DESIGN-BUILD MACC IV CONTRACT

PROJECT TITLE: B2113 Renovate Missile Maintenance Facility

DATE: 21 August 2020

**MACC IV Sample Project**

**STATEMENT OF**

**WORK**

# SCOPE - GENERAL

## Project Statement of Work (SOW).

## This SOW defines the scope of the Sample Project for the Hill Air Force Base (HAFB) Design-Build Multiple Award Construction Contract IV (MACC IV). The Sample Project is for Building 2113 (B2113) and is structured as a typical Task Order (TO) on the MACC IV Contract. Proposals will be evaluated on the contractor’s proposal for completeness and criteria as defined in the accompanying documents. Although some statements refer to administrative and construction related activities which will occur after award, they are provided for information to convey how a TO is typically written. General contract requirements are provided in the Basic SOW and its accompanying appendices. This SOW provides TO project specific information and requirements.

* 1. **Design Services.**

All design services furnished by the MACC IV contractor, in connection with this TO proposal, shall be performed under the direct supervision of licensed Professional Engineers (PE) and Architects. The contractor, through its design team, is responsible for the accuracy, adequacy, timeliness and professionalism of the design solutions and design documents. The contractor shall ensure design solutions meet the requirements of the contract documents.

* 1. **Program Management.**

Efficient project management shall include accurate on-time submittals for successful project execution. Technical requirements include early involvement in the process to allow for the development of the most cost-effective and technically-sound design solution. The contractor shall perform all work in accordance with (IAW) federal, state, and local statutes and regulations.

* 1. **Building 2113 (B2113) Information and Requirements**.

B2113 is the location for the Hill Missile Maintenance Facility which is operated and maintained by the 309th MXSG. The facility was originally built in the 1950’s, and consists of 16 bays which house offices and control areas, missile x-ray facilities, munition storage and record storage areas. This MACC IV Sample Project will address various facility deficiencies and provide a general building upgrade to current codes and standards. All bays are monitored by CMAK B-928 missile maintenance and will need to be connected back into the system headend equipment. Detailed project requirements are listed by discipline in the sections to follow.

* + 1. **Coordination with other HAFB entities.**

During actual project execution this project will require coordination with Missile Maintenance, Explosive Safety, Base Safety, and Facility Managers for B383 and B385.

* + 1. **Asbestos and lead based removal.**

Refer to Asbestos and Lead-Based Paint Report (See Appendix). Provide proposal by an approved asbestos and lead-based paint abatement contractor to address the mediation and removal of hazardous materials identified in the report. Refer to Basic SOW Appendix for qualifications requirements for abatement contractor. Refer to Demolition and Concrete Section 2.1 for additional information and requirements.

# PROJECT DESCRIPTION

* 1. **Demolition and Concrete.**

All interfering demolition shall be completed before placement of new concrete or finishing work in the building. All recyclable material removed shall be recorded on the approved HAFB Construction and Demolition Waste Diversion Report (See Appendix). The contractor shall comply with HAFB asbestos abatement policy for Asbestos Containing Material (ACM) and Lead Based Paint (LBP) requirements (See Appendix). Refer to MACC Basic SOW Appendix G, Asbestos/Lead Based Paint (LBP) Abatement Contractor Qualification Requirements.

The contractor shall be responsible for all dust control for personnel and networking equipment.

* + 1. **Concrete Structural Design.**

The contractor shall design footings, foundations, and floors for new large Bay 2 exterior door for this x-ray facility.

* + 1. **Concrete.**

The contactor shall saw cut and remove all concrete within the footing periphery of the North East (NE) Bay 2, large door and demolish the 24” thick concrete door in Bay 2. Care shall be exercised in the removal of walls to minimize damage to adjacent structures.

* + 1. **Offices.**

The contractor shall remove the walls in a way that protects in place the existing office spaces to reconfigure the spaces for one (1) conference room, two (2) offices, and one (1) breakroom.

* + 1. **Restrooms.**

The contractor shall demolish the restrooms, including toilets, partitions, sinks, countertops and all plumbing as required for new restrooms facilities. Refer to Section 2.2. Architectural Design and Construction for additional information and requirements pertaining to demolition of base facilities.

* + 1. **Bay 2 Existing X-Ray Equipment.**

The contractor shall disconnect and remove the existing missile x-ray equipment and deliver it, in its entirety, to the Government at a location to be specified by the Government on the HAFB facility. The Government shall notify the contractor of the specific location after task order award. *(is this location on Hill AFB?)*

* + 1. **Phased Demolition Plan.**

The contractor shall prepare a phased demolition plan which includes but is not limited to: site work, removal of existing walls, concrete structures as described in section 2.1.5., asbestos abatement, etc.

# Architectural Design and Construction.

* + 1. **Exterior.**

The contractor shall dry ice blast (using a process such as Coldsweep or approved equivalent)
the exterior to remove all paint, patch, prep, and repair all damaged brick for a new coat of paint to match HAFB Base Facility Design Standard (See Appendix). All doors and windows shall be replaced and shall meet current energy efficient standards. The clerestory glazing shall be removed and infilled with wood construction. The contractor shall install a new standing seam roof on the lower structure and clerestory area which matches the existing roof. It shall follow the HAFB Architectural Compatibility Plan (See Appendix). The contractor shall ensure the existing structure is up to current seismic standards following 2018 International Existing Building Code (EIBC).

* + 1. **General.**

The contractor shall upgrade all HVAC, lighting, and Fire Suppression systems to current industry design standards and codes. All floors shall be leveled. Provide floor with finishes as stated in the individual bay requirements sections. All bays shall have insulation and new 5/8” gypsum board, type X installed over the insulation. All bays shall be painted. All bays shall be demolished where applicable.

