

Statement of Work (SOW)
Project Number: TDKA 24-2510
Project Title: Renovate B140
Initial: 9/6/2024
Revised: 10/15/2024

1. GENERAL REQUIREMENTS:

1.1. This project involves renovation and refinishing of office areas within Hangar 140 to fulfill the workspace needs of Delta 2 and 62 CYS. MEP systems, finishes, and furniture will be reworked to coordinate with space rearrangement in the scope of work areas. Where conflicts exist between specific requirements identified within Attachments 2 listed below and this SOW, the SOW shall govern. Attachment 3, Peterson SFB Design Guide shall be met for any and all requirements that apply to the scope herein and the associated attachments. The following attachments are included:

- Attachment 2: Construction Drawings
- Attachment 3: Peterson SFB Design Guide, 01 Aug 2024
- Attachment 4: Approved Non-Nuclear CMD Equipment List, 29 Apr 2024
- Attachment 5: SBD1 Minimum Control Points, 2022Jun09
- Attachment 6: B140 Asbestos Inventory List and Testing Records
- Attachment 7: Existing Electrical One-Line Asbuilt
- Attachment 8: Free Zone Perimeter Concept Plan

1.2. Conduct all work in accordance with the specifications, all applicable codes, and the construction drawings and details. The Contractor shall comply with the Peterson SFB Design Guide, the Peterson SFB Installation Facilities Standards (IFS), Architectural Barriers Act (ABA) Standards, UFC 1-200-01, and UFC 4-211-01.

1.3. The Contractor shall follow all Green Procurement mandates and submittal requirements. The government requires the use of recycled and recovered materials, bio-based products, energy and water saving products, and environmentally preferable products.

1.4. Dispose of all waste generated by this project according to all applicable regulations.

1.5. The Contractor is responsible to verify site conditions, measurements, quantities, and materials needed to complete this project prior to submitting a proposal.

1.6. See the submittal schedule for required submittals. Other submittals required per specifications may apply.

1.7. This is NOT a Design/Build (D/B) project.

1.8. High-Visibility Standards: This project is a high-visibility project. It will receive additional scrutiny from Senior Leaders. Quality of the finished project is very important. The task order for this project will be rated in the Contractor Performance Assessment Reporting System (CPARS). Adherence to the schedule is critical.

1.9. Contractor shall complete all work within 330 calendar days of notice to proceed. Contractor shall assume that renovation areas of the facility will not be available/vacant for

on-site work until late December 2024. Contractor shall provide 30 day minimum written notice to the Government prior to start of on-site construction activities. Activities on-site that may be permitted prior to December 2024 are hazardous material testing, selective demolition of smaller unoccupied areas, and on-site field verification for shop drawings and early material procurement. Bidders shall notify Government of any long-lead material items, if any, that may be expected to exceed the permissible work duration noted above.

1.10. The use of hazardous materials shall be approved by the Contracting Officer Representative (COR) and Contracting Officer (CO) prior to use.

1.11. Construction activities requiring temporary outage of utilities, building systems, or closure of road lanes shall be coordinated and requested through a "Scheduled utility outage/road closure request" form and submitted to 21CES a minimum of (16) days in advance of outage activity for outages affecting single facility and (23) days in advance of outage activity for outages affecting multiple facilities.

1.12. Construction will be completed in a facility that will be occupied throughout construction. Contractor must ensure that proper means of egress is maintained at all times for occupants. Contractor shall provide any containment and filtration equipment necessary to keep office space clean and limit impact to ongoing operations in the office. Additionally, Contractor must phase restroom renovation work as needed to ensure that one men's restroom and one women's restroom is available at all times for the full duration of construction.

1.13. Contractor shall provide a Site Logistics Plan that indicates material laydown and equipment/lift logistics for review and approval by the Government. Plan shall incorporate any and all crane operations, lift equipment traffic, material laydown zones, and other construction facilities required throughout duration of construction. Long-term laydown and facilities zones must occur on the non-restricted side of the airfield fence line and restricted area traffic shall be limited to short-duration material delivery and lift operations.

1.14. Contractor shall provide a temporary fence for the duration of construction activities. A conceptual fence plan has been provided by the Government. This fenced area shall be designated a free zone for the duration of construction. Contractor shall ensure that all FOD is contained within this free zone at the end of each work day.

1.14.1. Temporary fence shall be 6 ft tall, class A chain link, with black construction fabric provided and secured to the interior of the fence. Fence panels shall be secured such that personnel on the interior of the fence cannot easily disassemble the panels. Fence shall be anchored against 100 mph winds. Contractor shall not be permitted to penetrate existing pavements to secure the fence.

1.14.2. Contractor shall provide water-filled plastic jersey barriers on the secured side of the temporary fence, with no more than 4' between barricades. Jersey barriers shall be a minimum of 32" tall by 72" long. Contractor shall provide solid red lights on the barricades at the corners of the fence line, and on every other barricade along the fence line. Lights shall be operational during twilight hours and at night and be solar powered with sufficient battery capacity for full-time illumination through the night. Barricades shall terminate to within 4' from the end of existing concrete barricades to remain in place.

