance with ABA Standards.
- b. Demolish existing SSMR System.
- c. Selectively demolish restroom, lockers, and break areas.
- d. Demolish vault and vault door for command suite.
- e. Demolish interior partitions and interior doors.
- f. Demolish interior finishes. Demolish floor finishes to the slab.
- g. Provide new openings in exterior enclosure for egress. The original facility has endured three additions during its life with multiple exterior walls now serving as interior walls.
- h. Patch and repair masonry wall partitions as required for abandoned openings.

3.3.2.5 Building 218

- a. The new addition to the B218 facility requires selective demolition. Much of the facility east of gridline A (as shown in the concept drawings in Attachment B of this RFP) remains in its current configuration. Perform minor demolition for its new purpose. Reuse building elements to the maximum extent feasible.
- b. Remove the exterior envelope to fix moisture and air infiltration issues at the original low-slope PEMB building. Demolish the existing roof, metal wall panels, brick veneer base, and associated swing doors and windows. Reference Attachment B Concept Drawings.
- c. Demolish existing interior partitions, doors, windows, ceiling assembly, and flooring as required for the new space configuration as identified in Attachment B Concept Drawings.
- d. Remove damaged curtain wall system glazing. Repair to match the existing assembly.

- e. Provide any temporary bracing needed for the structural system.

3.3.3 Functional/Operational Requirements

The plans in Attachment B show the intended functional layouts.

3.3.4 Accessibility Requirements

Design the facilities to comply with DoD standards for accessibility for all spaces open to the public or accessed by civilian personnel.

3.3.5 Exterior Requirements

Complement existing buildings when choosing exterior design elements. Design wall types to meet the requirements for energy efficiency, weather protection, air and water infiltration, thermal movement, low maintenance, high durability, and aesthetic appearance. Provide low-maintenance finish materials to the greatest extent possible. Conform to the minimum requirements and allowable options contained within each of the applicable UFGS specification sections.

Design all work in accordance with UFC 3-101-01, Architecture, and UFC 3-301-01, Structural Engineering. Provide wind load calculations for exterior cladding in accordance with UFC 1-200-01 and UFC 3-301-01 with a comparative analysis of the cladding system. Refer to Concept Design Drawings in Attachment B and Room Data Sheets in Attachment C for more information.

3.3.5.1 Roofing System

- 3.3.5.1.1 Existing Standing Seam Metal Roof (SSMR): The standing seam metal roof system for Buildings 202 shows minimal damage. This system is to remain. Remove existing SSMR systems on B201, B214, B216, and B218.
- 3.3.5.1.2 Replacement: The roofs of all facilities, with the exception of B202, will be replaced in their entirety. No repairs will be undertaken as part of this project.
- 3.3.5.1.3 New SSMR System: For new roof systems, provide hydrostatic (structural) fully seamed standing seam roofing panels conforming to Ebbing ANGB requirements and matching the newest building addition roof system. Provide steel formed at the manufacturing plant and conditioned for flatness. Determine panel thickness by the requirements of UFC 3-110-03 Roofing. The minimum gauge for panels is 20-gauge, (.032-inch) thick or greater. Meet deflection and wind load requirements per ASCE 7-22. Provide continuous roof insulation over the entire roof area. Insulation must meet or exceed the requirements of the International Energy Code, Air Force High Performance Building requirements, and all federal mandates. Provide the following warranties for metal roof system: Manufacturer's 20 year no dollar limit weathertight warranty, manufacturer's 20 year no dollar limit factory applied finish warranty, and 2-year installation warranty
- 3.3.5.1.4 Roof penetrations: Flash all existing and new roof penetrations according to the new roof manufacturer's required details for watertight warranty coverage.
- 3.3.5.1.5 Low-Slope Roof: Provide a single-ply membrane roof assembly in accordance with UFC 3-110-03 for the new addition roof at Building 216. Use 80 mil fully adhered TPO Hydrostatic System. Minimize roof penetrations as much as practicable and must be sealed and

waterproofed. Design low-slope roof systems to allow positive drainage toward the facility's exterior. Internal roof drains are not permitted. Provide roof and overflow drains that tie directly into the storm drain. The complete low-slope roof system assembly must be rated and installed to resist wind loads in accordance with ASCE 7-22 and UFC 3-110-03 and validated by uplift resistance testing in accordance with Factory Mutual (FM) test procedures. Do not install non-rated systems except as approved by the Contracting Officer. Submit licensed engineer's wind uplift calculations and substantiating data to validate any non-rated roof system. Furnish the roofing system manufacturer's materials and workmanship warranty for the roofing system. The warranty period must not be less than 20 years from the date the Government accepts the work.

3.3.5.1.6 Roof Insulation: Provide roof insulation that is continuous over the entire roof area. Insulation must meet or exceed the requirements of the International Energy Code, and all Federal mandates. Roof insulation must have an R-value determined per ASHRAE Standard 90.1 and per project energy goals. Roof insulation must also be compatible with attachment methods for the specified insulation and roof system. On portions of the roof where the sloping of structure does not allow the minimum slopes, provide a factory tapered roof insulation system to provide positive drainage of roof system, and to include drainage around curbs, penetrations, and projections through the roof plane. For new construction, provide one layer of the tapered roof insulation assembly factory tapered to a slope not less than 1/2-inch per foot. Provide 1/2- inch reinforced gypsum coverboard over rigid insulation per roof manufacturer's instructions.

3.3.5.1.7 Closed-Cell Spray Polyurethane Foam (ccSPF) may be used at the underside of roof construction to form a continuous layer of insulation that provides part of an air barrier. Conform to requirements of IBC for separating foam insulation from interior exposure. Demonstrate air barrier conformance using test procedures per U.S. Army Corps of Engineers Air Leakage Test Protocol for Building Envelopes.

3.3.5.2 Splash Blocks

Provide splash blocks at downspouts emptying at grade. Splash blocks may be precast concrete, and must be 24-inches long, 12-inches wide and 4-inches thick, unless otherwise indicated, with smooth-finished countersunk dishes sloped to drain away from the building.

3.3.5.3 Fascia, Gutters, and Downspouts

Where required, provide new fascia at insulated roof to match standing seam metal roof and downspouts. Install rectangular discharge at the bottom of the downspout. Provide gutter and downspouts at main entry canopy. Install rectangular discharge at the bottom of the downspout. Provide concrete splash blocks where downspouts exit to daylight. Provide scuppers and downspouts matching the original roof design and construction at Buildings 216 and 218. Building 201 has sustained water damage to the brick facade at the support columns of the covered entry. Repair damage and add a downspout to correct drainage. At Building 202, provide a new gutter and downspout at the covered entrance.

3.3.5.4 Downspouts

Prepare calculations to determine the minimum drainage requirement using the calculation method as specified in the Sheet Metal and Air Conditioning Contractors National Association's (SMACNA) Architectural Sheet Metal Manual. Space supports for downspouts according to the

manufacturer's recommendation for the substrate. Provide complete installation, including elbows and offsets. Form straps and fasteners of metal compatible with the downspouts. Provide downspouts terminating in splash blocks with elbow-type fittings.

3.3.5.5 Scuppers

Provide new scuppers at the addition to B216. Extend the scupper liner through and project it outside of the wall, penetrating to form a bottom drip edge against the face of the wall. Fold outside edges under 1/2-inch on all sides. Join the top and sides of the roof deck lining to a closed flange by a locked and soldered joint. Join the bottom edge by a locked and soldered joint to the closure flange, where required, form with a ridge to act as a gravel stop around the scupper inlet. Provide surfaces to receive the scupper lining and coat with bituminous plastic cement.

3.3.5.6 Curbs and Gutters

Provide contraction joints spaced every 10-feet maximum unless otherwise indicated. Cut contraction joints 3/4-inch deep with a jointing tool after the surface has been finished. Provide expansion joints 1/2-inch thick and spaced every 100-feet maximum unless otherwise indicated.

3.3.5.7 Exterior Soffits

Include high-performance coatings at exterior soffit systems. Where soffit abuts other materials, provide trim accessories of the same material and finish as the soffit material. Where ventilation is required, provide a soffit/ridge/louver/ventilator ventilation system with air quantities complying with the IBC. For unvented spaces, provide sealed soffits to maintain the integrity of the air and insulation barrier systems. Metal soffit panels must be factory-formed and factory-finished. Use factory-applied sealant inside laps.

3.3.5.8 Exterior Walls

Repair exterior walls to match existing as required at all facilities. Repair joint sealants as needed. New exterior wall appearance is to match existing facility and harmoniously tie into the visual character of the adjacent facilities. The metal exterior wall systems for Buildings 201, 202, and 214 show minimal damage. The existing wall system is to remain; patch and repair as required. Assume no more than 10% of the metal wall panels require repair and replacement. Match the existing wall system at the repaired metal wall panel system assembly. Replace Building 214's translucent panel walls with new translucent panels compatible with the existing metal wall panels. Provide a new wall panel system at Building 218's original low-slope PEMB building portion. Provide new metal wall panels conforming to Ebbing ANGB requirements and matching newest B218 building addition wall system.

3.3.5.8.1 Metal Wall Panel Exterior Enclosure: Design all work to comply with UFC 3-101-01, Architecture, and UFC 3-301-01, Structural Engineering, and the following requirements:

Wind Loads: Provide wind load calculations for exterior cladding in accordance with UFC 1-200-01 and UFC 3-301-01 with a comparative analysis of the cladding system to be provided.

Water Penetration: No water penetration must occur at a pressure of 8-psf (39-Kg/m²) of fixed area when tested in accordance with ASTM E 331.

Insulating Value: Comply with UFC 3-101-01 for the ASHRAE requirements defining the minimum insulating value of the complete wall system.

Warranty: Provide 20-year finish warranty directly to the Government, commencing at time of Government's acceptance of the roof work.

Factory Color Finish: Provide panels with a factory-applied, baked coating to the exterior and interior of metal wall panels and metal accessories. Provide exterior finish topcoat of 70 percent polyvinylidene fluoride (PVDF) resin with not less than 0.8 mil dry film thickness (DFT). Provide exterior primer standard with panel manufacturer but not less than 0.8 mil dry film thickness (DFT)

Design the wall system and attachments to resist wind loads as determined by ASCE 7-22, with a safety factor appropriate for the material holding the anchor.

3.3.5.8.2 Exterior Wall System: Anchored Brick Veneer with Structural CMU backing (B216 Addition)

Provide 8-inch by 8-inch by 16-inch nominal standard gray concrete masonry units (CMU) structural wall, fluid-applied air/moisture barrier, continuous board insulation at the exterior face of structural CMU, 2-inch min air space, and modular face brick. The interior face of exterior structural CMU walls must have either a paint finish or metal furring and gypsum board with a paint finish.

Meet or exceed the requirements of ASHRAE 90.1 for energy performance and comply with UFC 3-101-01 requirements for all exterior wall construction assemblies.

3.3.5.8.3 Exterior Wall System: Double Wythe Framed Wall (Building 218 envelope & addition)

Provide PEMB structure with 24-gauge (minimum) factory-formed wall panels with concealed attachments and high panel corrugations mechanically attached. Use a modular brick dimension and match the existing facility addition at the lower masonry wall. Provide joints in masonry walls to accommodate thermal movement, expansion, and shrinkage of wall materials, and construction to avoid cracks in masonry units and mortar joints. Provide a 2-in. minimum clear dimension from the face of cavity insulation and sheathing material to the back of the exterior wythe of masonry.

Meet or exceed the requirements of ASHRAE 90.1 for energy performance and comply with UFC 3-101-01 requirements for exterior wall construction assemblies.

3.3.5.9 Exterior Painting

Comply with Master Painter Institute (MPI) standards for commercial quality coatings. As a minimum, apply SSPC PA Method 1 to all surfaces. Follow MPI Architectural Painting Specification; recommendations noted are considered to be required. Paint all exposed unfinished surfaces unless otherwise noted. Include as a minimum a prime coat as recommended by the finish coating system manufacturer and two finish coats.

Select paint systems for the project in accordance with the MPI Architectural Painting Decision Tree available in the Whole Building Design Guide. Use this interactive MPI Decision Tree website to identify the project's applicable paint system(s). The MPI Decision Tree identifies paint systems for each interior or exterior coated surface in "Normal" or "Aggressive" environmental

conditions and generally lists the applicable paint systems in descending order of performance. The paint system at the top of each substrate list generally indicates the highest-performing acceptable coating system.

Choose paints that provide performance, are environmentally friendly, and conform to EPA or local environmental regulations, whichever requires the lowest VOC content.

3.3.5.10 Exterior Sealant

For joints on vertical surfaces, provide ASTM C920, Type M, Grade NS, Class 25, and use NT. For joints in horizontal surfaces, provide ASTM C920, Type S or M, Grade P, Class 25, Use T. All joints in exterior walls must receive foam backer rod and sealant application. Seal masonry joints at windows, doors, masonry expansion joints, lintel, and sill flashing.

3.3.5.11 Exterior Doors and Frames

Replace rusted, damaged doors or doors not conforming to NFPA requirements where required. B214 exterior doors show excessive deterioration and require replacement through the facility. In B216, replace doors where receiving new building wall system. Assume that no more than 20% of existing doors will be replaced in areas not directly affected by floor plan modifications.

At new exterior doors to the facility, provide insulated steel doors and meet the requirements of UFC 1-200-01, UFC 4-010-01 and antiterrorism requirements.

Test exterior doors, frames, and hardware in accordance with ASTM F 2247. Steel (hollow metal) insulated flush single doors must be a minimum 3-feet by 7-feet and steel (hollow metal), insulated, flush double doors must be 6-feet by 7-feet unless required otherwise.

Meet SDI/DOOR A250.8, Level 3, physical performance Level A, Model 2 at all flush steel exterior doors and frames with insulating core construction. All steel door frames must be welded. Exterior doors must have top edge closed flush and sealed to prevent water intrusion and a minimum thickness for doors must be 1 3/4-inches.

Include aluminum thresholds and aluminum-housed weather seals at all doors. Provide paint finish at all exterior doors unless doors and frames are aluminum storefront type. All drips at exterior door head locations must be aluminum.

Refer to door hardware section of this RFP for door hardware requirements.

3.3.5.12 Exterior Overhead Doors

Overhead sectional doors must be installed with aluminum frames, be provided with glazing as required, and be provided with all required operating hardware, tracks, and supports for electrical operators. Comply with ANSI/DASMA 102 - American National Standard Specifications for Sectional Overhead Type Doors. Verify electric requirements available at building location for the selection of motor.

Coiling overhead exterior doors must be insulated, be provided with glazing as required, and be provided with all required operating hardware, tracks, and supports for electrical operators. Comply with ANSI/DASMA 102 - American National Standard Specifications for Coiling Overhead Type Doors. Verify electric requirements available at building location for selection of motor.

3.3.5.13 Exterior Storefront Doors, Windows, and Glazing

Provide prefinished aluminum storefront entrances and window systems at locations identified in this RFP, and at locations and general configurations shown in Attachment B Concept Design Drawings.

Prefinished aluminum storefront entrance doors and glazing assemblies must have a fluoropolymer finish or clear anodized aluminum finish, insulated laminated low-e tinted glazing to meet all code required structural design, wind loads, air infiltration, water penetration, and energy performance (ASHRAE 90.1), and Appendix M Memorandum requirements.

Storefront window frames must be extruded aluminum shapes with removable glass stops and glazing beads for frames accommodating fixed glass. Provide aluminum alloy for doors and frames; ASTM B221M, ASTM B221, Alloy 6063-T5 for extrusions; ASTM B209M, ASTM B209, alloy and temper best suited for aluminum sheets and strips.

3.3.5.14 Exterior Glazing

Window systems, including glazing, framing, connections, and support structures, do not have to be designed, analyzed, or tested for blast resistance; however, exterior glazing and components must be designed to minimize hazardous fragmentation by meeting the prescriptive requirements outlined in Standard 10. This facility complies with Standard 10.

Provide complete systems, including but not limited to framing, mullions, trim, glazing, sealants, insulation, fasteners, anchors, accessories, concealed auxiliary members, and attachment devices for securing the wall to the structure as required.

3.3.5.15 Exterior Wall Louvers

Where required, provide prefinished aluminum, fixed blade 45-degree minimum slope drainable wall louvers with insect screens. Wall louvers must meet wind loads as defined in accordance with ASCE 7-22 and be AMCA certified for expected wind driven rain. Comply with UFC 4-010-01 standards for intake louvers. Provide a finish color matching the existing facility finishes. Provide sill flashing with sloped drain pan at base of louver to collect moisture that migrates down the interior face of the louver. This sill flashing must drain water to the outside of the building.