* + 1. **Bay 1: Unoccupied Storage Bay.**
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Telecom Room. Provide walls and rigid ceiling for enclosed telecom room with dimensions of 9ft x 7ft x 8ft height. Locate this room so it is adjacent to the SE corner of the bay. Provide a 3-0 door (with lockset hardware) which swings outward.
			3. Floor. The contractor shall level the floor shall be leveled and apply an epoxy coating.

Roof. The roof between Bay 1 and Bay 2 is an earthen roof with system leaks that need to be repaired. The existing structure holds sand with a concrete cap. The contractor shall remove the existing dirt, trees, and corrugated metal roofing to field verify the extent of the damage to the existing concrete cap. Based on the amount of damage the contractor shall repair the damaged concrete lid and a weather proof membrane shall be placed over the entire concrete lid. The concrete lid shall be installed per manufacturer’s installation recommendations. The contractor shall provide a structurally supported standing seam metal roof over the earthen roof as per HAFB Architectural Compatibility Plan (See Appendix). *(Appendix are not attached)*

* + 1. **Bay 2: Missile X-Ray Maintenance Bay.**
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor and apply an epoxy coating.
			3. Concrete door. The contractor shall replace the concrete door. This includes all conduit and controls rated for weather and eyebrow, with all mechanical and electrical components. The contractor shall replace all concrete trenches and pits for the new door system.
			4. Hoist motor operators and controls. The contractor shall replace all hoist motor operators and controls on both the x-ray hoist and the main lifting hoist and install new variable frequency drive (VFD) or VFD type motors, operators, and controls. The controls must be hard wired, no wireless pendants are authorized. Once new motors and operators are replaced, the contractor shall ensure the hoist will have no drift when stopping.
			5. HVAC system. The contractor shall ensure the new HVAC system in the Bay maintains temperatures between 65 to 75 degrees Fahrenheit at all times with set point of 70 degrees.
			6. X-ray equipment. Provide new ICT1500 x-ray machine which uses In-Circuit Test technology (ICT). Refer to Appendix for specification for this system.

* + - 1. Surveillance System. The contractor shall install a 6-point camera system with high resolution. There shall be 4 cameras on the wall, 1 on the ceiling, and 1 on the floor.
			2. The contractor shall check electrical connections inside bay where steam was leaking on the North wall and replace the equipment in this area. Refer to electrical section for additional information and requirements.
		1. **Bay 3: Control room**
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor. See Section 2.2.5.3., Interior, for additional requirements.
			3. Interior Finishes and Restrooms. The contractor shall demo all interior finishes and install new carpet, base, and acoustical ceiling tiles with ceiling grid and paint walls. The contractor shall design two restrooms that comply with the Americans with Disabilities Act (ADA) to replace the existing restrooms. The restrooms shall follow current ADA code and design standards (15 users require only one restroom).
			4. Control Center Station. The contractor shall install a new control center station with video screens, an ICT x-ray equipment computer, and observation instruments. The contractor shall also install four (4) other stations for viewing x-rays and scans.
		2. **Bay 4: Small Munition X-ray.**
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor and provide new vinyl composition tile or VCT flooring with cove base.
		3. **Bay 5: Unoccupied Munition Storage**.
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor and apply an epoxy coating.
		4. **Bay 6: Unoccupied Munition Storage**.
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor and apply an epoxy coating.
		5. **Bay 7: Unoccupied Munition Storage**.
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor and apply an epoxy coating.
		6. **Bay 8: Mech. Room.**
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor and apply an epoxy coating.
			3. HVAC system. This Bay can house a water heater for breakrooms and electrical panels. Refer to Section 2.7., Electrical and Section 2.6., Mechanical (HVAC), for additional information and requirements.
		7. **Bay 9: Office.**
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor. See Section 2.2.11.3., Interior for additional requirements.
			3. Interior. The contractor shall renovate existing office and match the existing carpet and paint of office areas in Bay 3 to promote continuity throughout the facility. The contractor shall convert the space behind the existing office into a conference room. The contractor shall provide a new door and associated hardware, matching finishes, new acoustical ceiling tile and lighting, data for computers and an overhead projector. All data shall be saw cut into the floor.
		8. **Bay 10: Office/Breakroom.**
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor and provide new VCT flooring and cove base.