1.14.3. Contractor shall provide a temporary swing gate at the location indicated in the conceptual fence plan. Contractor shall remove existing fence fabric and posts as needed for gate opening after the temporary fence line has been erected. Contractor shall notify and coordinate with the Government for removal/moving of existing concrete barricades at new gate location minimum two weeks in advance. Contractor shall restore the existing fence line and notify the Government two weeks in advance of needing to place concrete barricades back in original locations prior to demobilization of the temporary fence. Contractor shall provide all materials required for restoration of the fence line.

1.14.4. Contractor shall provide two 6" gaps in the fence line to allow fire hose access to each hydrant on the flightline side of the facility.

1.14.5. Escorts shall be provided for the erection and demobilization of the temporary fence and barricade placement IAW the section below, as well as any construction, cleaning or other laborer work occurring outside the free zone on the restricted side of the fenceline.

1.15. Any construction activity on the restricted side of the fence line must be requested and coordinated a minimum of two weeks in advance of each activity. An Entry Authorization List (EAL) with the associated construction personnel must be submitted to the Government along with the request for restricted zone activity. Contractor must provide escorts at 1:10 max ratio for all personnel working on the restricted side of the fence line. Escorts shall receive a favorable training and examination from 21SFS and maintain favorable escort status for the duration of applicable construction work. Airfield Ops shall be notified by the Contractor each day prior to personnel entering and working on the restricted side of the fence line. Contractor shall provide full accountability for all personnel on the restricted side of the fence line to Airfield Ops at the end of each duty day.

1.16. Any crane or other equipment obstructions being used on the airfield or taxiway require City Airport approval. For areas outside the airfield/taxiway, contractor cannot use any crane or site equipment exceeding 15 feet in height without review and approval by the City Airport. Any crane or site equipment which extends beyond a 45 degree shadow of Building 140 requires a Federal Aviation Administration (FAA) Form 7460-1 approval by the FAA. Cranes or site equipment which does not extend beyond the 45 degree shadow but exceeds 15 feet may require FAA approval on a case by case basis, based on review by the City Airport. The Contractor shall provide all pertinent information to 21CES for submission to the City and FAA (No direct submissions to FAA from Contractor). Contractor shall allow for 60 calendar days for approval from the City or FAA for use of such equipment.

1.17. Any construction near or in Government-occupied rooms/areas and the Hangar bay shall receive special care for air quality control and contamination mitigation for ongoing work. Dust containment shall be provided for any gypsum board finishing or other air quality reducing work around these spaces for both occupant safety and for parked aircraft safety/cleanliness.

1.18. The hangar bay shall not be used for storage of materials, tools, or equipment for the duration of construction. Any work required to be completed within the hangar bay shall be coordinated minimum 2 weeks in advance with the Government to ensure proper space and safety provisions are addressed WRT aircraft and ongoing operations within the Hangar bay.

1.19. This project is defined as a Major Project IAW UFC 3-600-01 and must comply with the oversight of a Qualified Fire Protection Engineer (QFPE) as outlined with the UFC. In addition

to fire suppression shop drawings being stamped by a Contractor-provided QFPE, Contractor's QFPE shall provide a complete Fire Protection Design Analysis inclusive of all applicable evaluation criteria outlined in UFC 3-600-01, section 1-7.2.2. QFPE shall validate all assumptions made in the Code Analysis and Code Plans contained in the Government drawings as well as compliance of Government supplied design with UFC 3-600-01. Design Analysis furnished by contractor shall identify all compliance metrics as well as any discovered errors that may require correction within the Government supplied design for proper compliance. Fire Protection Design Analysis shall be provided to the government no later than 30 days from NTP to ensure sufficient time for Government corrections prior to Construction start on-site.

1.20. All new revisions to this Statement of Work will be depicted with bold and underlined text. All new revisions to content in Attachment 2 will be depicted with a revision cloud.

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2. PROJECT SCOPE:

2.1. GENERAL

2.1.1. The interior side of all windows throughout the scope of work area shall be cleaned at completion of the project. A thorough cleaning of all spaces throughout the scope of work area shall be accomplished prior to turn over.

2.1.2. Contractor shall be responsible for removal and disposal of all existing furnishings within the scope of work areas not indicated to be incorporated as part of the final space layout. User will be responsible to remove all associated computers, equipment and personal belongings at impacted workstations prior to Contractor's work on-site.

2.1.3. Contractor shall complete all work as required and indicated in both Attachment 2 Drawings and throughout this Statement of Work.

2.1.4. Spaces identified in the Scope of Work Areas drawings (Sheet G002) contained within the "Secure Boundary" are required to comply with the Physical Security Standards for "Secure Rooms" outlined in the Appendix to Enclosure 3 within DoDM 5200.01 Vol 3. Please note that there are (3) independent Secure Boundaries identified in the drawings, and each must independently comply with the perimeter construction requirements within the aforementioned Appendix to Enclosure 3.

2.2. ASBESTOS ABATEMENT:

2.2.1. All Asbestos Containing Materials (ACM) information provided herein, as well as in attachment 6 documents shall be used to bid both asbestos testing and asbestos abatement accordingly. See Hazardous Materials plan in drawings for supplemental locational and quantitative information on known materials. Note that this information provided by the Government is not an exhaustive list and is only reflective of what is on record at time of solicitation.