3.3.5.16 Handrails/Guardrails

Upgrade existing stair railing and risers to meet NFPA 101 requirements. Where required by the final design solution, provide railing compatible with the existing rail system. Grind and finish all joints. Repaint the railing as required. Color selection is subject to approval by the Contracting Officer's Representative.

3.3.5.17 Door Hardware

Provide exterior and interior door hardware in a satin stainless or chrome finish (BHMA 630 for exterior or 626 for interior), unless noted otherwise. Provide stainless steel exterior hardware. Provide hardware components and keying in accordance with ABA and USAF requirements for accessibility, and NFPA 101 requirements for life safety. All lock hardware must match Ebbing ANGB master lock system. Use concealed-style hardware devices whenever possible. Reinforce all doors and frames as needed to accommodate the hardware. Provide locking hardware at all

doors unless noted otherwise. Configure exterior door hardware for doors to swing out in accordance with antiterrorism minimum standards per UFC 4-010-0 and as specified in other sections of this RFP. Provide the services of an Architectural Hardware Consultant (AHC) or equivalent hardware consultant to review and approve the hardware design and construction submittals. Master keying and individual room keying requirements must be in accordance with the instructions provided by the facility users at a required pre-delivery conference.

- 3.3.5.17.1 Hinges: Provide minimum three per door leaf, BHMA A156.1, 4 1/2-inch by 4 1/2-inch (minimum), stainless steel, BHMA 630 finish, ball bearing hinges, non-removal pins for security doors.
- 3.3.5.17.2 Locksets: BHMA A156.13, Series 1000, Operational Grade 1, Security Grade 2, escutcheons not less than 7-inch by 2 1/4-inches with a bushing at least 1/4-inch-long, BHMA 630 finish. Provide lever-style handles of design. Provide electromagnetic locks at GSA Vault Doors.
- 3.3.5.17.3 Card Key System: Provide card key type access units for specialized entries as required by the program. Provide lithium battery powered, magnetic stripe keycard locksets that are ANSI/BHMA A156.13, Series 1000, Grade 1, mortise or ANSI/BHMA A156.2, Series 4000, Grade 1, cylindrical locks, tamper resistant, UL listed with 1-inch (25-mm) throw deadbolt, 3/4-inch (19-mm) throw latch bolt, auxiliary dead-locking latch, and 2 3/4-inch (68.75-mm) backset. The latch and dead bolts must be operated simultaneously by rotating the inside lever. Locks with mechanical override lock cylinders are not acceptable. Locks must be operated only by a correctly encoded keycard. The use of a newly issued keycard automatically re-keys the lock and voids the previous keycard. The lock must re-lock immediately after the outside lever is turned and the latch retracted. Locks must have a memory that can record up to 140 entries into each room, identification of the keycard used to access the room, and the date and time of entry. Entry information of the lock must be retrievable by a data key that can be inserted into the lock and then taken to the front desk printer to display information. Other components that are required for this system at the front desk are a personal or laptop computer, printer, and encoder to program each key.
- 3.3.5.17.4 Exit Devices: BHMA A156.3, Grade 1, BHMA 630 finish. Provide adjustable strikes for rim type and concealed vertical rod devices. Provide open back strikes for pairs of doors with mortise and vertical rod devices. Provide touch bars in lieu of conventional crossbars and arms. Provide escutcheons, not less than 7-inches by 2 1/4-inches.
- 3.3.5.17.5 Closers: BHMA A156.4, Series C02000, Grade 1, with PT 4C (unless otherwise noted), BHMA 630 or 689 finish. Provide with brackets, arms, mounting devices, fasteners, full size covers except at storefront mounting, and other features necessary for the particular application. Provide closers on all fire rated, apparatus bay shops/ storage, corridors, or acoustic doors.
- 3.3.5.17.6 Coordinators: Provide for pairs of doors with closers, BHMA 630 or aluminum with 689 finish.
- 3.3.5.17.7 Weather Stripping and Thresholds: Provide adjustable weather stripping (1.25-CFM air leakage rate, maximum) and aluminum thresholds and retainers at all exterior doors.
- 3.3.5.17.8 Rain Drips: For all exterior doors that open to the outside, where the door swing area is not covered by an overhang, provide top and bottom rain drips complying with ANSI R3Y535 as a minimum.

3.3.5.17.9 Soundproofing Gasketing: Provide soundproof gasketing at all sound rated door assemblies as tested.

3.3.5.17.10 Kick Plates: Provide stainless steel, BHMA 630 at restrooms and janitor closets.

3.3.5.17.11 Hardware for storefront doors can be provided by the storefront door manufacturer as required to meet the tested assembly criteria and meet the minimum requirements of this Section.

3.3.5.17.12 Stops: Provide stops in accordance with BHMA A156.16. Use a BHMA 630 finish.

3.3.5.18 Non-Destruction Emergency Access System

Provide a non-destructive emergency access system with a Rapid Entry System and a 3200 series Knox Box at all facilities without an existing system. Locate one Knox Box within plain sight near the main entrance of all facilities (coordinate location with Fire Department) and place a second Knox Box near the entrance to the mechanical room.

3.3.5.19 Finish Hardware

Provide ANSI/BHMA Grade 1 hardware and Series 1000 mortise locksets. Plastic cores are unacceptable. Provide closers with option PT4C for all exterior doors, all doors opening to corridors, and as required by code. Install exit devices at all building egress doors, and from other areas as required by code, based on occupancy type. Provide weather stripping, thresholds, and door sweeps at all exterior doors. Provide hinges with anti-friction bearings. Provide kickplates at doors located in high traffic areas. Meet the requirements of the base keying system for door hardware finish. Provide 7-pin removable cores.

3.3.5.20 Auxiliary Hardware

Provide wall mounted stops for all doors which have no overhead holder/stops. Provide wall backing as required for wall mounted stops at framed walls. Provide other hardware as necessary for a complete installation.

3.3.5.21 Hardware for Fire Doors

Install hardware for fire doors in accordance with the requirements of applicable codes. Exit devices installed on fire doors must have a visible label bearing the marking "Fire Exit Hardware." Other hardware installed on fire doors, such as locksets, closers, and hinges must have a visible label or stamp indicating the hardware items have been approved by an approved testing agency for the installation on fire-rated doors. Install hardware for smoke-control door assemblies in accordance with applicable codes.

3.3.5.22 Exterior Windows

- a. Building 201: Infill all existing glazing.
- b. Building 202: All glazing is existing to remain. The record drawings indicate the storefront system is impact resistant in accordance with antiterrorism minimum standards.
- c. Building 214: All glazing is to remain.
- d. Building 216: Provide new glazing at new facility addition.

- e. Building 218: Repair damaged curtainwall glazing and provide new glazing in new wall assembly.

3.3.5.23 Exterior Signage

Provide exterior signage at the facility conforming to base requirements and in accordance with UFC 3-120-01.

3.3.6 Interior Requirements

Provide durable sustainable materials and furnishings, easily maintained and replaced. Provide interior surfaces which are easy to clean. Finishes must conform to the requirements of the IBC, NFPA and UFC 3-600-01. Where code requirements conflict, the most stringent code requirement must apply. Refer to Concept Design Drawings in Attachment B and Room Data Sheets in Attachment C for more information.

3.3.6.1 Acoustical Requirements

Design new doors, new interior partitions, and ceilings to provide for attenuation of sound transmission and impact noise from internal sources, in accordance with applicable criteria. Comply with the minimums given in UFC 1-200-01 and UFC 3-101-01.

Sound conditions (and levels) for interior spaces, due to the operation of mechanical and electrical systems and devices must not exceed levels as recommended by ASHRAE handbook criteria. Provide acoustical treatment for drain lines and other utilities (HVAC) to prevent noise transmission into the interior of public spaces. Provide STC ratings in compliance with UFC 4-610-01 Administrative Facilities.

3.3.6.2 Interior Systems Access

Design building systems to all access for removal, repair, and maintenance of mechanical equipment, plumbing equipment, and fire dampers. Include removable panels, access doors, and other solutions in the design as required.

3.3.6.3 Housekeeping Pads

Provide concrete housekeeping pads for new mechanical and electrical equipment locations.

3.3.6.4 Interior Walls (Partitions)

3.3.6.4.1 Concrete Masonry Units (CMU) Walls: New interior walls must generally be concrete masonry units to match existing conditions. Paint the interior face of the exterior walls with exposed CMU block. Finish CMU block surfaces with a uniform texture and free of surface imperfections that would adversely affect the intended finished appearance.

3.3.6.4.2 Metal Stud Interior Partition Walls: Construct interior metal stud partition walls using galvanized metal studs and mold resistant / anti-microbial glass-mat gypsum panels in unconditioned, semi-conditioned areas or as required. Provide gypsum panels which are 5/8-inch-thick minimum and meet ASTM C1396/C1396M. Provide Type 'X' gypsum panels for fire-resistance-rated assemblies and higher density core for STC acoustical rated assemblies. Provide 5/8-inch-thick abuse-resistant glass mat gypsum panels meeting ASTM C1629/C1629M on walls in corridors and maintenance areas, and walls adjacent to assembly

areas. Provide cement backboard for walls with tile and/or walls with plumbing fixtures and shower enclosures with solid surface panels. Provide mold resistant / anti-microbial gypsum wallboard for janitor rooms walls and ceilings of toilet rooms meeting ASTM D3273. Apply gypsum board to framing and furring members in accordance with ASTM C840 or GA 216. Refer to UFC 3-101-01 for required wall STC ratings. Finish all interior metal stud walls with gypsum wall board and apply a painted finish. Finish interior gypsum wall and ceiling surfaces to ASTM C 840 and GA 214 and GA 216. Provide a Level 4 finish unless otherwise noted and a Level 3 finish when overlaid by tile. Metal studs must have a galvanized coating ASTM A653/A653M, G-60; aluminum coating ASTM A463/A463M, T1-25; or a 55-percent aluminum-zinc coating. Provide support systems and attachments per UFC 3-310-04, "Seismic Design for Buildings" in seismic zones. Install metal support framing in accordance with ASTM C754. Provide rubber resilient wall base at areas receiving carpet, resilient flooring, static dissipative, and sealed concrete flooring. Rubber wall base material must be 1/8-inch-thick minimum and must conform to ASTM F 1861. Provide a metal cove base at restroom areas. Do not install interior wall sheathings or finishes prior to construction meeting required interior environmental conditions. This includes glass-mat gypsum wallboard, cementitious backer board, all applied finishes, and materials subject to mold and mildew. Acceptable environmental conditions are as follows: building is completely dried-in, including roofing system, wall vapor barrier, thermal envelope, exterior windows, and exterior doors. Temperature and humidity ranges must comply with the manufacturer's directions and technical specifications for specific products.

3.3.6.4.3 Fire-Rated and Smoke Partitions: Provide fire-rated partitions per code. Extend fire-rated partitions from the concrete floor slab to the underside of the roof deck above. Seal openings and penetrations through partitions around comm rooms, mechanical rooms, electrical rooms and other locations indicated on the drawings to prevent the passage of smoke.

3.3.6.4.4 Firestopping: Provide fire stopping using UL-approved systems. Provide details of such systems in the drawings. A Qualified Fire Protection Engineer (QFPE) must review and approve the fire stopping systems. The fire stopping installer must be approved by the manufacturer. The system must include a listed and approved F and T rating for both horizontal and vertical installations. Indicate locations and types of all fire stopping systems on the drawings.

3.3.6.4.5 Retractable Partitions: Provide retractable partitions and associated work, including tracks and anchoring systems in Building 216 between rooms 109A and 109B. Provide a sound barrier equal to, or greater than, the sound rating of the partition at wall assemblies above retractable partitions. Operable panel partitions must be factory finished, supported from an overhead track without floor guides, and include all hardware, track, and accessories necessary for operation. The suspension system must consist of steel or heavy-duty extruded aluminum track connected to the structural system by threaded rods and trolleys designed to support the partition's weight. Provide steel track of 16 gage minimum, phosphate treated and finished, or zinc or cadmium coated, or provide an extruded aluminum track with a minimum thickness of 1/8-inch (3.2-mm). Tracks must have an integral ceiling guard. Trolleys must have at least two ball-bearing nylon or steel-tired wheels spaced according to the manufacturer's design criteria and four at an end post.

3.3.6.5 Casework

Provide casework which is a commercial grade medium density fiberboard (MDF) or medium density particleboard substrate with a plastic laminate finish. Provide, at a minimum, a plastic laminate finish at exposed fronts and ends of cabinets, door, and drawer fronts. Provide door

and drawer fronts which are 3/4" thick. Provide 1/2" minimum shelves able to withstand 45 lbs. Provide thermally fused melamine at cabinet tops, wall bottoms, and concealed and semi-concealed surfaces. Rapidly renewable materials are encouraged for casework materials. Provide hardware complying with ANSI/BHMA A156.9.

Conform to and comply with the Custom Grade quality standards as outlined in the AWI AWS section for laminate-clad cabinets for all materials, construction methods, and fabrication. Provide countertops made of solid surface material (SSM) with an integral backsplash and apron. Provide solid surface counter-mounted lavatories and vitreous china wall-mounted lavatories.

3.3.6.6 Building 216 Secure Access Areas

3.3.6.6.1 United States Secret Clearance Access: US Secret Clearance or higher access area in accordance with DoDM 5200.01 Volume 3 for Open Storage Area (Secure Room). Provide interior and exterior wall assemblies, floor assemblies, roof assemblies, ceiling assemblies, and interior and exterior door assemblies in accordance with DoDM 5200.01 Vol 3 and UFC 4-026-01 Design Against Forced Entry. VIPER EM Simulator room is a US Secret Secure space. All interior walls around and within identified areas must be ICD 705 Type A Sound Group 4. Provide STC 50 minimum rating at walls and STC 55 minimum rating at secure doors. No exterior windows are proposed for these areas. Access Control System will utilize Government issued Common Access Card (CAC).

3.3.6.6.2 Special Access Program Facility (SAPF) Construction: Special Access Program Facilities information will be handled and stored in this facility. "Open Storage Area" of classified information will occur within this facility. Comply with UFC 4-010-05 SCIF/SAPF Planning, Design, and Construction, ICD/ICS 705 Technical Specifications for Construction and Management of Sensitive Compartmented Information Facilities (ICD 705), and the F-35 Facility Requirements Document (FRD) with any specific items for the F-35 A and F-35 B. The most restrictive and highest level of protection from any document takes precedence. Equip the SAPF areas with protective construction in accordance with UFC 4-026-01 Design to Resist Forced Entry and devices to guard against information loss. Acoustical And Radio Frequency (RF) shielding protection measures are designed to protect Special Access information against being inadvertently overhead and intercepted. Provide Radio Frequency Shielding on all six sides, including above the concrete slab on grade and under the finish floor material at all SAPF areas. A true RF shielded ceiling above a finish ceiling is acceptable. Fully connect and seal walls, floors, and true ceilings. Comply with ICD 705, Chapter 3, Figure 2, Wall B – Suggested Construction for Expanded Metal and Sound Group 4 at all interior wall assemblies within the SAPF perimeter and Man Trap perimeter (identified on plans). Provide STC 50 minimum rating at walls and STC 55 minimum rating at secure doors.

3.3.6.7 Interior Doors

Fire rate interior doors where required. Provide Level 2 hollow metal frames in accordance with ANSI/SDI A250.8 (SDI 100). Provide face welded frames as defined in ANSI/SDI A250.8-2014, 2.4.1.3. Provide kick plates at doors with heavy visitor traffic. Provide security doors and hardware at necessary locations. Paint door frames with an enamel finish. Provide stainless steel interior door hardware. Insulate doors serving unconditioned areas.

3.3.6.7.1 Interior Steel Doors: Interior steel doors must be hollow metal steel, unrated, and fire-rated as identified or required by code or other criteria. Provide single or pair doors as indicated on the

Concept Design Drawings. Provide 16-gauge minimum interior doors. Meet SDI/DOOR A250.8, Level 3 requirements. Form doors to sizes required. Refer to UFC 3-101-01 for STC ratings. Fabricate interior hollow metal doors from hot dipped zinc coated steel, alloyed type, that comply with ASTM A924/A924M and ASTM A653/A653M. The coating weight must meet or exceed the minimum requirements for coatings having 0.4 ounces per square foot, total of both sides, i.e., A40. Repair damaged zinc-coated surfaces by the application of zinc dust paint. Thoroughly clean and chemically treat to insure maximum paint adhesion. Factory prime as specified in SDI/DOOR A250.8.