* + - 1. Interior. The contractor shall renovate and design the existing offices for better usable space and make the back area into a breakroom. The breakroom shall have a sink, microwave, refrigerator, cabinetry, all new finishes to match Bay 9 Office, and conference room finishes to include paint and flooring.
		1. **Bay 11 Unoccupied Storage Bay.**
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor and apply an epoxy coating.
		2. **Bay 12 Unoccupied Storage Bay.**
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor and apply an epoxy coating.
		3. **Bay 13 Unoccupied Storage Bay.**
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor and apply an epoxy coating.
			3. Interior. Possible Mechanical Space. This bay may be used for another mechanical room. Presently there is an air handler unit in this bay.
		4. **Bay 14 Unoccupied Storage Bay.**
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor and apply an epoxy coating.
			3. The Contractor shall provide office trailer units with HVAC hook-ups for the temporary housing of records during the renovation of this Bay. Adequate shelving storage which is securely bolted to the floor shall be provided with 3 foot clearances minimum for safe access and circulation. Coordinate exact location of the trailer unit and hook-ups for power with the Government prior to installation. Government personnel will move the records to and from this this location and the present record storage in the bay.
			4. Interior. Contractor shall replace the existing film storage pallet racking from wood to metal.
		5. **Bay 15 Unoccupied Storage Bay.**
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor and apply an epoxy coating.
			3. The Contractor shall provide office trailer units with HVAC hook-ups for the temporary housing of records during the renovation of this Bay. Adequate shelving storage which is securely bolted to the floor shall be provided with 3 foot clearances minimum for safe access and circulation. Coordinate exact location of the trailer unit and hook-ups for power with the Government prior to installation. Government personnel will move the records to and from this this location and the present record storage in the bay.
			4. Interior. Contractor shall replace the existing film storage pallet racking from wood to metal.
		6. **Bay 16 Unoccupied Storage Bay.**
			1. General. Refer to Section 2.2.2., General Requirements.
			2. Floor. The contractor shall level the floor and apply an epoxy coating.
			3. The Contractor shall provide office trailer units with HVAC hook-ups for the temporary housing of records during the renovation of this Bay. Adequate shelving storage which is securely bolted to the floor shall be provided with 3 foot clearances minimum for safe access and circulation. Coordinate exact location of the trailer unit and hook-ups for power with the Government prior to installation. Government personnel will move the records to and from this this location and the present record storage in the bay.
			4. Interior. Contractor shall replace the existing film storage pallet racking from wood to metal.
	1. **Site Work**
		1. **Site Demolition:** The contractor shall demolish the double long parking stalls (11) to the East of Lemon St.
		2. **Parking Area.** The contractor shall pave 11 double long parking stalls East of Lemon St. to replace the existing stalls being demolished. The new grading shall match existing grades. The new parking stalls shall be provided to accommodate facility personnel consisting of: 10 POVs and 1 ADA accessible stalls.
		3. **Pavement Marking & Signage.** Provide pavement markings and traffic control signage in accordance with the *Manual on Uniform Traffic Control Devices (MUTCD)* and per HAFB Base Facility Design Standard (See Appendix).
	2. **Security**
		1. **Intrusion Detection System.** The contractor shall design, provide and install a security system for Bay 16 of the facility for open storage of classified information and in compliance with Open Storage Area (Secure Room) construction standards as mandated in DoD Manual 5200.01, Volume 3, Appendix to Enclosure 3, (See Appendix). Specific requirements unique to this contract are provided in the remainder of this section, however the contractor shall be responsible for designing and renovating this facility to meet Secure Room standards regardless of whether or not the requirements are specified in the remainder of this section. The system will include motion detectors for the Intrusion Detection Systems (IDS). Motion detectors shall be installed so all motion around the entire Bay is covered by the sensors. The contractor shall install balanced magnetic switches (BMS) on all existing and new doors including personnel doors, larger equipment doors, and the roll-up door.
		2. **Hardware and Other Security Requirements.** The contractor shall install one new CDX10 combination lock compatible with panic hardware on all the entry doors that are east facing (Bays 1-16). All other personnel doors shall be converted to exit only doors by removing exterior door hardware (and covering hole with a solid steel plate welded to the door), and installing panic hardware with deadbolt emergency egress hardware. The contractor shall provide 1/2” solid steel bars in a 6” grid (welded at intersections) in the door windows IAW window requirements and DoD Manual 5200.01, Volume 3, Appendix to Enclosure 3 (See Appendix). All HVAC ducts or openings larger than 96 square inches penetrating the secure perimeter of the facility must be secured using 1/2” steel bars in a grill pattern with 6” spacing secured to the inside portion of the room. The bars shall be welded at all intersections. The bars shall be welded to a steel frame anchored to the wall on the secure side of the wall (with 6” anchors), and not the ductwork itself. Secured ductwork shall have inspection ports installed to verify that bars are in the ductwork for later security checks.
	3. **Fire Protection.**
		1. **Fire Protection Summary.** The contractor shall design, install, and test all fire protection systems required to bring building 2113 into compliance with all applicable federal, DoD, and Air Force requirements as well as all applicable federal, state, and local statutes. It is the contractor’s fundamental responsibility to identify and comply with all mandatory codes, regulations, and statutes. The scope of the fire protection system requirements for this project include demolition of the existing pre-action sprinkler system, installation of a new sprinkler system, demolition of the existing fire alarm system, and installation of a combination mass notification and fire alarm system.
		2. **Building 2113 Explosive Limits.** B2113 is an explosive operating location. The explosive Net Explosive Weight (in LBS) and Hazard Division (HD) is provided below and a photo of the posted sign is included in the photos (See Appendix).  HD is the Hazard Division for explosives, i.e. HD 1.1 is Class 1, Division 1 explosives. MCE is the Maximum Credible Event expected for HD 1.2.x explosives. Safe separation distances are provided in FT. Refer to Blast Analysis Report of the structure for additional information (See Appendix).

HD 1.1                      5,000 LBS   (12) HD 1.1            1,250 Ft (minimum distance for HD 1.1 explosives)

HD 1.2.1                  6,000 LBS                                          1,008 ft

1.2.1 MCE               <= 99 LBS                                          654 ft

HD 1.2.2                  0 LBS

HD 1.2.3                  50,000 LBS (10) HD 1.2.3        1,000 FT

1.2.3 MCE               <= 99 LBS                                          654 ft

HD 1.3                      10,000 LBS                                       145 ft