2.2.2. In addition to information provided herein, the contractor shall provide their own asbestos & hazardous material testing for all items being affected by demolition or construction activities. Testing shall be accomplished by a certified hazardous materials contractor. Contractor shall provide all test results to Base CE via submittal.

2.2.3. Based on tests conducted at various locations in the building, contractor shall assume that Transite wainscotting is present at the full perimeter of hangar bay. Additionally, contractor should be aware that asbestos hard lid materials are present in numerous exposed areas as well as concealed above suspended drop ceilings. Contractor shall plan to abate/remove any hazardous material found within the scope of work areas and as needed for any demolition, ancillary penetrations, cut-ins, installation, repair, etc. to accomplish all work. Asbestos wainscotting and asbestos hardlids that are outside of the scope of work area boundaries (ie within the hangar bay and the CAP offices) will only require abatement/removal where impacted by demolition and installation of new materials. It is not the intent to abate all materials in areas not being renovated.

2.2.4. Exterior of facility is covered with metal paneling concealing underlying Transite panels. Any exterior modifications, penetrations, cut-ins, etc. should take this into account.

2.2.5. Additionally, contractor shall assume that there are other various ACM materials throughout facility not identified herein that will require testing and potential abatement, including but not limited to pipe insulation and accessories, duct insulation and accessories, flooring and flooring mastic, etc.

2.2.6. The Contractor shall submit documentation/certifications for all personnel involved in asbestos abatement. Contractor shall submit a proposed abatement plan and receive government approval prior to beginning any work on site.

2.2.7. The contractor shall remove all asbestos through approved abatement procedures. All asbestos abatement shall be performed under containment and negative pressure type abatement procedures and shall provide air clearance reports for each containment. Contractor shall use only low odor/low VOC chemicals. The contractor shall submit all necessary reports to document the removal of the asbestos as well as showing clean air readings following abatement.

2.2.8. Differing Site Conditions: In the case of differing site conditions that require additional action, 21 CONS shall be notified, and the contract shall be modified as needed to include remediation, transportation, storage, and disposal of waste as necessary. Any items listed in section 2.2.3 thru 2.2.4 and/or identified in the Hazardous Materials plan in the drawings will not be considered for a differing site condition.

2.3. ARCHITECTURAL & INTERIORS

2.3.1. DEMOLITION

2.3.1.1. Demo as indicated and as required to accomplish all work. Refer to Attachment 2 for specific information on walls, doors, ceilings, finishes, and other miscellaneous materials to be removed as part of project.

2.3.1.2. Not all demo/relocation of existing utilities is indicated. Contractor shall be responsible to demo/relocate existing utilities as needed to accomplish all work. Any selective wall or gypsum board demolition required for utility installation/relocation shall be patched and refinished/textured prior to receiving new paint or other finish as indicated.

2.3.1.3. Demo suspended acoustical ceilings at new walls as required to accommodate wall construction. Fire suppression heads and any other ceiling devices shall be protected in place or carefully removed and salvaged for reinstallation where applicable.

2.3.1.4. Remove finishes and flooring where indicated and where new finishes/flooring are to be installed. Existing walls shall be patched/textured to receive new finishes and slab/subfloor shall be prepped/patched to receive new flooring in areas where required.

2.3.1.5. Not all required slab demolition is shown in the drawings. Where plumbing fixture rearrangements or piping/waste line rerouting must occur to comply with the drawings,

Contractor is responsible for any sawcutting, trenching, and concrete slab infill necessary for coordination with new locations of slab penetrations.

2.3.2. WALLS

2.3.2.1. Provide new walls, wall infills, and wall modifications as indicated in Attachment 2.

2.3.2.2. Walls throughout area of work that have existing visible damage, that are damaged throughout the course of construction, or where unfinished sections of walls are exposed due to removal of equipment, applied finishes, or other appurtenances shall be patched, skim-coated, textured and prepped as required to receive new paint and painted to match existing room color. All new walls and patched wall areas shall match the finish level and texture of existing walls/adjacent surfaces within the scope of work area prior to receiving new paint or other finish.

2.3.2.3. The walls separating the main Hangar bay and the adjacent spaces are required to be rated as 1 Hour Fire Barriers IAW UFC 4-211-01 and as indicated on the Code Plans. It is expected that the existing wall assembly design meets a 1 hour fire resistive rating, but remains deficient on penetration firestopping, head of wall firestopping, and numerous openings and cutouts that have not been patched or infilled over the years. Within the limits of the Scope of Work Area both above and below ceilings, the contractor is responsible for firestopping untreated and non-fire caulked penetrations, installation of mineral wool insulation and fire caulking at head of wall conditions, as well as infilling all existing wall cutouts, holes, transfer grilles, and gaps in walls where prior penetrants are removed. Infill assemblies shall minimally consist of one layer of 5/8" Type "X" gypsum on either side of new framing infill and shall be taped and receive a gypsum finish level consistent with walls being infilled. Patches coincident with the Secure Area boundary shall receive paint consistent with the adjacent walls for evidence of unauthorized entry. Penetration firestopping installation must meet a specific UL penetration design listing and must be submitted by the Contractor for approval prior to procurement and installation of materials.