Interior Wood Doors: Provide wood doors at administration and office areas. Standard interior doors must be flush solid core wood doors with good or better grade birch veneer. Conform to WDMA 1.S. 1-A. Door frames must be welded 16-gauge steel for SDI/DOOR A250.8 Level 2 doors. Provide fire rated doors and STC-rated doors as required. Metal doors may be used when wood doors do not meet the requirements of the mission. Hardwood veneers must be plain-sliced and book-matched. Doors must be factory-stained, finished, and prepared for door hardware. Where glazed openings are required, use the manufacturer's standard wood moldings. Moldings for doors to receive a natural finish of the same species and color as the face veneer. Unless noted otherwise, provide vertically oriented narrow-view glass panels, approximately 4 inches by 24 inches, in doors to private offices. Doors required to have an STC rating must be a tested assembly that includes door and frame, certified to achieve the STC rating equal to or higher than the partition wall it is installed in unless noted otherwise. At all interior doors, provide solid core hardwood veneer with a clear factory finish. Provide kick plates at doors with heavy traffic. Provide security doors and hardware at necessary locations. Provide hollow metal doors where serving the apparatus bay, restrooms, and janitorial rooms. Provide insulated doors where serving unconditioned areas.

3.3.6.7.2 Interior Overhead Doors:

Provide coiling overhead interior doors with all required operating hardware, and supports for electrical operators. Comply with ANSI/DASMA 102 - American National Standard Specifications for Coiling Overhead Type Doors. Verify electric requirements available at building location for selection of motor.

3.3.6.7.3 GSA Vault Doors:

Provide GSA labeled, secure vault doors. Doors must conform to FA AA-D-600 Class 5V, Style K, Design S.

3.3.6.8 Interior Door Hardware: Refer to Door Hardware section above.

3.3.6.9 Specialties

3.3.6.9.1 Enclosures: Provide toilet enclosures and entrance screens of solid phenolic material with integral color Type III, Style A, floor supported or wall hung. Specify tamperproof fasteners and recessed accessory items to the greatest extent possible. Provide stainless steel hardware. Provide accessible stalls with grab bars to meet ABA criteria. Provide blocking as required to support partitions.

3.3.6.9.2 Toilet Accessories: Provide new stainless steel satin finish toilet accessories to meet Base standards.

- 3.3.6.9.3 Urinal Screens: Provide urinal screens of solid phenolic material with integral color Type III, Style A, floor supported, or wall hung. Secure wall-hung urinal screens with continuous flanges to the urinal screen and wall. Provide blocking as required to support screens.
- 3.3.6.9.4 Plumbing Accessories: Provide new stainless steel, commercial grade, satin finish plumbing accessories to meet Base standards. Provide ABA compliant plumbing accessories. Provide blocking as required for support.
- 3.3.6.9.5 Fire Extinguishers and Cabinets: Furnish and install fire extinguishers as required by applicable codes and criteria. Provide 10-pound minimum fire extinguishers. Furnish and install new fire extinguishers in existing recessed cabinets where possible. Provide new recessed cabinets, where necessary, sized to contain a minimum 10-pound fire extinguisher cylinder. Cabinets must not diminish or compromise the fire rating of rated walls.
- 3.3.6.9.6 Interior Signage: Provide interior signage throughout the facility in accordance UFC 3-120-01. Meet all ABA requirements and coordinate with facility user for signage design. Follow ABA guidelines for signage background color and text. Coordinate exterior signage finishes with Base standards and interior signage finishes for a cohesive appearance. Signs for permanent spaces (i.e., mechanical and communication rooms) must have permanent room numbers and corresponding names. Provide life safety signage, including but not limited to evacuation plans, in key areas.
- 3.3.6.9.7 Corner Guards: Provide 4' high (minimum) standard metal corner guards at all exterior wall corners of gypsum board walls at main circulation locations. Construct exposed concrete wall outside corners with a chamfered corner.

3.3.7 Interior Finishes

Refer to Concept Design Drawings in Attachment B and Room Data Sheets in Attachment C for more information. Provide a comprehensive interior design (CID) package with each level of design submittal. This includes both a structural interior design (SID) package and a furniture, fixtures, and equipment (FF&E) package.

3.3.7.1 Floor Finish

- 3.3.7.1.1 Sealed Concrete: Provide a sealed concrete floor finish at all mechanical rooms, electrical rooms, SIPR Rooms, janitor closets, and storage rooms. Seal concrete floor slabs that do not receive a finish with a low-VOC water-based clear sealer to prevent dusting and improve general maintainability. Prepare concrete slabs to receive sealer by mechanically grinding them to remove the top 1/8-inch of concrete material and expose slab aggregate. Provide a clean, smooth slab surface for the sealer application.
- 3.3.7.1.2 Luxury Vinyl Tile (LVT): Utilize vinyl tile floor finishes in administrative, vault areas, and high traffic areas to facilitate ease of maintenance. In Building 202, install vinyl sheet flooring to match existing. Provide a product which contains recycled content and is low VOC. Provide vinyl which is minimum .08" thick, conforms to ASTM F 1303, Type II, Grade 1, Class A, and has a fibrous backing. Extend color and pattern through the total thickness of the material.
- 3.3.7.1.3 Epoxy: Provide five-coat epoxy in the hangar bays and adjacent corridors. Provide three-coat epoxy in the paint booth, storage room, pod, and tank bay of Building 202 in accordance with

UFC 4-211-01. Provide seamless resinous flooring in the Support, Support Storage, and Supply Trade rooms of B202.

3.3.7.1.4 Carpeting: Use carpet tile in administrative offices and conference rooms, with the exception of Building 202. Provide carpet which is medium tone, has a multi-color loop pile, and is minimum 28-ounce. Meet Carpet and Rug Institute (CRI) and Indoor Air Quality (IAQ) label requirements for carpet and adhesives. Utilize Nylon 6 or 6,6 designated products on this project.

3.3.7.1.5 Tile: Provide an unglazed porcelain floor tile at restrooms, shower rooms, and the lactation room. Provide metal cove base in all restrooms to receive new finishes. Match existing tile in restrooms where required. Provide impact resistant tile for floors and walls in accordance with ASTM C 648. Floor tile must be a minimum of Class III.

3.3.7.1.6 Electrostatic Dissipative Flooring: Provide static dissipative vinyl tile composed of polyvinyl chloride resin, plasticizers, fillers, pigments, and antistatic additive with colors and texture dispersed uniformly throughout its thickness in data and comm rooms per room data sheets attached to this RFP. Tile must meet size, thickness, indentation, impact, deflection, dimensional stability, resistance to chemicals, squareness, and resistance to heat requirements of ASTM F 1066 Standard Specification for Vinyl Composition Tile, Class 2, and have a through pattern D antistatic additive with colors and texture dispersed uniformly throughout its thickness.

3.3.7.1.7 Striping: Provide striping in Hangar Bays and around emergency shower/eyewash stations in accordance with UFC 4-211-01.

3.3.7.2 Wall Base

3.3.7.2.1 Rubber Wall Base: Provide rubber wall base at all areas to receive carpet, resilient flooring, and sealed concrete flooring. Rubber material must be 1/8" thick minimum and to conform to ASTM F 1861. In restrooms, provide a coved porcelain tile base where matching existing, and metal cove base where new finishes are being installed.

3.3.7.2.2 Coved Metal Base: Provide coved metal base at areas to receive new floor and wall tile finishes. Provide stainless steel cove trim shapes, height to match tile and setting thickness, designed for flooring applications.

3.3.7.2.3 Porcelain Tile Base: Provide porcelain tile base when matching existing conditions at areas to receive new floor and wall tile finishes.

3.3.7.2.4 Integral Epoxy Wall Base: Provide integral epoxy wall base at all metal stud partitions in rooms to receive new epoxy flooring. Install as to provide a 1/2" radius at the juncture of the floor and wall.

3.3.7.3 Wall Finish

Provide a Level 4 smooth finish at painted gypsum board partitions exposed to view. Paint exposed concrete walls with epoxy paint. Install fiberglass reinforced plastic (FRP) wall panels at all service sinks.

- 3.3.7.3.1 Paint: Paint interior surfaces, except factory pre-finished material or interior surfaces receiving other finishes, 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. Do not use paints containing zinc-chromate, strontium-chromate, mercury or mercury compounds, confirmed or suspected human carcinogens. Interior paints and coating products must 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 eggshell finish on gypsum board walls in dry areas and semi-gloss on trim and door frames. Provide commercial-grade paint systems meeting MPI standards. Paint all exposed surfaces unless otherwise indicated. Coordinate painting and stenciling of fire sprinkler water system within the building as shown in guide specifications. At masonry walls use block filler and primer and two finish coats of semi-gloss paint.
- 3.3.7.3.2 Paint Selection: Use only paint listed on the “Approved product list” of the Master Painters Institute (MPI). Application criteria must be as recommended by MPI guide specifications for the substrate to be painted and the environmental conditions existing at the project site. Use only paints which provide the minimum required finishes and the highest quality of material, durability and life cycle cost. Paints and coating products must be classified as containing low or zero volatile organic compounds (VOC) in accordance with MPI criteria. Ensure compatibility with existing finishes and maintenance practices during selection of paint colors, textures, and locations.
- 3.3.7.3.3 Tile: Provide impervious, unglazed, through-body porcelain wall tile. Provide a minimum 4'-0" wainscot height in restrooms and a full-height installation at shower enclosures. Match existing tile where required. Provide a minimum Class III tile conforming to ASTM C 648 for impact resistance, and Tile Council of North America (TCNA) for standard grade tile. Use epoxy grout.
- 3.3.7.3.4 Fiberglass Reinforced Plastic (FRP) Panels: Provide 4'-0" FRP panels at all service sinks. Comply with ASTM D5319 and use only panels which are resistant to rot, corrosion, staining, denting, peeling, and splintering.
- 3.3.7.3.5 Stainless Steel Panels: Provide a 4'-0" stainless steel wall protection panel wainscot at all industrial, high traffic circulation areas. Provide type 304 stainless steel conforming to NSF Standard 51.
- 3.3.7.4 Ceiling Finish
- 3.3.7.4.1 Exposed Ceilings – In rooms without ceilings paint the structure and all exposed elements (including ceiling hung equipment and piping) as specified in this RFP, criteria, or code. Do not field paint factory finish equipment.
- 3.3.7.4.2 Suspended Gypsum Board Ceiling: Provide a painted gypsum board ceiling at all restrooms, janitor closets, lactation room, and secure rooms. At gypsum board ceilings, provide metal access panels for access to all valves. Use water resistant gypsum board with an epoxy paint finish at ceilings in restrooms and shower areas.
- 3.3.7.4.3 Acoustic Ceiling Tile (ACT): Provide a 24" x 24" ACT ceiling, type III or IV, pattern E, with a tegular edge. Product selected must have a minimum NRC rating of 0.70 and contain recycled content. If applicable, ensure CAC is equal to or greater than the STC rating of enclosing partitions.

3.3.8 Furniture, Fixtures & Equipment (FF&E)

Provide an FF&E package to be coordinated with the user group's requirements. Provide critical dimensions on the floor plan to verify the specified furniture and equipment fit. Complete this FF&E package a minimum of 120 days prior to the completion of construction. Refer to Concept Design Drawings in Attachment B and Room Data Sheets in Attachment C for more information.

3.4 Structural Design

Design the new construction and modifications to the existing facilities to meet all applicable design codes and criteria, including UFCs. The primary criteria used for structural design is UFC 1-200-01, DoD Building Code (General Building Requirements) and the UFCs and codes referenced therein, including the International Building Code, and UFC 3-301-01 Structural Engineering. These design standards apply to new construction and to the five existing facilities. Reference Attachment A for a complete list of guides and codes.

3.4.1 Design Criteria

Design all structures to support all applied loads including gravity loads, seismic loads, wind loads, lateral loads, and UFC 4-010-01 Antiterrorism (AT) loads, and to meet the serviceability requirements of UFC 3-301-01, Section 2-1.2. Design the supports and bracing for ancillary building items (e.g. overhead architectural features, systems and equipment, mechanical, electrical, and plumbing equipment) for gravity loads, seismic loads, lateral loads, and AT loads. This includes the design of glazing systems, glazing system support structures, and connections of glazing systems to the primary and secondary structural support systems. Utilize the following design criteria:

3.4.1.1 Risk Category

Category II

3.4.1.2 Ground Snow Load

10 PSF

3.4.1.3 Live Loads

As defined in ASCE 7

3.4.1.4 Wind

Wind Speed = 106 MPH,

Wind Exposure Category = C

3.4.1.5 Rain and Ice Loads

Rain: 15 min Precipitation Intensity = 6.1 in/h

Rain: 60 min Precipitation Intensity = 3.21 in/h

Ice thickness = 2 inches

3.4.1.6 Seismic

Seismic Accelerations: $S_s = 0.159g$, $S_1 = 0.087g$

Site Class = D Assumed (unless determined otherwise by geotechnical investigation)

3.4.2 Foundations/Slabs

Design and construct the foundation system based on a site-specific geotechnical investigation. Base the type of foundation system selected on the geotechnical investigation recommendations, adjacent construction, facility size, structural loads, local availability of materials and labor, and floor plan features. Design the foundation system to limit total settlement to one inch or less and to limit differential settlements to one-half inch or less. Structurally support exterior stoops and slabs adjacent to the structure to prevent differential settlement between the stoop or slab and the primary structure. For the existing buildings, verify the adequacy of the slab on grade where heavy loading, fork lift loading, and rack loading will be present. Check existing foundation for additional loading as required.

For bidding purposes of the new additions to Buildings 216 and 218, assume a drilled pier with grade beam foundation system with slab on grade floor.

3.4.3 Exterior Walls

Exterior walls must be easily maintained, have a high resistance to wear and tear, meet the building envelope insulation requirements, and provide structural support for the architectural finishes selected. This includes, but is not limited to, all exterior components such as walls, doors, windows (glazing systems) and architectural appurtenances. For existing walls, check all new wall penetration and wall infills for the appropriate loading and serviceability criteria. Check existing walls for additional loading.

3.4.4 Interior Partitions

Construct interior partitions of light gauge metal wall studs or concrete masonry units (CMU) where required for wear resistance. Non-load bearing partitions must be easy to remove for any future floor plan modifications or repurposing of the space. Brace interior partitions laterally at the top and allow for vertical deflection of the structure without transferring loads to the partition.

3.4.5 Vertical Framing

Comply with UFC 4-010-01 for exterior wall and roof design requirements. Coordinate column locations with architectural layout. Conceal columns and vertical braces within interior walls where possible. Check existing framing as required if additional loads are applied.

3.4.6 Roof Structure

Design the roof structure to resist uplift loads as well as gravity loads. Design the steel deck as a diaphragm to provide transfer of lateral loads between vertical elements of the lateral load resisting system. Provide sufficient slope to the roof to prevent ponding or analyze the roof structure for potential ponding and provide adequate strength to resist the additional load. For any existing construction, provide support for any new deck penetrations and check framing for any additional loading if required. If fall protection is required per the UFC's, use permanent davits.

3.4.7 Lateral Load Resisting System

Design the lateral load resisting system to resist all lateral loads and to meet the applicable serviceability requirements referenced in paragraph 3.4.1 above. The lateral load resisting system must provide a complete, continuous load path to transfer lateral loads from the point of application to the earth. Design connections in the lateral load resisting system to meet seismic detailing requirements even if wind loads govern.

3.4.8 Antiterrorism

Provide structural design for all applicable elements indicated in UFC 4-010-01. These elements include, but are not limited to, wall design, overhangs and breezeways, windows and skylights, building entrance layouts, exterior doors, overhead mounted architectural features, and equipment bracing.

3.5 Mechanical Design

3.5.1 Code Compliance

Design heating, ventilating, air conditioning (HVAC) and plumbing systems to conform to the publications listed in Attachment A. Utilize the most current codes and standards at the time of the design/build contract solicitation.

3.5.2 Existing Systems

The designs include equipment which varies building-to-building. See Section 3.5.8 for design directives for each building.

3.5.3 Functional Requirements

3.5.3.1 Heating, Ventilating, and Air-Conditioning (HVAC)

Attain the following objectives for the HVAC systems: occupant comfort, indoor air quality, acceptable noise levels, energy efficiency, reliable operation, and ease of maintenance. Provide air-conditioning and heating for all occupied spaces except for maintenance bays, hangar bays, and other areas as noted. Provide air-conditioning only for server/communication rooms. Keep areas that require heating for freeze protection above 40 degrees at all times.