HD 1.4                1,000,000 LBS                                       100 ft

* + 1. **Qualified Fire Protection Engineer.** This project is a “Major Project.” IAW Unified Facilities Criteria (UFC) 3-600-01, Major Projects require the contractor to have a Qualified Fire Protection Engineer (QFPE). The QFPE for this project must be involved in every aspect of the design, construction, and testing/commissioning as it relates to fire protection and life safety for this project. The QFPE shall be an individual who is a registered professional engineer (P.E.) who has passed the fire protection engineering written examination administered by the National Council of Examiners for Engineering and Surveying (NCEES) and has relevant fire protection engineering experience.
		2. **Fire Protection Design Analysis and Life Safety Plan Submittal.** In compliance with UFC 3-600-01, a fire protection design analysis and life safety plan must be provided for the project and must address the fire protection requirements as required by paragraphs 1-7.2.2 and 1-7.2.3 of the UFC. The fire protection design analysis and life safety plans must be submitted with the initial design submission, separate from other disciplines. The final design analysis and life safety plans shall be stamped and signed by the QFPE.
		3. **Final Design Review Submittal.** A final design review submittal must be provided in accordance with UFC 3-600-01, paragraph 1-7.3. The QFPE must review the complete 100 percent design drawings and specification submission (all disciplines) for the project and document in writing that the design is in compliance with UFC 3-600-01 and all applicable fire protection and life safety design criteria. The review must provide verification that all items listed in the design analysis are correctly shown on the drawings and in the specification and list any approved equivalencies or deviations from UFC 3-600-01. This design compliance document must be submitted with the final design submission as part of the design analysis and must bear the signature and professional seal of the QFPE.
		4. **Fire Suppression Systems.**

The existing building is protected by an air supervised pre-action fire suppression system. The contractor shall design and install a fire sprinkler system in compliance with UFC 3-600-01, National Fire Protection Association (NFPA) 13, Air Force Manual (AFMAN) 91-201, and the HAFB Base Facility Design Standard. The contractor shall patch and repair as necessary to match existing after demolition of existing system and system components as well as after any installation of new systems and components.

* + - 1. It is the responsibility of the contractor’s QFPE and design team to investigate, evaluate, and determine the code requirements for this design. This investigation, evaluation, and final determination of possible code requirements must include 1) Possible requirement of pre-action suppression system, and 2) suppression system requirements for film storage. It is the contractor’s responsibility to insure that a thorough investigation of Federal, DoD, USAF, and NFPA regulations and codes is conducted and employed in the design and installation of all systems for this project.
		1. **Fire Suppression Shop Drawings**.

Construction (shop) drawings and calculations must be prepared by an individual that has obtained National Institute for Certification in Engineering Technologies, Automatic Sprinkler Systems, Level III certification or Special Hazards Suppression Systems, Level IV certification, as applicable to the project. The QFPE must review the shop drawings, hydraulic calculations and material submittals. The shop drawings must bear the Review Stamp of the QFPE prior to submitting the fire extinguishing system shop drawings. In addition, the QFPE shall provide hydraulic calculations in accordance with UFC 3-600-01 and the applicable NFPA standard, demonstrating that the design will provide an adequate supply for the fire suppression systems. Calculations must be submitted no later than the first shop drawing submission.

* + 1. **Fire Alarm and Mass Notification System.**

The contractor must demolish the existing fire alarm system, then, as required by UFC 4-021-01, design, and install a combination mass notification and fire alarm system for building 2113 meeting the requirements for new construction projects. The design and installation must be in compliance with UFC 3-600-01, UFC 4-021-01, NFPA, ADA and the HAFB Base Facility Design Standard. This combination system must be designed under the supervision of the QFPE.

* + - 1. It is the responsibility of the contractor’s QFPE and design team to investigate, evaluate, and determine the code requirements for this design. This investigation, evaluation, and final determination of possible code requirements must include possible code restrictions for the X-ray chamber that may or may not: 1) Limit system use in this space to conventional initiating devices only, 2) Require in-line filters for wiring, and 3) Require installation of explosion proof devices. It is the contractor’s responsibility to insure that a thorough investigation of applicable Federal, DoD, USAF, and NFPA regulations and codes is conducted and employed in the design and installation of all systems for this project.
			2. The contractor shall use all new wiring, conduits, and devices for design and installation.
			3. Upon completion of the combination system installation, the old system must be removed before a final acceptance can be completed. The old system must only be removed after the new system has been 100% tested and the factory certified fire alarm system installer has signed the “Record of Completion.” This document must remain in an approved documentation cabinet, provided by the contractor, near the new Fire Alarm Control Panel (FACP).
			4. The contractor shall patch and repair walls, ceilings, etc. as necessary to match existing after demolition of existing system and system components
			5. The contractor shall provide digital and hard copies of panel programming, system installation drawings and O&M manuals to the Project Manager and 75th CES Electric/Electronic Shop upon final inspection. A hard copy set must be placed at the FACP in an approved documentation cabinet. The contractor shall also provide an additional 10% of devices used during project (minimum of (1) each type) for spare equipment.
			6. Fire Alarm Control Panels, ancillary control panels and Monaco Transceivers must only be installed in dry, temperature controlled environments such as communications rooms or electrical rooms. Under no circumstances will they be installed in mechanical rooms with a chance of exposure to steam, condensation, etc.