2.3.2.3.1. The top of wall condition at the 1st floor and 2nd floor office spaces bordering the high Hangar bay must be treated for a fire rated head of wall condition. It is expected that the majority of this existing head of wall condition terminates the Gypsum board to the bottom of the structural joists and not to the sheathing/deck above, and cannot be verified until gypsum lids above suspended ceiling are demolished. Within the limits of the Scope of Work Areas, and on the office side of the walls (opposite the hangar) the Contractor shall install infill framing and 5/8" type X gypsum board between each joist span to terminate to within 1 inch maximum of the roof/floor deck above, then install/stuff mineral wool insulation between the wall framing and structural deck/joists of the roof, followed by red intumescent fire sealant to create a continuous rated assembly termination to the sheathing and joists of the roof/floor deck. Bidders shall assume execution of treatment of this condition along the entirety of the 1st and 2nd floor walls bordering between the hangar bay and offices, with exception of rooms outside the Scope of Work Area as defined in the drawings.

2.3.2.4. The walls defining the new Secure Boundaries have not been fully investigated above suspended ceilings for continuity and to identify select gaps/openings that must be infilled or treated. It is the Contractor's responsibility to verify the continuity of these boundaries and

to identify any deficiencies for the physical boundary integrity during the demolition phase and prior to the start of new material installation. Finished state of boundaries must meet a true floor to structural deck physically secure boundary with no gaps or holes. However, it is not the intent to produce a two-sided assembly that meets the continuity on both sides. Only one side of the wall assembly must be truly continuous with permanent construction to offer resistance to and evidence of unauthorized entry into the area, IAW DoDM 5200.01 Vol 3. Only the identified Fire Rated and STC treated walls coinciding with a boundary condition are required to be truly double-sided to meet the added fire resistance and/or acoustical performance criteria.

2.3.2.5. Light gauge metal framing is specified in the drawings for all new partitions in the facility, but existing facility is constructed of primarily wood framing. Where new partitions abut existing walls in a parallel/extension manner or where infilling existing partition openings, it is the Contractors' responsibility to coordinate with the existing wall assembly thickness and either provide new framing members matching the existing wall framing thickness to align finishes on both sides of the wall, or to provide additional layers of gypsum board material at various thicknesses to refinish areas requiring added substrate thickness for finish alignment.

2.3.2.6. Existing partitions in facility are finished with a heavy sponge-applied texture. New partitions (excepting infills and wall extensions) shall be finished with a light orange peel applied texture. Where new partitions terminate perpendicular to existing partitions, except where required to be continuous at secure boundaries or fire rated partitions, Contractor may, at their discretion, utilize tear-away style l-trim at the abutment to the existing partition to avoid needing to tape/refinish the inside corner and mismatching textures. Partition shall receive an acoustical sealant both sides prior to paint. Wall infills must match original texture of the existing partition being infilled. New extensions of existing walls (parallel and aligned to finish of existing) must either match existing texture, or contractor shall refinish existing portion of wall to match the new textured wall. Contractor is responsible for any additional material demolition and procurement required to achieve a consistent finish across existing/new wall alignments.

2.3.2.7. In rooms where existing ceilings are demolished and replaced with new, contractor is responsible for refinishing/texturing any walls exposed by increase in ceiling height or rework of ceiling boundaries.

2.3.2.8. Contractor shall provide new in-wall blocking where required for new wall-hung equipment, casework/cabinets, bracket-supported countertops, and other appurtenances requiring sufficient support.

2.3.3. CEILINGS

2.3.3.1. Provide new Acoustical Ceiling Tile and Grid where identified in Attachment 2 and as required to accomplish work. All ceiling tile and grid shall follow the requirements listed in the PSFB Design Guide and material salient characteristics outlined in Attachment 2. Where ceilings are being selectively modified or adjusted for new wall layout, contractor shall provide matching tile and grid to match existing tile and grid adjacent. Rooms with full ceiling replacement shall follow the product requirements and basis of design information for new ceilings.

2.3.3.2. Ceilings heights shall match heights specified in Attachment 2, unless otherwise requested and approved in writing to the Government with justification specified. Contractor will be responsible for any wall refinishing required to achieve a consistent, finished condition from floor to ceiling height.

2.3.3.3. The majority of suspended ceilings within the facility also contain a gypsum board lid above the suspended ceiling, fastened to the bottom of joists above. These gypsum lids must all be demolished within the Scope of Work Areas prior to start of new work. Additionally, some of these hardlid ceilings have existing asbestos tile adhered to the bottom side that will require removal, see Hazardous Materials Plans in the drawings for more information. For bidding purposes, bidders shall assume gypsum lids exist above all suspended ceilings within the Scope of Work area that will all need removal.

2.3.3.4. Contractor is responsible for replacing damaged and stained ceiling tiles in the Civil Air Patrol offices (see RCP drawings for referenced locations) with good-condition salvaged tiles from adjacent areas containing identical ceiling tile product. Alternatively, contractor may provide new ceiling tiles in lieu of salvaged ceiling tiles. Existing ceiling tile product is Armstrong Cortega 704 angled tegular 2x2.