3.5.3.2 Energy Sources

The available energy sources are natural gas and electricity provided by Oklahoma Gas & Electric. Meters for each service exist at each building. In accordance with Executive Order EO14057), new gas-fired mechanical systems are not allowed in any the buildings within the scope of this project (201, 202, 214, 216 & 218). The use/continued use of natural gas is limited to the existing gas-fired infrared heaters in Building 201, and all gas-fired systems in Building 202, which will remain in service as-is.

3.5.4 Prescriptive Requirements – New Equipment

3.5.4.1 Life Cycle Cost Analysis

Perform Life Cycle Cost Analysis (LCCA) to determine heating, cooling, and energy-related decisions of major systems in accordance with UFC 1-200-02 Life Cycle Cost Analysis requirements. Per UFC 1-200-02 (current change), achieve at least 30% energy consumption reduction from ASHRAE 90.1 (current version as directed by UFC) baseline, or achieve an energy consumption level at the highest level possible that is life cycle cost effective. Provide mechanical systems based on achieving the lowest life cycle cost of approved alternatives. Include total ownership costs, operation and maintenance costs, and payback. If life-cycle cost effective, implement Energy Efficiency Measures (EEMs) such as variable speed drives and Electronically Commutated Motors (ECM). Implement renewable energy design strategies such as solar hot water heating where life cycle cost effective. Provide life cycle cost analysis and recommendations to the Government for review and acceptance.

3.5.4.2 Design Criteria

3.5.4.2.1 Outside Design Criteria

ASHRAE 2021 0.4%:
Summer: 100F DB, 75.9F WB
Winter: 17.9F DB

ASHRAE 2021 1.0%:
Summer: 96.6F DB, 76.3F WB
Winter: 22.3F DB
HR: 8.9

3.5.4.2.2 Inside Design Criteria

Occupied zones conditioned for comfort cooling and heating

Summer: 78 degrees F and a maximum of 55 degrees F dew point. Design must take into account moisture gain in the space.

Winter: 68 degrees F (occupied), 55 degrees F (unoccupied)

Unoccupied zones conditioned to prevent freezing

Winter: 40 degrees F

Server/Communications Rooms:

72 degrees F

50% RH maximum

3.5.4.3 Calculations

For regularly occupied areas, use the 1 percent dry bulb and corresponding mean coincident wet bulb (MCWB) temperature and the 1 percent humidity ratio and corresponding mean coincident dry bulb (MCDB) temperature for design calculations and equipment sizing.

For server/communication rooms, coordinate with end user for specific temperature and humidity requirements. Separate, dedicated air conditioning systems must provide 24/7 cooling to each room. Utilize the 0.4 percent dry bulb temperature and the corresponding MCWB temperature and the 1 percent humidity ratio and corresponding MCDB for design calculations and equipment sizing.

Perform cooling and heating load calculations, building energy simulation models, and EEMs using Carrier HAP, Trane Trace 700, or other DOE-approved simulation software. Size all cooling equipment based on the calculated peak sensible and total loads for the building/zone. Size terminal units, unit heaters, and communication/server room air conditioning units based on the calculated peak sensible and total loads for the spaces served. Consider site elevation, refrigerant line lengths, and other factors that affect deration of equipment capacity. Consider heat/energy recovery where life cycle cost effective.

Utilize temperature setbacks and resets in occupied spaces during unoccupied times to maximize energy conservation, unless noted otherwise. Do not use setbacks for cooling in storage areas of building 201.

3.5.4.4 Equipment Selection

3.5.4.4.1 Product Procurement

Basis-of-design equipment must be Energy Star or Federal Energy Management Program of the Department of Energy (FEMP) designated products when available. The term "Energy Star product" means a product that is rated for energy efficiency under an Energy Star program. The term "FEMP designated product" 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. When selecting integral sized electric motors, choose NEMA PREMIUM type motors that conform to NEMA MG 1, minimum Class F insulation system. Motors with efficiencies lower than the NEMA PREMIUM standard may only be used in unique applications that require a high constant torque speed ratio (e.g., inverter duty or vector duty type motors that conform to NEMA MG 1, Part 30 or Part 31).

3.5.4.4.2 Cooling and Heating Systems

Provide mechanical equipment to maintain space temperature setpoints. The equipment must also include provisions to maintain space humidity levels where specific tolerance requirements are indicated. Possible system types include: split system outdoor heat pumps with indoor fan coils, ground-mounted heat pump packaged rooftop units (RTU), and single-zone minisplit heat pumps with cassette or ducted fan coils. Provide cooling-only, dedicated minisplit systems with low-ambient cooling capability for server/communication rooms. Where required by the UFC or end user for critical server/communication rooms, provide redundant cooling systems. Variable Refrigerant Flow (VRF) systems are prohibited. In accordance with UFC 3-410-01 c9, 3-5.2.5, select condensers/condensing units/heat pumps for service in ambient conditions 5 degrees F above the outdoor dry bulb temperature listed in section 3.5.5.1 above. Select equipment with refrigerants that have ozone depletion potential (ODP) no greater than 0.0. CFC-based refrigerants and refrigerants subject to phaseout must not be utilized.

Where specific humidity control is required for spaces served by an RTU, provide manufacturer's onboard dehumidification system (i.e.: Carrier Humidimizer). For spaces served by split systems, provide commercial standalone dehumidifiers with automatic draining and/or pump sized to accommodate specified levels.

3.5.4.4.3 Unitary Heating Systems

Provide LCCA-effective electric unit heaters in unoccupied spaces such as mechanical rooms, electrical rooms, etc. Do not specify new gas-fired equipment.

3.5.4.4.4 Exhaust and Ventilation Systems:

Provide exhaust systems in all toilet rooms, janitors closets, etc. Provide ventilation in mechanical rooms, electrical rooms, etc. with inline exhaust fans and interlocked, operable louver or transfer air. Schedule ECM motors for exhaust fans whenever available for the

application. Include fan speed controller mounted nearby in an accessible location for balancing purposes.

3.5.4.5 Variable Frequency Drives (VFD)

Provide VFD's for all motors and fans greater than 10 hp, excluding exhaust fans.

3.5.4.6 Equipment Locations

Locate mechanical equipment to maintain the manufacturer's recommended minimum service clearances, code clearances, and the clearances required for removal of the equipment. Provide access doors for concealed equipment that may require maintenance or repair. Place floor and ground-mounted equipment on concrete housekeeping pads. Do not design roof-mounted intakes, exhaust fans, etc., unless absolutely necessary as buildings 201, 214, 216 and 218 do not have dedicated roof access.

3.5.4.7 Air Quality

Maintain ASHRAE 62.1 (current version as accepted by UFC) ventilation throughout the building to satisfy the minimum occupancy ventilation requirements, maintain building pressurization, and provide necessary make-up air for building exhaust. Outside air for ventilation may be introduced through fan coils or RTUs. Show outside air schedules on drawings and consider the maximum potential occupancy load when calculating outside air requirements in all spaces. For systems with outdoor air exceeding 750 cfm, provide a dedicated outdoor air system (DOAS). Where life-cycle cost effective, use energy recovery to preheat/precool incoming outside air.

3.5.4.8 Emergency Power Off (EPO) and Anti-Terrorism and Force Protection (ATPF)

Locate an EPO switch in the Mechanical Room as well as in the local operating console/fire alarm control panel (LOC / FACP), when available, for all air-moving systems serving occupied spaces and centralized ventilation systems such as Dedicated Outside Air systems (DOAS). Provide ATPF switch where required in accordance with UFC 4-010-01.

3.5.4.9 Ductwork

Construct, brace, reinforce, install, support, and seal insulated and galvanized steel ductwork in accordance with the IMC and SMACNA standards. In addition, ducted returns, dampers, air devices, and filters are required. Louvers are required for exhaust systems in lieu of roof-mounted equipment. Fortification (per Air Force and DOD standards) may be required for ducts with 96 square inch cross-sectional areas and larger passing through secure (SAPF & Secret) area perimeters.

3.5.4.10 Noise Abatement

Select air handling units (fan coils, RTUs, etc.), ductwork and diffusers to minimize noise from the units to the space. The selected fans must generate the lowest possible sound power levels and corresponding sound spectra. If attenuation is required, it must be in accordance with UFC requirements. Secure spaces may require specific Sound Transmission Class (STC) ratings (for example: STC50). Employ sound-attenuation devices such as duct silencers, Z-ducts and similar devices to achieve specified STC ratings.

3.5.5 Building Automation System

Provide a Building Automation System consisting of a building control network, and integrate the building control network into the Base's existing Energy Management Control System (EMCS) as follows:

3.5.5.1 Existing Base-wide EMCS

The Base's existing EMCS includes BACNET-based Siemens controls already established in each building, and report to the central station located in Building 450. Maintain each building's existing controls infrastructure as much as practicable for reuse including control panel(s), supervisory controller(s), etc., for integration of new equipment.

3.5.5.2 Direct Digital Control (DDC) System

Outfit all new mechanical equipment including split system fan coils, condensing units, heat pumps, RTUs, minisplit systems, etc., with controls compatible with existing controls infrastructure and conforming to Base standards. Coordinate exact requirements with the Base DDC Provider.

3.5.5.3 Base DDC Provider

The Base has an existing service contract with Powers-HVAC based in North Little Rock, AR (877-274-7127). The current point of contact is Mike Fogo (479-275-9733) who is based out of the Springdale, AR office.

3.5.6 Testing, Adjusting and Balancing (TAB)

Test and balance all air systems using a firm certified for TAB by the Associated Air Balance Council (AABC), National Environmental Balancing Bureau (NEBB), or the Testing Adjusting, and Balancing Bureau (TABB) in accordance with UFGS 23 05 93. The TAB firm must be an independent subcontractor and not an employee or subcontractor of any other subcontractor on this project. 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 HVACTION unless otherwise specified herein. All recommendations and suggested practices contained in the TAB Standard are mandatory. Use the provisions of the TAB Standard, including checklists and report forms, as much 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 are part of this contract. For systems or system components not covered in the TAB Standard, the TAB Specialist must develop TAB procedures. Where new procedures and requirements 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.

3.5.7 Commissioning

Commission all HVAC systems and equipment, including controls, and all systems requiring commissioning in accordance with ASHRAE, UFC 1-200-02 and Specification section 01 91 00.15. The Commissioning Agent (CA) must be an independent subcontractor and not an employee or subcontractor of any other subcontractor on this project. The CA must not have business connections with any other

party on the project, nor have any other role or responsibilities outside of commissioning activities. The CA must communicate and report directly to the Government in the execution of the commissioning activities.

3.5.8 Building-By-Building Design Directives

Project scope includes existing mechanical systems deemed suitable for reuse due to their age and condition. Remove all gas-fired equipment (split systems with furnaces, boilers, etc.) unless noted otherwise. All gas-fired equipment in building 202 must remain in service as-is. Where directives indicate to remove an existing system, designer of record (DOR) must calculate the capacity of its replacement in accordance with Sections 3.5.4.3 above. Likewise, capacities of new (additional) systems must be calculated by DOR. Not all directives include unit heaters and exhaust systems, which are to be replaced, reused or scheduled as new at the discretion of the DOR.

3.5.8.1 Building 201

- a. Remove existing Carrier 5-ton split system (DX & gas, dated 2018) located in south Mechanical room 116, including associated ductwork and air devices. Provide new heat pump split system in its place, and new ductwork and air devices to support “Bulk Spares”.
- b. Provide new (additional) heat pump split system in Mechanical 116 and distribution ductwork to support “Spares/Transit Area” & “Semi Bulky Racked Storage”.
- c. Demolish existing Carrier 4-ton split system (DX & gas, located in current fire alarm panel room) and associated distribution ductwork in its entirety.
- d. Demolish existing Carrier 4-ton split system (DX & gas, located in west Mechanical room 123) and associated distribution ductwork in its entirety. Provide new heat pump split system in its place, and new distribution ductwork and air devices to support “Racked Storage”.
- e. Provide new ground-mounted, heat pump, packaged rooftop unit (RTU) on the north side of the building, and mounted on minimum 6” tall concrete housekeeping pad. Provide distribution ductwork to support “Compact Storage” and “Fast Moving Bulk Spares”. Where available, provide manufacturer’s onboard dehumidifier system (e.g., Carrier Humidimizer) in lieu of a standalone dehumidifier.
- f. Provide standalone, packaged dehumidifier with onboard automatic drain and/or pump suspended in each of the main storage areas (five total) to maintain relative humidity levels of 50% (or less), or to range specified by end user. Standalone unit not required in space(s) served by an RTU with onboard dehumidification system.
- g. Reuse two existing gas-fired infrared (IR) heaters (200 MBH each, date unknown) in “Fast Moving Bulk Spares”, and two (2) existing gas-fired IR heaters (60 MBH each, date unknown) in “Bulk Spares”. DOR to determine if existing IR heater locations will interfere with new racking equipment or other storage methods, and demolish heaters if necessary. The intent is to provide additional heating in these spaces when their overhead doors are open.
- h. Provide BACNET DDC controls for each new mechanical system as described in Section 3.5.5.

3.5.8.2 Building 202

- a. Existing systems (makeup air units, air compressors, air dryers, water heater, IR heaters, exhaust fans, etc.) located in northwest Mechanical 138 to remain in-service, as-is.
- b. Existing systems (IR heaters, exhaust/supply fans, etc.) located in the aircraft bays to remain in service, as-is.
- c. Seven (7) existing heat pump split systems serve occupied and unoccupied non-aircraft bay spaces throughout the building. The heat pumps are located in two enclosures on the west side of the building. Corresponding fan coils are located above ceilings throughout the non-hangar areas of the building. The systems must remain in service, as-is, except where ductwork modifications are required to support revised floorplans in the core office areas.
- d. Existing systems serving various unoccupied spaces (Electrical, Comm, Fire Riser, Pod, Storage, Vaults, etc.) to remain in service, as-is.
- e. Modify one of the existing split system's ductwork and air distribution to support the lactation room.
- f. Provide dedicated, cooling-only minisplit system for new Comm room. System must be capable of low-ambient cooling to 0 degrees Fahrenheit.
- g. Existing mechanical systems are currently tied to the Base's EMCS in Building 450. Verify this and provide BACNET DDC controls for existing mechanical systems (if none exists) as described in Section 3.5.5.

3.5.8.3 Building 214

- a. Demolish existing hydronic heating water system in its entirety including boiler & appurtenances, pump, piping and hydronic unit heaters throughout building.
- b. Demolish gas-fired, ground-mounted makeup air unit located outside the northeast corner of the building.
- c. Demolish exhaust system including hoods in the northeast corner of the building.
- d. Demolish three (3) Carrier split systems on the south side of the building, and one (1) on the north side. Demolish ductwork associated with all four systems.
- e. Provide new heat pump split system in Mechanical 008 and distribution ductwork for all spaces on the south side of the building including storage, toilet rooms and AME.
- f. Provide new minisplit heat pump system for Parachute 004 including ceiling-mounted cassette fan coil. Locate heat pump on north side of the building.
- g. Provide new minisplit heat pump system for the mezzanine JEI-EMMS room including ceiling-mounted cassette fan coil. Locate heat pump on the north side of the building.
- h. Provide new minisplit heat pump system for the mezzanine 425FS Trade Learning room including ceiling-mounted cassette fan coil. Locate heat pump on the north side of the building.
- i. Provide new minisplit heat pump system for the mezzanine JEIM Engine office including ceiling-mounted cassette fan coil. Locate heat pump on the west side of the building.
- j. Provide new minisplit heat pump system for Storage room 006 including ceiling-mounted cassette fan coil. Locate heat pump on the west side of the building.

- k. Provide new minisplit cooling-only system for Comm room 005 including wall-mounted fan coil. System must be capable of low-ambient cooling to 0 degrees Fahrenheit. Locate condensing unit on the north or east side of the building.
- l. Provide minimum four (4) electric downblast unit heaters for the main Work Bay. Locate and suspend units such that they will not interfere with boom cranes and other equipment located in the Work Bay.
- m. Provide one (1) electric unit heater in the Tool Storage area of the single-story north side of the building.
- n. Provide new exhaust system(s) for revised toilet rooms and janitor's closet.
- o. Provide two wall-mounted airfoil propeller fans on the upper east wall of the Work Bay, each sized to collectively provide 15-20 air changes per hour. Provide two operable louvers on the lower west side of the building, interlocked with the fans and sized for maximum 550 feet per minute airflow. Provide line-voltage thermostat(s) with manual override to operate the systems for cross-ventilation/heat removal in the Work Bay.
- p. Provide BACNET DDC controls for each new mechanical system as described in Section 3.5.5.