* + - 1. The following Control Panels are approved for installation at HAFB:

Fire Control Instruments (FCI) Model E3

Siemens Model Cerberus Pro Modular

Edwards Systems Technologies (EST) Model III

Notifier Model NFS2-640

Det-tronics Eagle Quantum Premier high expansion foam releasing panel

Det-tronics X3301 triple IR flame detector

Monaco BT2-8NBTransceiver

VESDA air aspirating system

* + - 1. The radio fire alarm transceiver shall be a Monaco BT2-8NB (16/32 zone) compatible with the existing Monaco D-21 Radio Fire Alarm Monitoring Systems. The transceivers shall operate on a frequency of 141.000 MHz for HAFB. The contractor must provide and install a new antenna system per manufactures recommendations. Antenna locations must be approved by the 75th CES Electric/Electronic Shop. Request for Unit number and Position descriptors must be routed thru 75th CES Electric/Electronic Shop for approval. The installed system must maintain reliable communication to the appropriate central receiving station for a minimum of 7 days before being accepted. At HAFB the Monaco D-21 central receiving stations are located in Bldg. 408 & Bldg. 1151.
		1. **Fire Alarm Shop Drawings.**

Construction (shop) drawings and calculations must be prepared by an individual that has obtained National Institute for Certification in Engineering Technologies, Fire Alarm Systems, Level III certification, at a minimum. The QFPE must review the shop drawings, calculations and material submittals. The shop drawings must bear the Review Stamp of the QFPE prior to submitting the fire alarm system shop drawings.

* + 1. **Fire Suppression Water Supply and Flow Testing.**

The Government does not have flow testing data available for building 2113. Recent flow test data is available for the nearby buildings of 2213 and 2214. Refer to flow test data for Buildings 2213 and 2214 (See Appendix). Also refer to the water utility map showing the area around Buildings 2113, 2114, and 2214 (See Appendix). The aforementioned appendix sections have been provided to assist the contractor in bidding but must not be used after award to design the fire protection systems. For purposes of designing and installing fire protection systems for this project, the contractor must coordinate with the 75th CEG Project Manager and American Water to conduct his own flow test after the award of contract to verify water flow available.

* 1. **Mechanical (HVAC)**
		1. **HVAC General Scope.**

The contractor shall design and provide a new HVAC system for the entire building.

* + 1. **Demolition.**

New HVAC system shall include complete demolition of existing HVAC system to include, but not limited to, steam riser and condensate receiver, steam lines, unit heaters, furnaces, air handling units, controls, etc. HVAC system shall comply with the HAFB Base Facility Design Standard and UFC 3-400-01 (See Appendix). Design conditions shall be as specified in the HAFB Base Facility Design Standard.

* + 1. **New System Requirements.**

New HVAC system shall be natural gas fired and shall be no less than 95% efficient. Air handlers shall be provided with outside air and recirculated air sized as required by the HAFB Base Facility Design Standard, UFC 3-400-01, and American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) Section 6.

* + - 1. Bay 1 shall require heat only and shall be natural gas fired unitary heater for the open space. In addition, provide cooling for a new telecom room. Refer to architectural section for room dimensions and other information.
			2. Bays 2-4 shall be one zone and shall be natural gas fired, forced air heating with direct expansion refrigeration air conditioning. Mechanical equipment for this zone shall be housed in bay 8.
				1. Bay 2 and Bay 4 are munitions handling areas and shall be designed and installed to comply with DoD Explosive Safety (See Appendix) and other standards as applicable.
				2. Two existing roof mounted condensing units on Bay 2 shall be demolished. Three existing exhaust fans on the roof of Bay 3 and three existing exhaust fans on the roof of Bay 2 shall be demolished. Holes left from roof mounted equipment shall be patched smooth with modified bitumen roofing according to the HAFB Facility Design Standard. Sheet metal caps or curbs will not be allowed.
				3. New condensing units shall be provided and located on existing concrete dock on the West side of the facility.
			3. Bays 5-7, 9-12, and 14-16 shall be a separate zone and shall be natural gas fired, forced air heating with direct expansion refrigeration air conditioning. Mechanical equipment for this zone shall be housed in Bay 13.
				1. Bays 5-7 are munitions supply areas and shall have HVAC designed and installed to comply with DoD Explosive Safety and other standards as applicable.
			4. Ductwork shall be demolished and replaced new throughout.
		1. **Natural Gas Line.**

The contractor shall design, size, and install a new natural gas line. Natural gas line is available serving Building 2104 next door as shown on provided drawing (See Appendix). Existing main line is HDPE and is 6” in diameter at 35 PSI.

* + - 1. Natural gas shall be sized to meet heating demands as well as hot water demands of building 2113. Natural gas risers shall be anode-less and shall be provided with automatic meter readings and supplied with pressure regulators, bypass loops, and earthquake valves, and shall otherwise comply with the HAFB Base Facility Design Standard (See Appendix).
			2. Natural gas line shall terminate in either mechanical room Bay 8 or Bay 13.
			3. The contractor shall use vacuum truck potholing to identify the location and depth of existing utilities along the route of the proposed new gas line prior to excavation start.
			4. The contractor shall cut and cap existing steam line in the man-hole immediately north-east of building 2113. The four existing steam vaults shall be demolished to grade level. Vaults shall be infilled and asphalt patched to match existing parking lot surface.
		1. **Controls.**

The new HVAC system shall be provided with Direct Digital Controls system in compliance with Section 7.9 of the HAFB Base Facility Design Standard.

* 1. **Electrical.**
		1. **General.**

Refer to applicable UFCs, HAFB Base Facility Design Standard, and other criteria as explained in the Basic SOW.