2.3.4. DOORS & HARDWARE

2.3.4.1. Contractor shall demolish and provide new doors, frames and hardware as indicated in Attachment 2 drawings.

2.3.4.2. Contractor shall protect in place any existing doors shown to remain in place and shall prep existing door slabs as required to receive new hardware indicated in the drawings.

2.3.4.3. It is the Contractor's responsibility to verify/validate all existing wall assembly conditions for interface of new door frames prior to procurement and submission of door and frame shop drawings.

2.3.4.4. The exterior of the facility is covered with asbestos paneling concealed behind the visible metal panel cladding. Contractor shall limit selective demolition on the exterior of the facility for new door installation to the extent feasible to avoid further unnecessary abatement. It is understood that some doors may require upsizing per the Drawings and will require a small amount of material abatement for proper door installation and weather sealing. Most locations where new exterior doors and frames are to be installed currently contain wood door frames and trim. New hollow metal frames will require an adequate amount of material removal to get the new door frames installed and to ensure the proper flashings, trims, sealants, and closures are fully coordinated for a weather-tight system. Contractor shall ensure that door frame throat widths are properly sized to avoid exterior exposure of untreated materials but also to keep from frames extending beyond the drainage planes of the existing wall assembly and flashings. All new trim, flashings, and door/frame surfaces that are exposed to the exterior shall be finished/painted to match the existing exterior color.

2.3.4.5. All new interior doors not receiving acoustical or smoke seals shall have frames prepped and provided with plug-style door silencers at the door stop face.

2.3.4.6. ACCESSIBILITY OF DOORS AND SPACES

2.3.4.6.1. The existing facility is extremely lacking in accessibility to individuals with disabilities. The scope of this project is not intended to bring the full facility up to accessible conditions due to the limitations of the project. However, the document titled “DoD Deputy Secretary of Defense Memorandum, Subject: Access for People with Disabilities, October 31, 2008” requires projects to upgrade accessible provisions of a facility to the extent feasible where such upgrades can be executed within or below twenty percent of the other project costs. To comply with this, the design indicated in the drawings strives to meet accessible provisions primarily in the 1st floor spaces. Door maneuvering clearances, clear circulation widths, and restroom accessibility features shall be met on the 1st floor for the areas being renovated. The 2nd floor is not considered an accessible story for the purposes of this project due to the lack of elevator access. Restrooms on 2nd floor are not required to be wheelchair accessible as part of this scope and doors/exits from 2nd floor are not required to meet Accessible Means of Egress provisions, per Code Study in the drawings.

2.3.4.7. Door closers at STC rated doors shall be extra heavy duty with self-regulating valves, minimum 35 year warranty, and the ability with the increased door weight to maintain maximum 5 LB door opening force and proper minimum closing duration specified in the ABA Standards. Closer shall be cast iron, grade 1 ANSI A156.4 certified & UL listed. Basis of design Best EHD9000 or equal. Door closers at all other locations shall be minimum heavy duty with minimum 30 year warranty and ability to maintain 5 LB door opening force (15 LB at required fire-resistance rated doors) and proper minimum closing duration specified in the ABA Standards. Closer shall be cast iron, grade 1 ANSI A156.4 certified & UL Listed. Basis of design LCN 4040XP or equal. All closers shall be installed on the interior side of door with through-door sex bolts.

2.3.5. FLOORING

2.3.5.1. Existing flooring shall be protected throughout the facility in areas where new flooring is not planned. Where existing flooring is scheduled to remain in place, contractor shall replace in like and kind any flooring materials that are damaged during the course of construction.

2.3.5.2. Where new flooring is indicated within the Room Finish schedule in the drawings, existing flooring materials within those rooms shall be completely removed, and subfloor shall be prepped appropriately to receive new flooring. Contractor shall be responsible for any concrete patching, floating or leveling products to comply with substrate leveling tolerances per flooring manufacturer’s requirements and recommendations. New wall base shall be provided in rooms where flooring is replaced or walls have been modified as part of the scope of work. Wall base, where replaced, shall be replaced throughout the room of replacement, not just patched or infilled. The only exception to this is the Hangar Bay, where wall base is non-existent and will not be required to be installed, provided that any wall infills within the Hangar Bay are clean and consistent with the finish and appearance of adjacent surfaces.

2.3.6. MISCELLANEOUS FINISHES

2.3.6.1. Refer to Attachment 2 drawings for all new finishes to be installed in scope of work areas and miscellaneous areas impacted by construction.

2.3.6.2. All walls and door frames remaining in place within the scope of work area shall receive new paint.

2.3.6.3. All existing walls and wall finishes throughout the scope of work area that have existing visible damage, that are modified or that are damaged throughout the course of construction shall be patched prior to receiving new paint or replacement finishes (where applicable). Where unspecified within this SOW or in Attachment 2 drawings, replacement finishes on existing walls and new finishes on new walls shall match existing room finishes of the rooms in which they are being installed. Where new doors/frames are provided in walls separating rooms with inconsistent paint colors, the paint transition shall occur at the inside corner of where door stop and frame rabbet meet (concealed corner when door is shut). Painted HM doors in this condition shall transition paint color likewise at the concealed edge. Where existing doors/frames are present in newly painted spaces, doors shall receive new paint on the side facing the newly painted space, terminating/transitioning new paint color on the door and frame as described above.