3.5.8.4 Building 216

- a. Demolish two existing Liebert split systems serving the southwest wing of the building in their entirety.
- b. Remove existing Carrier 4-ton split system (DX & heating water, dated 2018) located in southwest Mechanical room 17. Remove all associated ductwork and air devices. Provide new heat pump split system, ductwork and air devices to support proposed rooms 106, 111 & 112. Fortify main supply and return ducts leaving/entering Mech 17 per Air Force and DOD standards.
- c. Remove existing Carrier 25-ton split system (DX & heating water, dated 2018) located in southwest Mechanical room 17. Remove all associated ductwork and air devices. Provide new heat pump split system, ductwork and air devices to support rooms 107-110. Fortify main supply and return ducts leaving/entering Mech 17 per Air Force and DOD standards.
- d. Demolish existing Fujitsu minisplit system located just north of Mech 17 in its entirety. Location of associated fan coil within building is not known.
- e. Provide new minisplit cooling-only system for Comm room 00 including wall-mounted fan coil. System must be capable of low-ambient cooling to 0 degrees Fahrenheit. Locate condensing unit on the north or east side of the building.
- f. Demolish existing Fujitsu dual minisplit system located just outside Vestibule 30 in its entirety (outdoor and indoor units). Location of associated fan coils within building is not known.
- g. Remove existing 250MBH (capacity and 2018 date, both estimated) Lochinvar boiler, distribution pumps, appurtenances and all associated heating water distribution piping in its entirety. Boiler and appurtenances are located in Mech 17. Extent of heating water distribution piping is not known.
- h. Remove existing Carrier 30-ton split system serving original portion of the building (dated 2018). Remove fan coil and associated gas-fired duct heater located in Mech 16. Provide

new heat pump split system and revise ductwork and air distribution devices to support proposed room layouts.

- i. Provide new minisplit heat pump system for new DV MTG Room/Lounge addition on west side of the building. Provide ceiling-mounted cassette fan coil. Locate heat pump on existing slab north of addition.
- j. Provide new precision-cooling split system(s) for Secure Comm, Vault ALIS/ODIN and/or Vault 1 Server rooms. Coordinate exact rooms requiring 24/7 cooling with end user. System(s) must be capable of maintaining room temperature between 60-84 degrees Fahrenheit and relative humidity levels between 40-70%. System must include onboard humidification and be capable of low-ambient cooling to 0 degrees Fahrenheit. Locate condensing unit(s) on the east side of the building. Reference products: Trane S-Mext (indoor unit) and TRUY (outdoor unit).
- k. Demolish existing York 30-ton ground-mounted RTU (gas & DX, dated 2018) serving the two northmost additions to the building. Provide new ground-mounted heat pump packaged RTU on existing concrete pad. Revise existing ductwork to support proposed room layouts in the northmost additions. Fortify ducts passing through new secure perimeter in accordance with Air Force and DOD standards, and design ductwork to reduce sound transfer to specified STC levels.
- l. Provide dedicated, cooling-only split system for room serving F-16 Unit Training Device (UTD). Data provided for this device (F16SATD) dated August 2015 indicates a heat gain of 52,000 BTUH and a relative humidity range of 30-70% for the space in which it resides. Coordinate exact requirements for this space with end user.
- m. Demolish existing Fujitsu dual minisplit system located on the northeast side of the building in its entirety. Associated fan coils are located just inside the adjacent wall.
- n. Provide BACNET DDC controls for each new mechanical system as described in Section 3.5.5.

3.5.8.5 Building 218

- a. Demolish existing minisplit system that previously served the existing Comm room. System is currently inactive.
- b. Provide new minisplit cooling-only system for Comm 119 including wall-mounted fan coil. System must be capable of low-ambient cooling to 0 degrees Fahrenheit. Locate condensing unit on the east side of the building.
- c. Remove existing Carrier 3-ton ground-mounted RTU (DX & gas, dated 2018) located near the southwest corner of the original building, and associated ductwork and air devices.
- d. Provide new ground-mounted heat pump RTU located near the southwest corner of the original building, and mounted on minimum 6" tall concrete housekeeping pad. Alternatively, provide new heat pump split system in west Mechanical 123 if space allows. Provide distribution ductwork to support new southeast building addition as well as existing adjacent, revised room layouts.
- e. Remove existing Carrier 4-ton split system (DX & gas, dated 2018) located in west Mechanical 123. Provide new heat pump split system. Revise distribution ductwork to support proposed room layouts.

- f. Demolish existing Luxaire 5-ton split system (DX & gas, dated 2018 or newer) located in northwest Mechanical 113. Provide new heat pump split system. Existing duct distribution system currently serves the west and north exposures of the building. Revise distribution ductwork to support proposed room layouts.
- g. Remove existing Carrier 5-ton split system (DX & gas, dated 2018) located in northwest Mechanical 113. Provide new heat pump split system. Existing duct distribution system currently serves the existing central assembly room. Revise distribution ductwork to support proposed room layouts.
- h. Remove existing Carrier 5-ton split system (DX & gas, dated 2018) located in northwest Mechanical 113. Provide new heat pump split system. Existing duct distribution system currently serves the existing entry lobby and east exposure of the building. Revise distribution ductwork to support proposed room layouts.
- i. Existing mechanical systems are currently tied to the Base's EMCS in Building 450. Provide BACNET DDC controls for each new mechanical system as described in Section 3.5.5

3.6 Plumbing Design

3.6.1 Existing Systems

The designs include new and/or existing equipment which varies building-to-building. See Section 3.6.5 for design directives for each building.

3.6.2 Plumbing System

3.6.2.1 Life Cycle Cost Analysis

Base water efficiency design and energy-related decisions for major systems on Life Cycle Cost Analysis (LCCA) in accordance with UFC 1-200-02 Life Cycle Cost Analysis requirements. If life-cycle cost effective, implement renewable energy design strategies such as solar hot water heating.

3.6.2.2 Cold Water

Provide domestic cold water through a reduced pressure principle backflow preventer located where indicated in section 3.6.5. If shown to be needed by a current water flow test, boost the water pressure by a triplex domestic water booster pump system in a lead/lag configuration with a third pump as a redundant reserve and a hydro-pneumatic tank.

3.6.2.3 Hot Water

Generate domestic hot water at 140°F via a domestic electric storage tank or instantaneous water heater(s). In accordance with Executive Order EO14057, new gas-fired water heaters are not allowed. Install a thermostatic mixing valve at each fixture delivering hot water (except mop sinks) and set to temperatures as defined in the IPC. Insulate all piping in accordance with the IECC, and label with text and color identification. If design includes recirculation pump, tie it into building occupancy programming.

3.6.2.4 Waste and Vent Piping

Provide drainage piping (waste and vent) in accordance with UFGS 22 00 00 Plumbing. Drain waste from plumbing fixtures and floor drains directly to the sanitary sewer system. Vent all sanitary vents to atmosphere through a combined vent system minimizing the number of roof penetrations. Do not use air admittance valves. Install trap primers on all floor drains.

3.6.3 General Plumbing Fixtures

Provide fixtures, accessories and supports in accordance with UFGS 22 00 00. Provide WaterSense-rated products whenever possible. Fixtures and features listed below are for reference only and must be modified as applicable to each building. Refer to Specifications for all required features and appurtenances for each item.

3.6.3.1 Water Closets

Provide wall-mounted, vitreous china fixtures water closets with elongated bowl with open front seat and exposed 1.28 gpf sensor operated flush valves. Floor-mounted 1.6/1.0 gpf dual-flush water closets may also be acceptable.

3.6.3.2 Urinals

Provide wall-mounted, vitreous china urinals with exposed 0.125 gpf sensor-operated flush valves.

3.6.3.3 Sinks

Provide wall or counter-mounted, vitreous china sinks with sensor-operated faucets. Provide thermostatic mixing valve for each fixture set to provide 110°F hot water maximum. Provide 0.5 gpm aerator.

3.6.3.4 Showers

Stand-alone showers must be floor mounted, constructed of terrazzo or other approved manufactured stone basin. All shower valves must be pressure-balanced with integral thermostatic mixing valves set to provide 110°F and 1.5 gpm, maximum.

3.6.3.5 Miscellaneous Sinks

Provide kitchen/break room sinks with 20-gauge stainless steel double or single bowl and gooseneck faucet with wrist blade handles. Provide 1.0 hp garbage disposal where requested. Coordinate connection to other appliances (i.e. dishwashers, refrigerators, and ice machines) with architect.

3.6.3.6 Mop Sinks

Provide floor-mounted, stainless steel or terrazzo mop sinks with clamp-down floor drain and wall-mounted faucet. Faucet must have a wall bracket supported spout with pail hook, integral atmospheric vacuum breaker, and 3/4" hose thread.

3.6.3.7 Floor Sinks

Provide 12"x12" floor sink at water entry backflow preventer assemblies with 3/4" grate, cast-iron body with porcelain enamel coating, and dome strainer. Provide trap primer.

3.6.3.8 Hose Bibbs

Provide hose bibbs in Mechanical Rooms, fire sprinkler riser rooms and rooms where backflow preventers are located (if separate from the Mechanical Room), if none currently exist.

3.6.4 Piping and Materials

3.6.4.1 Water Supply

Provide domestic Water piping 1/2" to 8", above and below ground, in accordance with UFGS 22 00 00 Plumbing. Provide piping insulation in accordance with UFGS 23 07 00 and ASHRAE 90.1.

3.6.4.2 Water Hammer Arrestors

Provide water hammer arrestors in accordance with Plumbing and Drainage Institute (PDI) standard PDI-WH 201 "Water Hammer Arrestors".

3.6.4.3 Waste and Vent

Provide domestic Waste and Vent piping in accordance with UFGS 22 00 00 Plumbing.

3.6.4.4 Floor Drains

Provide floor drains with all-metal bronze body and nickel bronze strainers in all toilet rooms with two or more fixtures, shower rooms, mechanical rooms and janitor's closets.

3.6.4.5 Natural Gas

Natural Gas Piping (existing, where modification is required): Schedule 40 black steel, threaded joints and fittings.

3.6.5 Building-By-Building Design Directives

The scope of the project includes existing plumbing systems deemed suitable for reuse due to their age and condition. The extent and invasiveness of plumbing modifications varies between buildings.

3.6.5.1 Building 201

- a. Demolish existing 75-gallon gas-fired water heater located in Mechanical 116.
- b. Demolish plumbing (domestic and sanitary) throughout building while maintaining infrastructure necessary to support new toilet room 117.
- c. Install new reduced pressure backflow preventer assembly, pressure reducing valve and floor sink in Mechanical 116.
- d. Provide new electric water heater in Mechanical 116.

3.6.5.2 Building 202

- a. Building's water entry is located in Mechanical 138, but was not observed in the field. Verify the existence of a backflow assembly and pressure reducing valve, and provide these items if none exist.
- b. Provide counter-mounted sink in the new Lactation Room 132, and new mop sink in Janitor 145.
- c. Provide tempered water and new combination emergency shower/eyewash stations as listed here. Refer to Attachment B – Concept Design Drawings for locations. Bay One: 2 stations, Bay Two: one station, Bay Three: one station, Tank Bay 128: one station, Paint Booth 137: one station.

3.6.5.3 Building 214

- a. Building's water entry is located in the southeast corner of the building (AME 012). Provide new reduced-pressure backflow assembly, pressure-reducing valve and floor sink. Relocation of the water entry to Compressor/Fire Riser (Mech) 008 is an option.
- b. Demolish existing toilet room plumbing fixtures and associated domestic and sanitary piping as necessary to support proposed fixture layout. Provide new plumbing fixtures, including mop sink, as shown in proposed layout, and domestic and sanitary piping to support these.

- c. Demolish existing gas-fired water heater located in Mechanical 008 and provide new electric water heater.
- d. Demolish existing air compressor located in Mechanical 008 and associated distribution piping throughout building.
- e. Provide new air compressor in Mechanical 008. Coordinate with end user to determine system requirements including style (horizontal or vertical) and type (single stage, multistage, oiled, oil-free, etc.). Provide new distribution piping to serve a minimum of ten (10) air drops (locations to be determined) at delivery pressures and airflows prescribed by the end user.

3.6.5.4 Building 216

- a. Entirety of building's domestic water piping was replaced with PEX as recently as 2023, and as-built drawings are available.
- b. Building's water shutoff valve is located just outside Mech 16. It appears from the pre-PEX record drawings that the entry main may be located in the plumbing chase between Mech 16 and the Men's toilet room. Relocate water entry to Mech 16, and provide reduced-pressure backflow assembly, pressure-reducing valve and floor sink.
- c. Revise domestic and sanitary piping systems to support new kitchen sink and dual-level electric water cooler with bottle filler in new DV MTG/Lounge 113 and counter-mounted sink in the new Lactation room.

3.6.5.5 Building 218

- a. Building's water shutoff valve is located just outside Mech 123. The water main likely enters the plumbing chase in between the two existing toilet rooms. Relocate water entry to Mech 120 and provide reduced pressure backflow assembly, pressure reducing valve and floor sink. Reconnect domestic piping to water main in plumbing chase.
- b. Remove existing 40-gallon gas-fired water heater (dated 2016) and replace with new electric water heater.
- c. Existing plumbing fixtures in both toilet rooms to remain in service, as-is.
- d. Provide domestic and sanitary piping to support new break room sink and dual-level electric water cooler with bottle filler in Assembly Room 100 as shown on the proposed room layout.
- e. Provide domestic and sanitary piping to support new break room sink located in LSS Room 120A.

3.7 Fire Protection, Fire Alarm/Mass Notification (FA/MNS), and Life Safety Design

3.7.1 Qualified Fire Protection Engineer (QFPE)

A qualified fire protection engineer (QFPE) meeting the qualifications required by UFC 3-600-01, must be responsible for, but not limited to, the design engineering, preparation of the construction documents, construction phase inspection and acceptance testing of all of the fire sprinkler and fire alarm and mass notification systems. QFPE must also be involved with the building code and life safety code analysis. A qualified fire protection engineer is an integral part of the design/build team and must be involved in every aspect of the design as it relates to fire protection and life safety. The project QFPE must review the 100 percent design submission of plans and specifications and certify in writing that the design is in compliance with UFC 3-600-01 and all applicable criteria. This certification letter must be submitted with the 100 percent submission.

At a minimum, during the construction phase the QFPE must be responsible for material submittal review, shop drawing review, and participate in the preparatory inspection meeting, initial inspection at job site, mid-point inspection at job site, pre-final inspection with General Contractor and subcontractors, and final acceptance inspection and testing with General Contractor, subcontractors and the Corps of Engineers.

3.7.2 Design Criteria

The purpose of this narrative is to describe the proposed fire protection and life safety features for the renovations of Buildings 201, 202, 214, 216 and 218 located at Ebbing ANGB, Fort Smith, Arkansas. The following project scope applies to the fire protection and life safety requirements of these buildings.

Building 201 - change of use of entire building to warehouse/storage. Classified in NFPA 101, Chapter 43 as a "change in use." Comply with the "new" requirements in NFPA 101.

Building 202 – renovation and improvements of an existing aircraft hangar. The hangar is classified as Tier 2 in accordance with the USAF Sundown Policy. Classified in NFPA 101, Chapter 43 as a "Reconstruction." Comply with the "new" requirements in NFPA 101.

Building 214 – renovation and improvements of an existing maintenance facility (including mezzanine). Classified in NFPA 101, Chapter 43 as a "Reconstruction." Comply with the "new" requirements in NFPA 101.

Building 216 – renovation and improvements of an existing office building to include mission support spaces and secure spaces. Classified in NFPA 101, Chapter 43 as a "Reconstruction." Comply with the "new" requirements in NFPA 101.

Building 218 – renovation and occupancy change to an existing building to include mission support facilities and squadron assembly area. Classified in NFPA 101, Chapter 43 as a "Reconstruction." Comply with the "new" requirements in NFPA 101.

3.7.3 Automatic Sprinkler Protection

3.7.3.1 Provide, design, and install new or modified automatic wet pipe sprinkler systems in accordance with UFC 3-600-01 and NFPA 13 as indicated below:

- a. Building 201 – new system (per UFC3-600-01 Section 4-48.2.1).
- b. Building 202 – existing system to be replaced.