* + - 1. **Existing Conditions.** The contractor shall review all areas of the building to assess existing conditions which will be material to providing a complete proposal to address the scope as provided in this SOW. Existing as-built documentation is not complete for all areas of the building and shall be documented. Refer to Section 2.7.1.2, Electrical Study for additional information and requirements for documentation.
			2. **Electrical Study.** The contractor shall provide an electrical study which accurately reflects the current conditions which includes electrical service, electrical utility metering, and electrical distribution to the branch panel level. The survey shall be conducted by a qualified electrician and coordinated with the Exterior and Interior Electrical Shops on base. Required outage(s) to the facility will be provided by the Civil Engineering Group (CEG.) The survey shall include, but is not limited to, equipment, raceways, wiring, loads, interior and exterior electrical systems and components. All panels shall be opened to determine the conditions and verify the distribution of power. Existing exterior raceways shall also be inspected for possible reuse. Provide review and documented assessment of existing lightning protection system. Refer to Section 2.7.6.3, Lighting Protection System. Provide photographs of each panel and its interior as well as other areas inspected to supplement the report documentation. Refer to Section 2.7.2.1, Electrical Distribution, regarding one-line electrical conditions.
			3. **Energy Compliance.** The contractor shall provide electrical design based on ASHRAE 90.1 2013 for lighting and its controls and other requirements such as automatic receptacle control. Refer to the Basic SOW Appendix A and C for additional requirements with respect to energy compliance and sustainable building design standards.
		1. **Demolition.**
			1. **Telecom Site Distribution.** The contractor shall disconnect and remove existing telephone facilities and accessible copper cable which enters the south side of the building. Refer to Telecom Section for additional information and requirements.
			2. **Electrical Distribution.** The contractor shall provide a demolition one-line diagram in AutoCAD format which clearly depicts the existing electrical facilities to be disconnected and removed. This drawing shall be carefully coordinated with the new electrical distribution design. Existing exterior raceways may be reused provided that they are in good condition, meet the specification requirements or can be upgraded to meet requirements, i.e. supporting means.
			3. **Exterior.** The contractor shall disconnect and remove all electrical distribution equipment which is primarily located at the north face of the building exterior. Existing newer LED lighting shall remain. The contractor shall also disconnect and remove metering equipment which shall be replaced. Refer to Metering section for additional information and new requirements.
			4. **Interior.** The contractor shall disconnect andremove all interior light fixtures and raceways. Newer branch panels may remain if newer (within 15 years) and in good condition otherwise the contractor shall remove and replace them.
		2. **Electrical Distribution.**
			1. **Metering.** The contractor shall provide a new electrical metering system which is Automated Communications Management System (ACMS) compliant as per the HAFB Base Facility Standard. Provide a CAT 6 cable connection (in approved raceways) to the telecom room. Provide a proposed location for this equipment inside the current building. Coordinate with HAFB Communications Directorate (SCXP) for telecom requirements.
			2. **New Service.** The contractor shall provide a new electrical service including new secondary service conductors from the utility transformer. The contractor shall locate the equipment on the exterior north wall.
			3. **Branch Panels.** The contractor shall provide new branch panel boards as needed to support the various loads in Bays as explained in sections above. The contractor shall provide new panels as needed to replace existing which were removed due to age or poor condition as indicated in Section 2.7.2, Demolition, and as applicable to the new design layout.
			4. **Protective Device Coordination Study.** The contractor shall provide a Protective Device Coordination Study (Arc-Flash, Fault Duty, Selective Coordination) using the Air Force required Easy Power software. This study shall be provided by the contractor’s Engineer of Record for the project. The GOV will provide the City Light & Power (CLP) information on the transformer and fault current. Upon completion of the project Easy Power files shall be provided to the Government on separate CD disks with the required O&M documents.
		3. **Lighting.**
			1. **Exterior Lighting.** Existing exterior lighting is generally new LED luminaires. The contractor shall clean these light fixtures and provide additional supports as needed for National Electrical Code (NEC) compliance. The contractor shall provide additional luminaires as needed to comply with UFC requirements for exterior lighting.
			2. **Interior Lighting.** The contractor shall provide LED pendant lighting in all the various Bays which are not office spaces. Refer to UFC and HAFB Base Facility Design Standard for general lighting requirements.
			3. **Hazardous Classified Areas.** The contractor shall provide lighting and associated controls and raceways in munitions storage Bays which comply with NEC requirements.
		4. **Power.**
			1. **Power.** The contractor shall provide wiring devices and raceways to support data devices throughout the Bays which comply with UFC, HAFB Facility Design Standard and NEC requirements. Unoccupied and other undesignated areas, which are not listed in the UFCs, shall have duplex convenience outlets horizontally spaced at 15 feet minimum.
			2. **Hazardous Classified Areas.** The contractor shall provide power devices in munitions storage Bays which comply with NEC requirements.
		5. **Telecom.** Provide new telecom facilities IAW HAFB Telecom Standards (See Appendix). Prior to finalizing design the contractor shall coordinate all product and installation requirements with the assigned HAFB SCXP project manager.