2.3.6.4. Where new or modified walls are to receive new paint, new paint shall extend from corner to corner (not terminated mid-wall).

2.3.6.5. The contractor shall provide any new power and communications conveyance to any conference room tables and podiums via a low slope under-carpet wireway system such as the Connectrac® brand system. Power poles, exposed raceway, and exposed conduit will not be permitted in conference rooms. Provide factory transition adapters from each track to where it connects to the tables. Provide ramp “corner kits” to feather the slope at the table termination. Raceway shall be installed and concealed below carpet tile. All power shall be hidden in walls to within 18” of floor to connection of low slope raceway.

2.3.6.6. Walls calling for wall tile shall be tiled full height to ceiling and do not need to receive a separate tile base. Wall/floor transition shall incorporate a 6” high coved porcelain base to match wall tile. Grout shall be epoxy type and color shall be selected from manufacturer’s standard options at the time of tile submittal. Overage of 3 full boxes of tile shall be provided by the contractor and left at the site. Contractor is responsible for providing additional gypsum board layers and taping at restroom walls with inconsistent surface alignment or surface flatness outside of manufacturer’s expected substrate conditions for installation of the tile specified.

2.3.6.7. Floors calling for porcelain tile shall receive 2 coats of a liquid applied membrane waterproofing and crack prevention sealer (basis of design Red Guard) prior to installation of tile. Where abutting walls also receiving tile, waterproofing membrane shall turn and extend minimum 6” up wall. Grout shall be epoxy type and color shall be selected from manufacturer’s standard options at time of tile submittal. Overage of 2 full boxes shall be provided by the contractor and left at the site.

2.3.6.8. All paint at restrooms and janitor’s closets shall be epoxy type.

2.3.6.9. Contractor shall provide new corner guards at all outside corners within the scope of work area. See Finish Material Schedule and PSFB Design Guide for more information regarding product and installation.

2.3.7. MISCELLANEOUS CONSTRUCTION

2.3.7.1. Contractor shall repair/reglaze existing windows shown to remain in place at locations where glazing is damaged or removed, or where operable window sash is unable to close completely (only windows within/directly bordering scope of work areas). Additional glazing replacement is noted in drawings.

2.3.7.2. New metal blinds shall be installed at all windows in the Scope of Work Area. Where existing blinds are installed, they shall be removed and replaced. Product shall comply with the Peterson SFB Design Guide requirements.

2.3.7.3. New translucent vinyl film on windows, where specified in Attachment 2 drawings, shall extend the full width and height of each lite of vision glazing and be applied to the interior surface. Window film shall be a vinyl type with a minimum thickness of 4.5 mils. Film shall be a translucent, uniform frosted look that visually conceals interior objects. Product shall have a maximum of 75% diffuse transmittance and a minimum haze of 90% when tested in accordance with ASTM D1003. Contractor shall submit (3) different samples of varying light transmittance for government review and selection. Samples shall be installed on glass and be minimum 12" x 12". Product shall have a minimum 5 year warranty.

2.3.7.4. New exterior and interior metal stairs and railings identified in the Drawings shall comply with the requirements outlined here. All new exterior metal stairs and railings shall be constructed of hot-dip galvanized steel with a high performance coating matching the color of existing exterior (P-4), and all new interior metal stairs and railings shall be constructed of hot-dip galvanized steel with no additional coating. High performance coating installation, where required, shall meet the minimum dry-film thickness and coating quantity requirements of specification section 09 96 00 High-Performance Coatings for the respective substrate material and product type. Treads and risers shall be constructed of solid plate materials, not permitted to be perforated, expanded metal, or grating. Horizontal landing and tread surfaces, including nosings, shall receive a heavy/coarse slip-resistant metal plasma stream deposited texture to the steel substrate prior to galvanizing. Texture application and finishing shall follow manufacturer's recommendations and be UL 410 listed with a minimum anti-slip coefficient of friction of 0.6. Bond strength between steel texture and substrate surface shall be minimum 4,000 PSI with a minimum surface hardness of 55, per ASTM E140 and E384. Basis of design for textured product is "Slip Not", Grade 3 texture or equal. Plate steel treads and risers shall be minimally 1/4" substrate material, formed to comply with the maximum riser and minimum tread standards in NFPA 101 as well as the dimensional criteria in the design Drawings. Texture grade option samples shall be provided to the government for selection prior to fabrication.

2.3.7.5. New exterior concrete stairs shall meet the dimensional and construction criteria outlined in the drawings. Top surface of treads and landings shall be a heavy broom finish. Cast-in-place slip resistant safety tread product shall be provided at the leading edge of each tread/landing with aluminum oxide abrasive infill strips in an extruded aluminum base. Safety tread shall be a two piece product inclusive of an extruded aluminum base and top replaceable abrasive infill. Safety treads shall terminate 4" from each side of concrete stair. Basis of Design product Wooster Supergrit type WP-RN3-SG with Tread base type 6063-T5.