- c. Building 214 – new system (per UFC3-600-01 Section 4-48.2.1).
- d. Building 216 – existing system to be replaced.
- e. Building 218 – new sprinkler system required in accordance with UFC 3-600-01 due to the Pyro Room proposed in the building containing explosives.

3.7.3.2 Sprinkler risers must be as follows. Each riser assembly must consist of a new supervised OS&Y control valve, new or existing alarm check valve and a new or existing vane-type waterflow switch. Discharge all drain assemblies associated with the riser to a safe location at the exteriors of the buildings.

- a. Building 201 – Install a new fire sprinkler riser in the Spares/Transit Area Room 115.
- b. Building 202 – Provide new fire sprinkler riser in the current location of the fire water supply line (Fire Riser Room 135). This location is less than 10 feet from the edge of the building slab.
- c. Building 214 – Install a new fire sprinkler riser in the Compressor Room 008.
- d. Building 216 – Provide new riser in the current location of the existing sprinkler riser. Separate the riser from the room with partitions. Provide a 3' clearance for all valves (as required by UFC 3-600-01). This location is less than 10 feet from the edge of the building slab.
- e. Building 218 – A new fire sprinkler riser is proposed in the mechanical room on the north side of the building. This location is less than 10 feet from the edge of the building slab.

3.7.3.3 Additional Sprinkler System Details – Building 202

- a. Demolish all existing foam system equipment including, but not limited to, foam concentrate, concentrate storage tank, proportioner and concentrate piping/valves/fittings. These foam systems were previously decommissioned and it is assumed that the foam concentrate was disposed of at that time.
- b. Demolish all fire sprinkler systems back to the water supply line into the building. Preserve the sprinkler lead-in to the building.
- c. Provide a new fire pump and pump accessories in compliance with UFC 3-600-01, UFC 4-211-01 and NFPA 20.
- d. Provide new piping and valves for new closed-head water-only sprinkler systems in the hangar bays. No deluge type sprinkler system or foam sprinkler system is proposed.
- e. Provide a new wet pipe sprinkler system in the office and support areas.
- f. Provide wet pipe sprinkler protection for the paint booth area in accordance with NFPA 33. A new paint booth (GFGI) will be installed in the location of the existing paint booth.

3.7.3.4 Additional Sprinkler System Details - Building 216

- a. Demolish all portions of the fire sprinkler system back to the water supply line into the building.
- b. Provide a new wet pipe sprinkler system throughout the building.

3.7.3.5 Sprinkler Hazard Design

Sprinkler hazard design details are provided for reference only and it is the responsibility of the designer of record (DOR) to provide the design details and system criteria.

3.7.3.5.1 Hangar Bay 1 is a fuel cell maintenance bay. Design the sprinkler system per UFC 4-211-01, paragraph 5-12.4.1 per the USAF Sundown Policy. Provide a design density of 0.20 gpm/sf over the hydraulically most remote 5,000 square feet. Include an outside hose allowance of 500 gpm in the hydraulic calculations.

3.7.3.5.2 Hangar Bay 2 is a general maintenance bay. Design the sprinkler system per Chapter 5 of UFC 4-211-01 per the USAF Sundown Policy. Provide a design density of 0.20 gpm/sf over the hydraulically most remote 5,000 square feet. Include an outside hose allowance of 500 gpm in the hydraulic calculations.

3.7.3.5.3 Hangar Bay 3 is a corrosion control bay. Design the sprinkler system per Chapter 5 of UFC 4-211-01 per the USAF Sundown Policy. Provide a design density of 0.20 gpm/sf over the hydraulically most remote 5,000 square feet. Include an outside hose allowance of 500 gpm in the hydraulic calculations.

3.7.3.5.4 The shelf and rack storage in Buildings 201 is reported to be up to 8 feet in height, without solid shelves and no plastic commodities. In addition, provide rotating storage units and compact shelving in this building. Classify these areas as miscellaneous storage and protect in accordance with the storage provisions found in NFPA 13. Design the sprinkler system for the maximum possible storage height. Include an outside hose allowance of 500 gpm in the hydraulic calculations.

3.7.3.5.5 Classify work bays, equipment, general storage and mechanical rooms as ordinary hazard in accordance with UFC 3-600-01. Include an outside hose allowance of 250 gpm in the hydraulic calculations.

3.7.3.5.6 Classify the remainder of the building areas as light hazard in accordance with UFC 3-600-01. Include an outside hose allowance of 250 gpm in the hydraulic calculations.

3.7.3.6 Occupancy Hazard Classification

Sprinkler hazard design details are provided for reference only and it is the responsibility of the designer of record (DOR) to provide the design details and system criteria

3.7.3.6.1 In areas classified as ordinary hazard, design the overhead sprinkler system to provide a discharge density of 0.20 gallons per minute over the hydraulically most remote 2,500 square feet of floor area. Sprinklers in these areas must be ordinary temperature (unless ambient conditions require higher temperature rated sprinklers, such as mechanical equipment areas), quick-response type. For areas where ceiling heights do not exceed 30 feet: provide pendent, chrome finish, recessed, K-8 minimum sprinklers in areas with finished ceilings and provide upright, rough brass, K-8 minimum sprinklers in areas without finished ceilings. For areas where ceiling heights are between 30 and 45 feet: provide pendent, chrome finish, recessed, K-11.2 minimum sprinklers in areas with finished ceilings and provide upright, rough brass, K-11.2 minimum sprinklers in areas without finished ceilings. Provide protective cages for sprinklers that are subject to mechanical damage. The maximum protection area per sprinkler

must be 130 square feet, with a maximum spacing of 15 feet. Include an outside hose allowance of 250 gpm in the hydraulic calculations.

- 3.7.3.6.2 In areas classified as light hazard with ceiling heights that do not exceed 30 feet, hydraulically design the overhead sprinkler system to provide a discharge density of 0.10 gallons per minute over the hydraulically most remote 1,500 square feet of floor area. Sprinklers in these areas must be ordinary temperature (unless ambient conditions require higher temperature rated sprinklers), quick-response type. Provide pendent, chrome finish, recessed, K-5.6 minimum sprinklers in areas with finished ceilings and provide upright, rough brass, K-5.6 minimum sprinklers in areas without finished ceilings. In areas classified as light hazard with ceiling heights between 30 and 45 feet, the overhead sprinkler system must be hydraulically designed to provide a discharge density of 0.20 gallons per minute over the hydraulically most remote 2,500 square feet of floor area. Sprinklers in these areas must be ordinary temperature (unless ambient conditions require higher temperature rated sprinklers), quick-response type. Provide pendent, chrome finish, recessed, K-11.2 minimum sprinklers in areas with finished ceilings and provide upright, rough brass, K-11.2 minimum sprinklers in areas without finished ceilings. Provide protective cages for sprinklers that are subject to mechanical damage. The maximum protection area per sprinkler must be 225 square feet with a maximum spacing of 15 feet. Include an outside hose allowance of 250 gpm in the hydraulic calculations.
- 3.7.3.6.3 Seismic bracing is required as the seismic category for the site is Category C.
- 3.7.3.6.4 All new sprinkler system control valves must be provided with signage indicating their function and what it controls in accordance with NFPA 13. The sprinkler system design for Building 216 includes minimum pipe penetrations through ICD 705 walls. Make all sprinkler pipe penetrations via dielectric fittings or ground them properly (if dielectric fittings are not available due to size).
- 3.7.3.6.5 The ceilings do not exceed a slope of 2 in 12.
- 3.7.3.6.6 Hose stream demand must be in compliance with UFC 3-600-01 Table 9-4.
- 3.7.4 Special Fire Suppression and Releasing Systems: None proposed.

3.7.5 Water Supply

3.7.5.1 Fire Flow Requirements

3.7.5.1.1 All of the buildings that are part of this project as existing, Type IIB construction. Fire flow is required for each of the buildings, in accordance with UFC 3-600-01 and NFPA 1, as follows:

Building #	Building Area	From Table 18.4.4.2.1	Reduced for Sprinklers (75% reduction, but not less than 1,000 gpm)
201	9,600 sq ft	2,000 gpm @ 20 psi	1,000 gpm @ 20 psi

Building #	Building Area	From Table 18.4.4.2.1	Reduced for Sprinklers (75% reduction, but not less than 1,000 gpm)
214	13,100 sq ft	2,500 gpm @ 20 psi	1,000 gpm @ 20 psi
216	18,050 sq ft	2,750 gpm @ 20 psi	1,000 gpm @ 20 psi
218	7,825 sq ft	1,750 gpm @ 20 psi	1,000 gpm @ 20 psi

- 3.7.5.1.2 The water supply to the facilities is via existing underground water main systems supplied by the elevated water tank located on the Base property. The water level in this water tank is maintained by a supply line from the City of Fort Smith water department.
- 3.7.5.1.3 Preliminary fire hydrant flow tests were performed at the project site May 22, 2024, at approximately 7:45 am central time. The first test was conducted near Building 201 and indicated a static pressure of 61 pounds per square inch, reduced to 57 pounds per square inch while flowing 1000 gallons per minute. The second test was conducted near Building 214 and indicated a static pressure of 57 pounds per square inch, reduced to 55 pounds per square inch while flowing 1,030 gallons per minute.
- 3.7.5.1.4 Hydrant Flow Test Results. Reference Attachment F of this RFP for these test results.
- 3.7.5.1.5 Based on the results of the fire hydrant flow tests, it does not appear that a fire pump needs to be provided for Buildings 201, 214, 216, or 218 to support the new sprinkler systems. At least one fire pump is required in Building 202 to support the new sprinkler systems.
- 3.7.5.2 Fire Hydrants and Fire Access
- 3.7.5.2.1 No new fire hydrants or fire access roads are proposed.
- 3.7.5.2.2 For the new sprinkler systems in Buildings 201, 214, and 216, provide the fire department connection within 150 feet of an existing fire hydrant, where practical. Provide an exterior PIV on the fire main lead-in piping, located in accordance with the requirements of NFPA 24 and monitored by the building fire alarm system. Provide a new double-check backflow prevention device inside the building at the riser manifold.
- 3.7.5.2.3 For the existing sprinkler systems in Buildings 202 and 216, the distance from the existing fire department connection to the existing fire hydrant is 150 feet or less. An exterior PIV is provided on the fire main lead-in piping, located in accordance with the requirements of NFPA 24. Building 202 and 216 are provided with existing backflow prevention devices which are to remain.
- 3.7.5.2.4 Provide key boxes matching the requirements of the Base at all buildings.

3.7.6 Standpipe

A standpipe system is not required per UFC 3-600-01, Paragraph 9-10.2 in any of the 5 buildings in this project. The buildings are less than 4 stories and all areas of the buildings are within 450 feet of an exterior door.

3.7.7 Portable Fire Extinguishers

Provide general purpose portable fire extinguishers where required by NFPA 101. Size and space them in accordance with UFC 3-600-01 and NFPA 10. Provide new portable fire extinguishers throughout all areas of work. Provide at least one class 4A:80B:C rated dry chemical portable fire extinguisher for every 11,250 square feet of floor area and locate such that an occupant travels no more than 75 feet before reaching a portable fire extinguisher, except in the electrical equipment rooms. One class 4A:80B:C rated portable fire extinguisher must be located within 30 feet of the appropriate hazard, such as the main electrical panel. Provide wall mounted or in recessed cabinets, as specified in the architectural narrative.

3.7.8 Fire Alarm and Mass Notification System

- 3.7.8.1 Building 201 is classified as a low occupancy building and does not require a mass notification system per UFC 4-010-01. Since this is a sprinklered building it is required to have a fire alarm system in accordance with UFC 3-600-01, Paragraph 9-18.1 and NFPA 101.
- 3.7.8.2 The fire alarm device locations and notification appliance coverage does not comply with current requirements of UFC 3-600-01, UFC 4-021-01 or NFPA 72. A new fire alarm and mass notification system must be provided in Buildings 202, 214, 216, and 218.
- 3.7.8.3 Provide a new combination fire alarm and mass notification system in accordance with NFPA 72, UFC 3-600-01, UFC 4-021-01, and ECB 2018-17. Locate the fire alarm and the mass notification control unit (FMCU), fire alarm control panel (FACP), and remote annunciators in a normally occupied, conditioned area approved by the Contracting Officer, Base Civil Engineer Squadron and the Fire Department.
- 3.7.8.4 Initiating devices must consist of spot-type smoke detection (above the fire alarm and mass notification control unit, above any other fire alarm control units), carbon monoxide detectors (in mechanical rooms containing fuel-fired equipment), sprinkler waterflow switches and manual pull stations at each exit. Provide photoelectric duct detectors in the supply air ducts of air handling units greater than 2,000 cfm. All new sprinkler system tamper switches, including PIVs, must be monitored as supervisory conditions by the fire alarm system. The fire pump must be monitored for Pump Running, Loss of Phase and Phase Reversal. Use Class B wiring in red conduit for all SLC, IDC and NAC wiring. Provide a fire alarm remote annunciator at a location approved by the Fire Department, presumably at the main entrance.
- 3.7.8.5 Transmit alarm, trouble and supervisory signals to the Base Fire Department via a new Monaco BT-XF radio transceiver. Provide transient voltage surge suppression for each new control unit and auxiliary panel.
- 3.7.8.6 Provide all combination speaker/strobes, speakers, and strobes in accordance with NFPA 72. The fire alarm and mass notification system must utilize the same clear-lens strobes, labeled "Alert", for occupant notification. Provide LED signs above each exit from the building. The system must be designed in accordance with UFC 04-021-01 (as amended by ECB 2018-17), including live voice messaging and playback of prerecorded messages. All speaker devices

located in secure (ICD-705) areas must be of the self-amplifying type or a remote amplifier panel must be provided inside each secured area to support the speakers and a notification appliance circuit (NAC) panel provided to support visual notification appliances.

- 3.7.8.7 Provide weatherproof exterior speakers at exterior gathering locations, hangar bays, fire pump room, and entrances/exits to the building.
- 3.7.8.8 Connect the remote amplifier and NAC panel(s) to the main FMCU via a fiber optic connection.
- 3.7.8.9 Provide local operator consoles (LOC) at the main entrance and located throughout the building such that an occupant does not have to travel more than 200 feet to get to a LOC. Provide a global emergency HVAC shutdown button adjacent to each LOC. The HVAC shutdown is not required to be part of the MNS.
- 3.7.8.10 Provide an interface with the fire alarm system to silence the fire alarm voice messages during broadcast of mass notification messages.
- 3.7.8.11 Provide all metallic conduit penetrations through security wall assemblies with dielectric unions on the secured side of the wall. Surface mount all system components installed on secure area walls.

3.7.9 Basic Building Code Summary

3.7.9.1 Occupancy Classification (IBC Chapter 3 and NFPA 101, Chapter 6):

Building #	IBC Classification	NFPA 101 Classification
201	Group S-1	Storage
202	Group S-1	Industrial
214	Group F-1	Industrial
216	Group B	Business
218	Group A-3	Assembly

3.7.9.2 Construction Type (IBC Table 601): All 5 buildings appear to be Type IIB construction (non-rated, non-combustible).

3.7.9.3 Allowable Height, nonseparated mixed use (IBC Tables 504.3 and 504.4, Sprinklered per NFPA 13:

Building	Occupancy	Allowable Height/Stories	Provided Height/Stories
201	S-1	75 feet/4 stories	34 feet/1 story
202	S-1	75 feet/4 stories	47 feet/1 story
214	F-1	75 feet/3 stories	34 feet/1 story (+mezz)
216	B	75 feet/4 stories	32.5 feet/1 story
218	A-3/B	75 feet/3 stories	27 feet/1 story

3.7.9.4 Allowable Floor Area, non-separated mixed use (IBC Table 506.2, Sprinklered per NFPA 13:

Building	Occupancy	Allowable Area – Single Story (no open space increase)	Provided Area
201	S-1	70,000 sq ft	9,600 sq ft
202	S-1	70,000 sq ft	31,350 sq ft
214	F-1	62,000 sq ft	13,100 sq ft
216	B	92,000 sq ft	18,050 sq ft
218	A-3/B	28,500 sq ft	7,825 sq ft

3.7.9.5 Required Separations from Hazards (NFPA 101, Section 38.3.2)

3.7.9.5.1 Mechanical Rooms (boiler or furnace): 1-hour fire resistance rating or sprinklers

3.7.9.5.2 Storage Rooms (general): 1-hour fire resistance rating or sprinklers

3.7.9.5.3 Occupancy Separation (IBC Table 508.4): None Required

3.7.9.6 Required Fire Resistance Requirements (IBC Tables 601 and 705.5)

Exterior Bearing Walls: 0-hour fire resistance rating. Exterior walls are more than 10 feet from the adjacent building; therefore, the exterior walls are not required to be fire rated barriers.