			1. **Existing Facilities.** A direct buried copper line feeds the building on the south side via (2) direct buried telecom pedestals. This telephone cable shall be abandoned with accessible portions removed. Remove all existing cabling within the building complete. Refer to demolition section for additional information and requirements.
			2. **New Site Infrastructure.** Provide new duct bank facilities consisting of (2) 4in conduits from existing Manhole MH-15012-05, which is located approximately 1238 feet from the south face of the building, to the new telecom room to be located in Bay 1. Provide (2) additional manholes along the run such that each duct bank segment does not exceed 500 feet. In (1) conduit, provide (3) 1.25in inner ducts for fiber. Provide pull ropes for all empty raceways.
			3. **New Site Cabling.**
				1. **Fiber Cable.** Provide (1) 24-Strand SM fiber optic cable to the building from MH-15012-05. Provide fusion splice connections from new to existing fiber strands using HAFB approved materials and methods.
				2. **Copper Cable.** Provide (1) 50 pair copper telephone cable connections from MH-15012-05. Provide splice connections from new to existing copper cable wires using HAFB approved materials and methods.
				3. **Telephone connections.** Provide telephone and data connections, including but not limited to raceways, CAT 6 cabling, RJ45 wiring devices, to the control room, conference room, offices, etc. as per HAFB Telecom Standards. (See Appendix).
		6. **Special Systems.**
			1. **Surveillance System.** The contractor shall provide new Closed Circuit TV (CCTV) system which provides the camera count as described in Section 2.2, General Requirements.
			2. **Fire Alarm.** The contractor shall provide wiring and other devices which support the fire alarm system and which comply with NEC Article 760 and applicable UFCs.
			3. **Lighting Protection System.** The contractor shall provide assessment of existing lightning protection system and provide a design for additional components as needed to update the system to current UFC and NFPA 780 standards. The contractor shall provide Underwriters Laboratories (UL) Master Label Certificate which certifies the installation is complaint with NFPA 780 and AFMAN 32-1065 requirements.
	1. **Bay 2 Concrete Door Replacement.**
		1. **General.** The contractor shall replace the existing concrete door and opening mechanism, including but not limited to the motor, rail, trench enclosure, and footing/foundation.

* + - 1. **Existing Conditions.** The current motor is relatively new but only temporary. The frame and rollers for the door are deteriorated. The door itself is approximately 16’ wide x 18’ high and 24” thick conventionally reinforced concrete.
			2. **Demolition.** Includes demolition of large concrete door, eyebrow over door, top and bottom rails, foundation, and complete opening mechanism.
			3. For bidding purposes the contractor can assume to replace the door with like door and opening mechanism with like mechanism. This will comprise the base bid for this item.
			4. **Design.** The contractor shall design footings and foundation to support the new door and opening mechanism. The contractor shall also design the door reinforcement and concrete mix.
	1. **Bay 2 Concrete Door Replacement – Alternate Design**
		1. **General.** The contractor shall provide an alternate door and opening mechanism. This alternate should be a betterment to the existing design and provide added benefit to the Government. The original demolition and design from the base bid (as defined in 2.8.1.3) remains. This would only change the door, foundation, and opening mechanism. The Option item could be a credit or cost depending on the contractor’s proposed betterment. The contractor must provide product data and sufficient information showing they meet the door requirements within their technical proposal.
			1. **Design Criteria.** The door will have to meet the following radiation and explosive requirements:
				1. The Radiation is based off the Equipment B-2113 CT M9 X-Ray M9. The system is 450KV, 10 ma 16,000 RADs
		2. **Building 2113 Explosive Limits.** Refer to Section 2.5.2. for an explanation of the explosive limits which are posted for this building.

# REQUIREMENTS DOCUMENTS

* 1. The contractor shall identify and comply with all applicable federal, state, local DOD, and Air Force requirements whether or not specifically listed. See Appendix A of the MACC IV Basic SOW for a partial list. This SOW calls out appendices, addendums and attachments throughout. Included in the appendix sections is the HAFB General Specifications for this TO. Refer to Appendix list in Section 8.

# GOVERNMENT-FURNISHED INFORMATION, EQUIPMENT, AND PROPERTY (GFI, GFE, GFP)

4.1 It is not anticipated that GFI, GFE or GFP will be furnished unless otherwise noted elsewhere in this document.

# MANAGEMENT, PLANNING, AND REPORTING REQUIREMENTS

* 1. The contractor shall implement limited engineering activities specified in this SOW and IAW all applicable compliance documents. The contractor shall supply all labor, equipment, and materials necessary to accomplish the work assigned unless otherwise specified in this SOW.

# Schedule

The contractor shall provide and maintain a detailed working schedule that facilitates the management of the project work and provides the capability for early identification of potential schedule impacts. The schedule shall include negotiated baseline dates and current schedule projections. The current schedule shall be maintained and updated at least monthly to accurately reflect program progress and provide realistic forecast projections. The contractor shall provide schedule updates at either a detailed level or a summary level as requested by the Contracting Officer (CO), Government Program Manager (GPM), or Contracting Officer’s Representative (COR). Additionally, schedule updates that reflect actual schedule progress shall be submitted on Air Force (AF) IMT 3065 or as approved by the CO.

# Site Visit

* + 1. The contractor shall perform a site visit with the Architect-Engineering (A-E) Design Team to review existing conditions in order to obtain the information required for a complete bid.

# Safety/Accident Prevention Plan

5.4.1 The Contractor shall provide a Safety/Accident Prevention Plan in accordance with attached Specification 01 35 26 Government Safety Requirements. In addition, the Contractor shall provide a letter stating that all contractor employees have been or will be provided hazardous material (e.g. asbestos, lead based paint, and fuels, etc.) identification training prior to being allowed to perform work on this project.

5.5 **Contractor Quality Control Plan**

5.5.1 The contractor shall provide a Contractor Quality Control (CQC) plan in compliance

with attached Specification 01 45 00.00 10 Quality Control.