2.3.7.6. Access Panels: Install access panels as needed. Access panels shall be installed at all locations requiring access to plumbing, mechanical, and electrical controls. Access doors and panels shall be flush type. The free opening of access doors shall be a minimum of 10"x10" where accessed item is within 12" of access panel and minimum 24" x 24" where more distant. Frames for access doors shall be fabricated of minimum 16 gauge steel with welded joints. Access doors shall be hinged to frame and provided with a flush face. Provide with a screwdriver operated latch. Exposed metal surfaces shall have a shop applied prime coat. Finished paint coat shall match surrounding surfaces. Access doors shall be installed in closets, restroom stalls, or other non-conspicuous locations to extent possible.

2.3.7.7. The large enclosed chase at the south side of room 130 contains a concealed utility space with piping, conduit, junction boxes, and other various appurtenances, some of which may no longer be in service. Following demolition of the section of wall in this area to be removed, Contractor shall reroute, refeed, and/or raise above ceiling any of these conveyances, piping, or devices that need to remain in service and will not be concealed behind the new wall locations prior to the installation of new walls.

2.3.7.8. New lavatories in solid surface countertops shall be integral solid surface basins, oval shape, minimally 15 1/2" x 12 1/2" x 5" deep inside bowl dimensions. Lavatories shall be capable of meeting ABA accessibility provisions for knee space. Basis of design Dupont Corian 810P, Glacier White. See Plumbing for fixture and connection information.

2.3.8. MISCELLANEOUS FURNISHINGS AND ACCESSORIES

2.3.8.1. TVs: All TV locations identified on the drawings shall receive backing to accommodate screens up to 75". Provide and install TV mounts for each location. See Electrical for additional power and data requirements behind TVs. TVs will be Government Furnished.

2.3.8.2. Microwaves (BID OPTION 1): Provide countertop type microwaves, installed at locations identified in the drawings. Microwaves shall be a minimum of 1.7 cu-ft capacity and a minimum of 1000-watts with turntable. Units shall have a digital display and a stainless steel finish. Microwaves shall be UL listed and have a minimum 1 year standard limited warranty. Provide associated power as needed.

2.3.8.3. Coffee Makers: Coffee makers, where shown on the drawings, shall be Government Furnished. Contractor is responsible for providing a new utility box for each coffee maker for future connection. See Plumbing and Electrical sections for more information. Wall box shall be minimum 6"W x 6"H x 3"D high impact polystyrene with 1/4 turn brass valve with compression fitting to tubing. Provide a new valve and tubing for future connection (minimum 16" left above countertop) to new water stop valve in box. Water shall be closed off at valve until future connection. Valve shall be installed firmly in wall box. All components in contact with water supply shall be "lead-free". Wall box shall be white with minimum of a 2" flange caulked to wall for fully finished look.

2.3.8.4. Refrigerators (Full Sized) (BID OPTION 1 - Equipment only): Provide full-sized refrigerators where indicated in drawings. Unit should be a side-by-side refrigerator/freezer combo and must meet a minimum total capacity of 21.5 cu. Ft. with a fresh food capacity minimum of 14 cu ft and a freezer capacity minimum of 7.5 cu ft. Unit shall have built-in ice

dispenser and filtered water dispenser. Front/door finish shall be stainless steel and sides shall be black. Unit shall be provided with a minimum Limited one-year parts and labor warranty. All hose, shelves, fittings, and accessories shall be provided and installed for a complete and useable refrigerator with connection to water supply. Basis of Design Frigidaire FFHX2325TS or equal.

2.3.8.5. Refrigerators (Under Counter) (BID OPTION 1 - Equipment only): Provide under counter refrigerators where indicated in drawings. Unit shall be sized to extend from floor to bottom of countertop surface and minimally 18"W x 19"D outside footprint. Front/door finish shall be stainless steel and sides shall be black. Unit shall accommodate a reversible door swing and be provided with a minimum 2 year warranty. All shelves, fittings, and accessories shall be provided and installed for a complete and useable refrigerator. Basis of Design Absocold ARD204ABS or equal

2.3.8.6. Garbage Disposal: Provide Ground-Fault Circuit Interrupter (GFCI) receptacles underneath the Break room sink to provide 120V power to the installed garbage disposal.

2.3.8.7. Paper Towel Dispensers at Break Rooms: Provide towel dispensers in the Break room as indicated in the Drawings. Paper towel dispenser shall be surface mounted automatic/sensor type unit supplying rolled paper for hand drying. Unit shall be hard wired, not battery operated. The cabinet shall have a key lock and shall have a clear "smoked" plastic finish. Unit shall accept a minimum 8 inch wide roll up to approximately 800 feet long and shall be capable of installing a stub roll in addition to a full roll. Provide hard wired power to unit.