Interior Bearing Walls: 0-hour fire resistance rating

Structural Frame: 0-hour fire resistance rating

Floors and Floor/Ceilings: 0-hour fire resistance rating

Roof and Roof/Ceiling: 0-hour fire resistance rating

Shafts: No shafts provided

3.7.9.7 Fire and/or Smoke Dampers (NFPA 101, Section 9.2 and NFPA 90A, Section 5.3)

Fire Dampers: 1-hour fire resistance rating (required only in air transfer openings in 1-hour fire resistance rated barriers)

Smoke Dampers: 1-hour fire resistance rating (required only in air-transfer openings in smoke partitions)

3.7.10 Basic Life Safety Code Summary

3.7.10.1 Means of Egress: Means of egress must be in accordance with NFPA 101 per UFC 3-600-01.

3.7.10.2 Separation of Means of Egress (NFPA 101, Sections 7.1.3.2 and 38.3.6.1),

Corridor Walls: Not required (automatic sprinkler protection provided)

Corridor Doors: Not required (automatic sprinkler protection provided)

3.7.10.3 Occupant Load (NFPA 101, Table 7.3.1. 2 and UFC 3-600-01, Table 10-1)

Assembly, concentrated	1 person per 15 net sf
Concentrated Business:	1 person per 50 gross sf
Business - other:	1 person per 150 gross sf
Collaboration Rooms >450 sf:	1 person per 15 gross sf
Collaboration Rooms <450 sf:	1 person per 30 gross sf
General/high hazard industrial:	1 person per 100 net sf
Storage:	1 person per 500 gross sf
Mechanical/Electrical:	Maximum anticipated

3.7.10.4 Number of Exits (NFPA 101, Sections 7.4.1.1)

Required (per floor): 2

Provided: >2

3.7.10.5 Egress Capacity (NFPA 101, Section 7.3)

Level Surfaces: 44 inches required
 Stairs: N/A – No stairs provided

3.7.10.6 Common Path of Travel

Occupancy	NFPA 101 Section	If sprinklered
Assembly > 50 people	12.2.5.2	20 feet
Assembly < 50 people	12.2.5.2	75 feet
Business	38.2.5.2.1 & 38.2.5.3.3	100 feet
Industrial (general)	Table 40.2.5.1	100 feet
Storage (ordinary hazard)	Table 42.2.5	100 feet

3.7.10.7 Dead-End Corridors

Occupancy	NFPA 101 Section	If sprinklered
Assembly > 50 people	12.2.5.3	20 feet
Assembly < 50 people	12.2.5.3	20 feet
Business	38.2.5.3.1	50 feet
Industrial	Table 40.2.5.1	50 feet
Storage	Table 42.2.5	100 feet

3.7.10.8 Travel Distance

Occupancy	NFPA 101 Section	If sprinklered
Assembly > 50 people	12.2.6.2	250 feet
Assembly < 50 people	12.2.6.2	250 feet
Occupancy	NFPA 101 Section	If sprinklered
Business	38.2.6.3	300 feet
Industrial	Table 40.2.6.1	250 feet
Storage	Table 42.2.6	400 feet

3.7.10.9 Discharge From Exits (NFPA 101, Sections 7.7): Connect all exits to an exit discharge path that terminates at a public way.

3.7.10.10 Interior Finishes (NFPA 101, Section 10.2)

Occupancy	Exit Enclosures	Exit Access Corridors	Rooms & Enclosed Spaces	Floor Finish
Assembly	N/A	Class A or B	Class A, B or C in assembly less than 300 occupants	Class I or II
Business	N/A	Class A or B	Class A, B or C	Class I or II
Industrial	N/A	Class A, B or C	Class A, B or C	Class I or II in exit access corridor, otherwise no requirement
Storage	N/A	Class A, B or C	Class A, B or C	Class I or II in exit access corridor, otherwise no requirement

3.7.11 Emergency Lighting

Provide emergency lighting via battery backup at all means of egress, including exit access corridors and exit discharges. Provide emergency lighting in the mechanical rooms via battery backup. Emergency lighting must be provided for a minimum of 1½ hours in the event of internal power failure. Provide all emergency lighting in accordance with NFPA 101. Provide new emergency lighting in areas that are being fully remodeled (i.e., walls and ceilings removed).

3.7.12 Marking of Means of Egress

Provide all new exit signs which are LED type with battery backup and have red lettering. Provide exit signs in accordance with NFPA 101. Provide exit signs wherever the location of the exit is not readily apparent. Provide exit sign illumination for a minimum of 1½ hours in the event of internal power failure.

3.7.13 Hazardous Materials

Limited quantities of hazardous materials stored within designated cabinets will be present in Building 202, Building 214, and in the Pyro Room of Building 218. The use and storage of all hazardous materials must be in accordance with UFC 3-600-01, Section 4-20 and NFPA 400. Provide classified electrical equipment complying with NFPA 70 Article 500 where required, including the Fuel Bay of Building 202 and the Pyro Room in Building 216.

The materials to be stored in the Pyro Room in Building 218 have been previously classified as Division 1.4. The quantity of these materials is proposed to be the same as at the user group's current site. The document provided by the user group listing the type and quantity is found in Attachment H. The total amount of explosive materials proposed in this room is shown to be less than the MAQ as defined in UFC 3-600-01, and this space is not required to be classified as a Hazardous Occupancy.

3.8 Electrical Design

3.8.1 Description of Services

All five buildings have existing services with Oklahoma Gas & Electric (OG&E) owned primaries, transformers, and meters. Coordinate any load increases with OG&E point of contact Michelle Rodriguez-Pico, rodrigmc@oge.com. Follow all applicable codes listed in Attachment A. For any utility work, coordinate design and installation with Oklahoma Gas and Electric.

3.8.1.1 Existing Service Information

- a. Building 201: 208Y/120V, 200A, 3-Phase, 4W, main service panel PA. Existing 5KW, 120/240V, 1-Phase, 3W generator and panel. Utility transformer 321798, meter OG&E 1060137 52750758G. 400HZ panel existing.
- b. Building 202: 480/277V, 1200A, 3-Phase, 4W, main service panel switchboard. Utility transformer 321855, meter OG&E 1060129 50620918G. 400HZ panel existing.
- c. Building 214: 480/277V, 400A, 3-Phase, 4W, MDP. Utility transformer 321831, meter OG&E 1060129 50620920G.
- d. Building 216: 480/277V, 800A, 3-Phase, 4W, disconnect switch. Utility transformer 500KVA, 322011, meter OG&E 1060129 50620917G. 400HZ existing panel.
- e. Building 218: 480/277V, 800A, 3-Phase, 4W, disconnect switch. Utility transformer 322010, meter OG&E 1060129 53224865G.

3.8.2 Contractor Requirements

Provide all personnel, equipment, tools, materials and other necessary items to perform all work required for fully functional facilities at B201, B202, B214, B216, and B218. Comply with the requirements of the latest editions of NFPA 70 (National Electrical Code), NFPA 70E (Standard for Electrical Safety in the Workplace), ANSI C2 (National Electrical Safety Code), and applicable OSHA requirements. Comply with installation, local, state, and federal environmental/occupational safety laws. Take all necessary actions to preclude any unsafe conditions which may be hazardous to the health and safety of personnel. Upon completion of construction, provide as-builts with red lines of any field notes or changes.

3.8.3 Demolition

Remove the entire existing electrical power distribution panels for Buildings 201, 214, 216, and 218. Include in demolition the panels, transformers, and disconnects. For all five buildings, including B202, completely remove electrical equipment back to the source where walls and spaces are modified. Replace all lighting and controls in areas affected by construction of all five buildings.

3.8.4 Electrical Power Systems New Work

Provide engineering calculations for demand load, voltage drop, short circuit analysis, arc flash, coordination study, and point to point lighting calculations for normal and emergency lighting systems. Meet the new electrical demand, new building functions (including electrical, mechanical, security and communications), and code requirements. Optimize energy savings. For all electrical equipment or devices, such as lighting and motors, meet ASHRAE 90.1 standard. All electrical equipment must have capability to withstand available short circuit currents. The following are scope requirements by building.

3.8.5 New Exterior Power Distribution Systems

3.8.5.1 Primary Duct Bank

New service is not anticipated.

3.8.5.2 Primary Feeders

New service is not anticipated.

3.8.5.3 Utility Transformer

New service is not anticipated.

3.8.5.4 Secondary Duct Bank

New service is not anticipated.

3.8.6 Interior Power Distribution Systems

3.8.6.1 Overview – See concept drawings for areas of construction.

- a. Install new panels and disconnects to replace existing weathered and rusted panels in Buildings 201, 214, 216, and 218. In new or modified areas of all buildings, provide a new electrical system that includes, but is not limited to, secondary service, lighting fixtures, lighting controls, receptacles (including for any security or ACS, TVs and A/V), motors, packaged units, and HVAC circuits.
- b. Replace conduit and conductor for any circuit which is relocated. Inspect any circuit that is existing to remain. If found to be in good condition, reconnect to new panels or disconnects.
- c. B201 - Replace panels, transformers, disconnects. Replace some lighting and receptacles. Install new lighting and receptacles in rooms affected by construction. Plan for 75% new.
- d. B202 - Replace some lighting and receptacles. Install new lighting and receptacles in rooms affected by construction. Install two overhead plug reels. Install two new hoists. Install grounding strips in all bays. Plan for 30% new.
- e. B214 - Replace panels, transformers, and disconnects. Replace some lighting and receptacles. Install new lighting and receptacles in rooms affected by construction. In Parachute room, provide devices with a hazardous rating. Install new 115V 400hz receptacles (from existing system) and 208V 3-phase receptacles. Install retractable extension coords with 120V 3 pin plugs. Plan for 60% new.
- f. B216 - Replace panels, transformers, and disconnects. Replace some lighting and receptacles. Install new lighting and receptacles in rooms affected by construction. Plan for 80% new.
- g. B218 - Replace panels, transformers, and disconnects. Replace some lighting and receptacles. Install new lighting and receptacles in rooms affected by construction. In Pilot Kit Up Room, provide devices with a hazardous rating. In Pyro room, provide devices with a hazardous rating and grounding points for pyro cabinet. Evaluate rooms

with hazardous classifications per NFPA and DA PAM 3685-64 Ammunition and Explosive Standards. Plan for 60% new.

3.8.6.2 Power Distribution

Provide new main distribution panels or service entrance panels in the main electrical rooms. Equipment must be service entrance rated to meet the existing or modified demand plus any additional loads such as electrification of new mechanical equipment, 480Y/277 volt (208Y/120V for B201), 3-phase, 4-wire distribution panelboards with a surge protection device (SPD). Do not install any surge protective device (SPD) in the switchboard or panelboard enclosure. Provide HACR rated circuit breakers where serving HVAC loads. Provide main service equipment with approximately 15% combination of spare devices and space to accommodate future load per UFC 3-501-01. Any new feeders from these panels to the downstream panel boards must be THWN copper in conduit. Step down, 15KVA or larger, dry type transformers (480V delta to 208Y/120V wye) must be insulation Class 220°C to provide for 115°C temperature rise; this also provides long term transformer reliability. In addition, dry type transformers that serve communications and computer receptacle loads must be K-4 rated to accommodate nonlinear loads. Locate all floor mounted equipment on concrete housekeeping pads. Building 214 has the additional requirement of a 115V 400Hz receptacle and a 208V 3-phase receptacle.

3.8.6.3 Conduit and Conductors

Route feeders and branch circuits in EMT conduit (RGS where exposed to damage). Conceal conduits above ceilings or inside of walls unless in utility spaces. All feeder and branch circuiting conductors must be 600V, THHN or THWN, copper wiring, rated at 75 degrees C for 100A and above, and 60 degrees C for under 100A. Equipment grounding conductors are provided for feeders and branch circuits. In areas where there is a hazardous classification, refer to the NEC Article 500. Do not use conduit as a ground pathway. Provide nonlinear, high harmonic loads with dedicated neutrals. Provide dielectric break for any conduit penetrating the secure or secret room boundaries.

3.8.6.4 Motors

Provide motors of sufficient size for the duty to be performed, and do not exceed the full-loading rating when the driven equipment is operating at specified capacity under the most severe conditions encountered. All motors must have open frames and continuous-duty classification and must be based on a 40 degree C ambient temperature reference. All motors must be derated (as applicable) for the facility's altitude. Thermal overloads must be the bimetallic type that can be reset. Motors above 1 HP must be premium efficiency. All three-phase motors must have phase loss protection. Disconnect switches for motors must be general duty type. Exterior switches must be of the rain-tight (NEMA 3R) type. Provide starters, variable frequency drives, and disconnect switches for packaged HVAC equipment as required by HVAC equipment manufacturer.

3.8.6.5 Faceplates

Provide receptacles and toggle switches that are white with stainless steel faceplates.

3.8.6.6 Panelboards

Panelboards serving large mechanical and lighting loads must be 480Y/277 volt (208Y/120V for building 201), 3 phase, 4 wire, while panelboards serving fractional horsepower loads and convenience outlets must be 208Y/120 volt, 3 phase, 4 wire. Size all panelboards for a minimum of 20% spare capacity and a minimum of 15% spare circuit breakers, utilizing copper bussing, and with a surge protection device (SPD). Do not install any (SPD) in the panelboard enclosure. Provide spare circuit breakers which are redundant and match the type of circuit breaker in the panelboard. All circuit breakers must be bolt-on type. Provide a panel schedule which is typed and placed in a protective holder located on the front inside of the panelboard door for all panelboards. Panels must have a hinged door with a master keyed flush tumbler latch. Label all panelboards with a plastic identification plaque. Refer to Section 3.9 – Telecommunications Design for telecommunication specific power requirements.

3.8.7 Power Quality and Grounding

Preserve power quality for the facility by using surge protective devices (SPD) at the service distribution equipment, panels, and where sensitive electronic loads exist. SPD's limit the intensity of over voltage transients from external power distribution events and internal power events.

3.8.7.1 Grounding

Ground interior electrical systems in accordance with Article 250 of the current National Electrical Code. Use grounding methods consistent with J-STD-607-C "Commercial Building Grounding and Bonding Requirements for Telecommunications", I3A, and applicable UFCs for all communications systems.

3.8.8 Interior Lighting

3.8.8.1 Lamps

Meet IESNA and Energy Code requirements for light fixture selection and controls. Comprise general facility lighting of high efficiency recessed LED luminaries. Provide pendant type LED industrial luminaries with wire guards at utility areas having unfinished ceilings (i.e.: electrical, mechanical, janitor.) Utilize direct, recessed, 2x2 luminaries throughout the facility (i.e.: open areas, offices, conference rooms, and hallways). Use LED fixtures which are 3500 degrees K with a minimum color rendering index (CRI) of 80. Use toggle switches which are white with stainless steel covers.

3.8.8.2 Controls

Comply with UFC 3-530-01 and ASHRAE 90.1, Chapter 9 for all facility lighting controls. Utilize dual technology (ultrasonic and infrared) occupancy / vacancy sensors, daylight sensors, multi-level switching, and a central lighting controller. Utilize multi-level switching for multi-occupant spaces such as open offices. Provide conference rooms with dimmable fixtures with preset lighting scenes for maximum illumination control. Provide three-way switching for spaces with multiple exits.

3.8.8.3 Exit Lighting

Provide emergency egress lighting by using battery backed ballasts. Frog-eye fixtures are not acceptable. Employ red LED lamps on a white field for "EXIT" lights.

3.8.8.4 Spare Parts Compatibility

Design lamp types, ballast types, and fixture types to be uniform so maintenance and stocking of replacement items is minimized.

3.8.8.5 Illumination Levels

Maintain the following illumination levels based upon IESNA recommendations:

Space	Lighting Level (fc)	Workplane (in)
Bathroom	5	0"
Corridors	5	0"
Entrance (Exterior)	1	0"
Exits (At Floor Level)	1	0"
Kitchen	50	36"
Offices	30	30"
Storage	10	0"
Telecomm Closet	50	36"
Utility Rooms	20	36"

3.8.9 Exterior Lighting

At any new or modified entrances or exits, include building mounted exterior lighting which is controlled to power on at dusk, automatically reduce lighting power by a minimum of 30% from 12 midnight or within one hour of normal closing (whichever is later) until 6am or normal opening (whichever is earlier) and during any period when no activity has been detected for a time of no longer than 15 minutes. Automatically turn off when sufficient daylight is available. Employ full cutoff, LED lamps at all exterior lighting. Illuminate entrances maintaining 1 footcandle. Spread illumination up to 10 feet away and around all personnel doors and roll-up doors.