 PROPOSAL DOCUMENT PREPARATION

* 1. The contractor shall provide professional quality, technically accurate, and coordinated set of all designs, drawings, specifications, and other services furnished with the proposal. The A-E design team shall review and provide concept design drawings, specifications and other services. The preliminary design of architectural, structural, mechanical, fire protection, electrical, civil, or other engineering features of the work shall be accomplished by or under the direct supervision of architects and engineers licensed in the respective disciplines. All designs, drawings, specifications, notes and other works required in this SOW shall become the sole property of the Government and may be used on any other design or construction without additional compensation to the contractor. The Government shall be considered the “person for whom the work was prepared” for the purpose of authorship in any copyrightable work under 17 U.S.C. 201(b). With respect thereto, the contractor agrees not to assert or authorize others to assert any rights nor establish any claim under the design patent or copyright laws.
	2. **Design Analysis:** The design analysis shall have a building code review, all preliminary engineering calculations, cooling and heating load analysis, calculations and all other similar pertinent information to clearly define the scope of the project and to express the designer’s intent and methods. The HVAC load calculations shall comply with the latest ASHRAE guidelines, with all assumptions, areas, and material properties clearly stated. Supporting seismic information must include design intent for all conditions and sample details of the intended design.
	3. **Validation of Existing Facilities.** The contractor in coordination with the A-E team shall provide a plan for validating all AF provided as- built information including, but not limited to, locating surface features for utility designation, existing operable mechanical equipment, abandoned equipment and piping.
	4. **Drawings:** Full size prints shall be half D size on 11” x 17” sheets. All drawings shall comply with Paragraph 16.2 of the HAFB Base Facility Design Standard. All drawings shall be accurate, professional, and in sufficient detail, including all required schedules, tables, details, sections, plans, elevations, and general notes to enable proper and satisfactory construction of the entire project. Drawing with building layout, which can be used as a template (See Appendix). The current HAFB approved CADD standards are also provided (See Appendix). Concept drawings shall be stamped (not signed) by a licensed PE.
	5. **Specifications:** The specifications shall amplify all information shown on the drawings and include detailed requirements for materials and equipment. The specifications shall be descriptive in nature so as to permit full and free competition among bidders and equipment suppliers. Specifications in hard copy shall be on 8-1/2" x 11" paper. Specifications, including all technical and special conditions, shall utilize the Unified Facility Guide Specifications (UFGS) and Specs Intact editing software. Free software is available a[t http://www.wbdg.org](http://www.wbdg.org/) which is based on Construction Specifications Institute (CSI) format modified for AF construction and shall be prepared by the contractor in coordination with the A-E to meet Government standards. All paragraphs shall be numbered and lettered. References will be made to Federal Specifications, American Society for Testing and Materials (ASTM), and trade standards when applicable to establish a uniform standard. All references to Military and Federal Specifications and Standards at the beginning of each section must be dated with the latest revisions annotated. All standards and specifications used in the proposal text will be listed in the opening reference paragraph. Proprietary specifications are to be avoided. Whenever it is necessary to use a manufacturer's name to describe a type of product, at least three manufacturers shall be named, if possible, and shall include the words "or approved equal." When “brand name or equal” descriptions are necessary, specifications must clearly identify and describe the salient physical, functional, or performance characteristics of the brand-name items that are considered essential to satisfying the requirement. Materials, components, and equipment shall be designated for submittal to the CO for approval. The term "Contracting Officer" shall be used in all specification sections in place of references to the owner, Architect, Engineer, GPM, or COR." The specifications shall include the HAFB General Conditions sections (See Appendix).
	6. **Real Property Documentation:** As part of the proposal the contractor shall provide a draft DD Form 1354 and the “Building Information Checklist shall be developed in accordance with UFC 1-300-08. The contractor shall furnish the estimated costs for each of the category codes.

# SUBMITTAL REQUIREMENTS

* 1. **Delivery.** The contractor shall deliver design and material submittals to the designated CO.
	2. **Design Submittal (15%):** The general direction and details of the design shall be clearly indicated at this design level. Drawings shall include basic concept floor plans, and discipline specific information as required to clearly illustrate the proposed design direction for this project. The bidding design submittal shall include, at a minimum, the following information:
		1. Preliminary Design Analysis including a basis of design for architectural, structural, electrical, mechanical and fire protection including preliminary calculations.
		2. Preliminary drawings shall include concept floor plans, and mechanical and electrical equipment layout and schedules.
		3. A Specification Table of Contents identifying what specifications will be applied.

# Preliminary Design Media Requirements

* + - 1. Digital Copies: The contractor shall submit (2) copies of the following preliminary documents on separate compact discs: a combined pdf file of the drawings, a doc file for the specification Table of Contents and a pdf file of the Design Analysis.
			2. Paper Copies: The contractor shall submit six (6) copies of proposal. The proposal shall include accompanying folded half (½) size drawings (11” x 17”) in one spiral bound volume. Drawing sheets shall be correct order of reference within the respective sections.
1. **APPENDICES**

Appendix 00 B2113 Project Location

Appendix 01 B2113 Building Layout

Appendix 02 B2113 Photos

Appendix 03 B2113 As-Built Drawings

Appendix 04 HAFB Base Facility Design Standard

Appendix 05 HAFB Architectural Compatibility Plan

Appendix 06 HAFB Telecom Standards

Appendix 07 X-Ray (ICT1500) Specification

Appendix 08 B2113 Draft Blast Analysis 21 MAY1999

Appendix 09 Fire Protection Flow Test

Appendix 10 B2113 Vicinity Water Lines

Appendix 11 B2113 Asbestos and LBP Survey

Appendix 12 B2113 Existing Telecom Facilities

Appendix 13 Construction and Demolition Waste Diversion Report

Appendix 14 DoD Manual 5200.01-V3 Appendix to Enclosure 3

Appendix 15 DoD Manual 5200.01-V3 Information Security

Appendix 16 HAFB CAD Standards\_Release\_6

Appendix 17 Specification 01 35 26 Government Safety Requirements

Appendix 18 Specification 01 45 00.00 10 Quality Control – R1

Appendix 19 Specification 01 00 00 General Requirements

Appendix 20 Specification 01 57 20 Environmental Protection