3.8.10 Electrical Meters

No new meters are anticipated.

3.9 Telecommunications Design

3.9.1 General Information:

Produce all drawings, calculations, and specifications utilizing a Registered Communications Distribution Designer (RCDD), who will also sign and seal the documents. Review all submittals using only an RCDD or an RCDD certified tech.

3.9.2 Demolition

Remove Building 202, 214, 216, and 218's telecommunications systems in their entirety, with the exception of the outside plant telecommunications cabling. Splice outside plant cabling at current location (PET) and route to the new telecom room. Building 201 communications to remain as is.

Re-use the existing comm rooms in Buildings 201 and 202. In both buildings, remove all cat 6 wiring in modified walls back to the comm panels.

Before demolition begins, and before new installation, contact the Base Communications Squadron to test the existing outside plan (OSP) copper of each building to ensure the fiber and copper are still functioning and in good condition. Test both the copper and fiber 100% and provide test report to the Contracting Officer Representative (COR).

For any existing equipment that is removed and re-installed, contact the Base Communications Squadron for shutdown and disconnect work. Coordinate an onsite location to hold and store equipment in a location safe from the environment until construction is complete. Base Communications Squadron will inspect the equipment for proper operation before installation.

Install any existing cables removed and re-used in a splice case. Copper cables will have the pairs "cleared" to prevent shorts and grounds before placement of a splice case.

For fiber cables ensure there is no light source on the feeder side before installing a splice case. This is a safety issue as the light source can be extremely harmful to one's eye if looking into the fiber ends.

3.9.3 Telecommunications Systems New Work

3.9.3.1 General New Work by Building

- a. B201 – Add phone drop from existing communication. All existing comm to remain as is.
- b. B202 - Utilize existing communications room and add all new racks, patch panels, comm room power panel, cable tray NIPR and phone line drops. See concept drawings and room data sheets for drop locations and quantities. An additional wall mounted cabinet is required on the east side of the building to accommodate distance limitations. Provide backbone cabling consisting of multiple 12 strand 9/125mm single-mode fiber optic (SM FO) OS2 cables. Add Wi-Fi for ES and IDMS. Install SMF between communications room and the areas housing PMA-Server-Module (PSM) and the PMD-Reader.
- c. B214 - Add new communications room per UFC requirements including new racks, patch panels, comm room power panel, cable tray, and add NIPR and phone line drops. See concept drawings and room data sheets for drop locations and quantities. Install SMF between communications room and the areas housing PMA-Server-Module (PSM) and the PMD-Reader.

- d. B216 – The existing communications room is not in full compliance with the UFCs. Because this is a renovation project, reuse of the existing space is allowed without modification to the room size. See concept drawings and room data sheets for drop locations and quantities. Install SMF between communications room and the areas housing PMA-Server-Module (PSM) and the PMD-Reader.
- e. B218 - Add new communications room per UFC requirements including new racks, patch panels, comm room power panel, cable tray and add NIPR and phone line drops. See concept drawings and room data sheets for drop locations and quantities. Add Wi-Fi for ES and IDMS. Install SMF between communications room and the areas housing PMA-Server-Module (PSM) and the PMD-Reader.

3.9.3.2 Fiber Testing

For multimode optical fiber, perform optical fiber end-to-end attenuation tests in accordance with TIA-568.3 and TIA-526-14 using Optical Power Meter and Light Source and OTDR for multimode optical fiber. For single-mode optical fiber, perform optical fiber end-to-end attenuation tests in accordance with TIA-568.3 and TIA-526-7 using Optical Power Meter and Light Source, and OTDR.

3.9.3.3 Telecommunications Power

In new communications rooms, provide a dedicated 208/120V, 3-phase, 4 wire panelboard to serve each telecommunications room. Panelboards must serve all receptacles, equipment rack power, and HVAC power in the telecommunications room. Do not circuit the lighting in the telecommunications spaces to the telecommunications panelboards. Provide a minimum of two dedicated duplex receptacles at each equipment rack, located 24" above finished floor (AFF). Provide a dedicated 20A, 120V NEMA 5-20R and 208V 1-phase spare receptacle at each rack, located at 24" AFF, for Government furnished, Government installed (GFGI) uninterruptable power source (UPS) equipment.

3.9.3.4 Grounding

Provide backboards in accordance with TIA-569-C. Provide backboards which are fire-retardant-treated wood, bearing the manufacturer's stamp. If painted, the manufacturer's fire rated stamp must remain visible. Cover a minimum of two adjacent walls with backboards. When renovating an existing telecommunications room that does not have adequate space, size the backboard as large as possible to accommodate wall mounted equipment.

Provide dedicated Telecommunications Grounding Busbar (TGB) grounding bus with a ground conductor tied to the Telecommunications Master Grounding Busbar (TMGB) in the Telecommunication Entrance Facility (TEF.) Bond the TMGB to the facility power system grounding system per J-STD 607-C. Design the communications grounding between any TGB and the TMGB for no more than 100 milliohms resistance. Provide dielectric break for any conduit penetrating the room boundaries in Secure or Secret rooms. Provide a separate red and black ground in accordance with ICD-705 3.14 in the Vault area.

3.9.3.5 Patch Panels

Include a minimum of one LAN rack with RJ-45 jack, TIA 568A configuration patch panels, and 24 port optical fiber patch panels with LC connectors in each communication room.

3.9.3.6 Outside Plant Telecommunications

Leave outside plant (OSP) telecommunication cablings in place at new communications rooms. All existing (and new if required) OSP cables must be protected when not in use, and until they are terminated. Disconnect OSP cabling from the existing protective entrance terminals (PET) and fiber optic patch panels. Terminate outside plant single mode fiber optic (SM FO) OS1 cabling on rack mounted 24 port optical fiber entrance patch panels with LC connectors in the Communications Entrance Room (CER). Terminate outside plant copper pair cabling on backboard mounted circuit protector with service entrance overvoltage protectors in a 1:1 arrangement. Install ISP multi-pair cable from the PET to the rack and terminate on a CAT 6 patch panel. (pair per port).

3.9.3.7 Telephone Backbone Cabling

In new communications rooms, provide a new telephone backbone cabling system which consists of patch cords to be used to jumper voice ports for the room's outlets.

3.9.3.8 Data Backbone Cabling

For the new communication cabinet in Building 202, provide data backbone cabling consisting of multiple 12 strand 9/125mm single-mode fiber optic (SM FO) OS2 cables routed from rack mount fiber patch panels in the main communications room to rack mounted FO patch panels in the communication rooms on each floor. Utilize LC style connectors for backbone cabling.

3.9.3.9 Horizontal Cabling

Include jacks with a minimum of one voice jack and one data jack per wall plate for new voice and data telecommunication infrastructure. Provide jacks for offices, workstations, and assembly rooms. For station data wiring use one Cat-6 cable to each RJ-45 jacks and employ TIA 568A wiring topology. Terminate all data jacks on rack mounted patch panels. Locate wall jacks within 18-inches of power receptacles and provide a minimum of two per private office. Route telecom cabling in a combination of conduit and cable tray and terminate at the nearest telecommunications room rack-mounted patch panels.

3.9.3.10 Future Antenna System

Provide a 2.5" hole for two future antennas (GPS, primary link 16). Coordinate hole location with antenna location on roof.

3.9.3.11 SIPRNet

Provide SIPRNet connectivity at select locations indicated on room data sheets. Service these spaces with SIPRNet telecommunication rooms. In areas accredited as Sensitive Compartmented Information Facilities (SCIF), the SIPRNet cables are not required to be located in Protective Distribution Systems (PDS). Outside a SCIF, provide PDS for SIPRNet level telecommunications. Provide SIPRNet rooms in accordance with the "Building SIPRNET Communication Room – New Construction Guidance" and in accordance with the Technical Guide for the Integration of Secret Internet Protocol Router Network Version 5.0. Work with client to determine SIPRNet drop locations.

3.9.3.12 SIPRNet ICIDS

Provide infrastructure (conduit, power sources, and junction boxes) for the intrusion detection (IDS) at the Arms Vaults and SIPRNET rooms.

3.9.3.13 Protective Distribution System (PDS)

Furnish and install a PDS to provide SIPRNET access points in the offices and conference rooms. Mount PDS components exposed on walls on stand-off spacers such that 360-degree inspection of raceway is possible. Provide two, 2-inch conduits from each SIPRNet room to the adjacent telecommunications closet. Provide two, 4-pair, unshielded, CAT-6, copper cables in one two-inch conduit. Provide 12 strand single mode fiber optic cable in the second two-inch conduit. The following separation must occur between SIPRNet (Red) cabling and equipment from NIPRNet (black) cabling and equipment per NSTISSAM TEMPEST/2-95 requirements: (1) Provide 2 inch (5 cm) between red conductors crossing black conductors; (2) Provide 6 inch (15 cm) between red conductors running parallel with black conductors for over 98.5 feet (30 meters); (3) Provide 39.4-inch separation between encryption devices, jacks and computers.

3.10 Special Systems Design

3.10.1 Lightning Protection

Each building has an existing lightning protection system. Where roofing is replaced, remove the existing system and install a new system connected to the existing (where applicable).

Where required, install new lightning protection systems per NFPA 780. Provide systems consisting of Class 1 materials, 24-inch air terminals at maximum 25-foot spacing, main conductors, cross conductors, down conductors, bonding conductors, and connected to the existing system. When located on roofs, utilize cross conductors which are compatible with the roof material. Utilize Schedule 80 PVC conduit to route conductors down from the roof to the counterpoise. Where down conductors are not feasible, building steel may be used as the down conductors. Provide a lightning protection system with a UL Master Label certificate. Ground all electrical and communications systems to a single point to limit voltages due to lightning, line surges, and unintentional contact with higher voltage lines.

3.10.2 Conveying Systems

Two new 5-ton bridge cranes with a 22'-0" minimum hook height are required for Building 202. Refer to Architectural Section for additional information. Support the bridge cranes independently of the existing building structure. Coordinate design and installation of conveying system and fall protection systems.

In Building 214, inspect, test, and repair existing hoists and cranes and recertify for use.

3.10.3 Security Systems

3.10.3.1 Security Cameras

Provide interior IP addressable security camera infrastructure (conduit, junction boxes, and pull strings) for select areas within the facility. Provide dedicated conduits from camera locations to telecommunications room. Provide space in the rack for GFGI video server recording and control equipment. If cameras exceed 295', utilize fiber with media converters and provide a power feed for the converters.

3.10.3.2 Access Control System (ACS)

Provide provisions for a Government-furnished, Government-installed (GFGI) access control system (ACS) at all exterior entrances except mechanical and electrical rooms, which must be key locked. Use card key and PIN keypad devices for maximum flexibility and security. Configure the ACS to allow for government CAC cards to be used for access. Integrate and control access to SCIF perimeter portals through the ACS.

3.10.3.3 Audio-Visual Equipment

Provide provisions for a GFGI ceiling mounted projector where indicated on concept drawings. Provide a recessed projection screen, with motor, above the ceiling in the room with a projector. Provide infrastructure and wiring for a computer, as well as the supports and wiring for a wall mounted television. Provide a wall switch to control retraction of the screen. Coordinate specific layout and equipment requirements with the Users during the design phase.

3.10.4 Closed Circuit Television (CCTV)

Provide infrastructure (conduit, pull strings, and junction boxes) for a closed-circuit television (CCTV) system. Route the CCTV system from Building 216 to new cameras (GFGI) mounted on the outside of Building 202. Locate cameras to provide a full clear image of the parking apron. Servers and monitoring equipment will be provided and installed by others.

3.11 Antiterrorism (AT) and Force Protection (FP) Design

3.11.1 Antiterrorism

B201 is considered a low occupancy building and is exempt from the minimum antiterrorism standards. B202, B214, B216, and B218 must comply with the latest minimum standards as defined in UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings. The Design Basis Threat for these facilities is low; therefore, only the minimum standards are applicable.

Apply Standard 2 enclosure requirements at B201 for the existing utility yards as a best practice and as preferred by Ebbing ANG Base.

3.11.2 Force Protection

No site modifications are required for antiterrorism. The existing sites have parking within the 33-foot unobstructed space. Standard 2 – Section 3-3.7 of UFC 4-010-01 allows parking within the unobstructed space. Ebbing ANGB has a barrier plan in place to respond operationally to a force protection condition (FPCON) change. In this case, parking may be temporarily eliminated within the unobstructed space at a higher FPCON.

3.12 Cybersecurity

3.12.1 Control System Cybersecurity

Determine all facility related/industrial control systems that are required to be designed in accordance with UFC 4-010-06 Cybersecurity of Facility Related Control Systems. These systems may include but are not limited to: Utility Monitoring Control Systems, Fire Alarm Mass Notification, Access Control Systems, EMCS, and Intrusion Detection Systems. Reference the Department of Defense Platform IT Master list. Submit a complete list to the Government as required in the design phases for approval. After determining the facility related system involved, the Contractor is responsible for all design submissions / deliverables / functions as outlined in UFC 4-010-06 Section 5.

3.12.2 Cybersecurity Specifications

Deliver an edited UFGS Specification Section 25 05 11 Cybersecurity for Facility-Related Control Systems for each facility control system identified and planned. All design submittals and deliverables will be reviewed and approved by the Government at all stages of the design. Interface with the Base via the Contracting Officer to define existing system requirements, Confidentiality Integrity Availability Impact Ratings, transport cybersecurity requirements (for example: existing enclave, standalone), existing authorization status, local installation cyber-requirements and other items that may impact the security posture of the system or scope and level of work required. Deliver construction submittals in accordance with the approved UFGS 25 05 11 for each platform.

PART 4 EXECUTION

4.1 General

4.1.1 Design Criteria

Facility design, materials, equipment, and installation must be in accordance with the requirements of the listed codes and design manuals in Attachment A.

4.1.2 Specifications

Utilize SpecsIntact to provide specifications for this project. There is no charge for this software. This software can be downloaded by the contractor from http://www.wbdg.org/ccb/browse_cat.php?c=3. Submittal of marked-up guide specifications is required at the 65% and 95% submittal stages of design which illustrate what has been edited from standard guide specifications. Prepare marked-up guides utilizing SpecsIntact software with strike-outs and redlining for this purpose. At the Final submittal stage, submit clean copies of specifications without markups.

4.1.3 Construction Documents

Provide the Government with a copy of the completed specifications, design calculations, and drawings. All design submittals must be electronic only, with the exception of Contract Drawings, As-Built Drawings and Operations and Maintenance (O&M) manuals.

4.1.4 Hazardous Materials

Perform a Regulated Materials Survey of the features to be renovated/demolished. In addition to lead paint, PCBs, asbestos, and mercury surveys, include any other components that may require special handling during the renovations of the buildings. Use only accredited laboratories to analyze samples. Provide a preliminary report prior to the design charrette which includes anticipated costs for abatement. Notify the Contracting Officer as soon as possible if abatement is required. Reference CLIN schedule for an allowance amount included to cover the abatement of all hazardous materials, if found during the renovations required for this project.

4.1.5 Topographic Survey

Furnish a topographic survey of the proposed site areas.

4.1.6 Building 216 Construction Schedule

Building 216 must be ready for occupancy no later than 30 June 2026. Complete construction on all other buildings within the period of performance (PoP).

4.1.7 Availability of Buildings

All buildings will be vacated prior to commencement of construction.

4.1.8 Miscellaneous

Verify all information received and all existing conditions. Obtain all information necessary to properly design and install all work. Coordinate the gathering of information during design through the Contracting

Officer. Any further survey required to provide utility locations, manhole inverts, and verification of existing features is the responsibility of the Contractor.

Contractor may use the existing facilities for construction storage and staging. Do not store items in rooms that have received a new epoxy floor finish.

4.2 Site Construction Information

4.2.1 Site Layout

Confine proposed development and site modifications to the immediate project area that is disturbed by through construction activities.

4.2.1.1 Haul Route

Coordinate with the Base Civil Engineer Squadron to determine an appropriate haul route to the site and appropriate construction vehicle entrance.

4.2.1.2 Construction Storage Yard

Store all equipment and material within the project limits. Restore this area in accordance with the contract or pre-construction condition based upon the location of the storage area(s). Regardless of the area, fence and screen the yard. Keep the fence well maintained and the site clean. Prior to commencing construction, obtain final approval from the Contracting Officer for establishing the storage yard.