2.3.8.8. Toilet Partitions: Provide toilet and urinal partitions in accordance with project drawings. Water closet enclosures shall be floor mounted with overhead bracing. A coat hook shall be provided in each stall. Urinal screens shall comply with codified separation requirements and shall be wall mounted with no floor support. Panels shall be fabricated of high density polyethylene with a sand or orange-peel texture. Standard stall partition doors shall swing out where possible. Stall door hinges shall be stainless steel. All non-ABA stalls shall have gravity hinges that keep doors open 10 to 15 degrees when not latched. ABA stall doors shall be self-closing in accordance with ABA requirements. Color shall be selected during the submittal from the manufacturer's standard color options. Manufacturer shall offer no less than 15 standard color options.

2.3.8.9. Paper Towel Dispensers at restrooms: Paper towel dispensers shall be semi-recessed automatic/sensor type unit supplying rolled paper for hand drying. Unit shall be hard wired, not battery operated. The cabinet shall have a key lock and shall have a brushed stainless steel finish. Unit shall accept both 8 and 9 inch wide rolls up to approximately 800 feet long and shall be capable of installing a stub roll in addition to a full roll.

2.3.8.10. Waste receptacles

2.3.8.10.1. **Waste Receptacle, restroom**: Waste receptacle shall be a semi-recessed wall mount unit. Unit shall have a 11.2 gallon minimum removable molded plastic insert. Front panel of unit shall form an arc and shall be removable from the rest of the unit. Unit shall be fabricated of not less than 22-gauge type-304 stainless steel finish. Basis of Design: Bobrick Model B-43644.

2.3.8.10.2. Waste Receptacle, floor: Waste receptacle shall be a steel-construction, powder coat-finished, minimum 40-gallon capacity waste bin with internal rigid liner and integrated holding system. Finish to be anodized silver or similar. Basis of design: Magnuson Group Valuta VA1818L or equal.

2.3.8.11. Hand Dryers: Provide hand dryers at locations indicated in drawings. Hand dryers shall be surface mounted automatic, infrared sensor, rapid drying type, capable of drying hands completely in 15 seconds. Unit shall be powered by a 5/8 HP, 20,000 RPM motor providing air velocities of 16,000 LFM. Hand dryer heater shall be 900 watts. Unit shall be capable of running on a standard 15 amp dedicated circuit. Enclosure shall be a one piece, heavy duty, rust resistant, die-cast zinc alloy and include optional muffler for sound control. Basis of design is: Xlerator, XL-SB by Excel.

2.3.8.12. Soap Dispensers: Provide (1) Soap Dispenser for each lavatory sink. Soap dispensers shall be a wall mounted manual hand pump type unit and shall be attached with adhesive to lavatory mirrors at multi-stall restrooms and to adjacent wall at unisex restroom. Soap dispensers shall be capable of accepting either 1000 ml or 1200 ml refill cartridges manufactured by Georgia-Pacific. Units shall have a clear window view of refill cartridge and shall have a brushed stainless steel finish. Basis of Design is: Georgia-Pacific's Pacific Blue Ultra Model 53060.

2.3.8.13. Coat Rack Shelf: Provide coat rack shelves at locations indicated on drawings. Coat rack shelf shall be a 14" by 5" deep shelf constructed with 18-gauge stainless steel and shall have a 3/4" return edge. Shelf brackets shall be 16-gauge stainless steel. All stainless steel surfaces shall have a satin finish. Basis of design: Bobrick # B-295 x 14. Each shelf shall have 4 coat hooks mounted below the shelf. Coat hooks shall be architectural, stainless steel type with a concealed mounting plate and satin finish. Basis of design: Bobrick #B-76717.

2.3.8.14. Full Length Mirrors: Provide at locations indicated on drawings. Full length mirrors shall be a minimum of 18 inches wide by 6 feet high and shall be mounted with the bottom at 12" above finished floor. Mirrors shall have a brushed stainless steel frame.

2.3.8.15. Restroom Lavatory Mirror: Lavatory mirrors shall be installed directly above the backsplash of the countertop. Mirror shall be continuous glass for the entire length of the countertop with no seams and shall be 4'-0" in height. Perimeter of mirrors shall have brushed stainless steel frame. Mirrors at wall mounted lavatories shall be minimally 30"W x 48"T and installed centered on the lavatory.

2.3.8.16. Toilet Tissue Dispenser: Provide (1) toilet tissue dispenser at each water closet enclosure and within each Unisex restroom (TLT). Toilet tissue dispensers shall be a partition mounted, 4 roll, quad coreless toilet paper dispenser and shall accept compact coreless toilet paper refills. Dispenser shall have a brushed stainless steel finish. Basis of design is: Georgia-Pacific Model 56748.

2.3.8.17. Sanitary Napkin Disposal (1 per each Women's toilet Stall and within each unisex restroom/TLT): Shall be surface mounted unit constructed of 22 gauge type-304 stainless steel, all welded construction. Exposed surfaces shall have a satin finish, corners shall be radiused. Basis of design: Bobrick Model B-270.

2.3.8.18. Restroom Grab Bars (1 per each Accessible Toilet Stall and 1 per Unisex Restroom/TLT): Grab bars shall be 1-1/4-inch diameter tube type not less than 18 gauge,

type-304 stainless steel with satin finish and concealed mounting. Units shall have a separate mount cover of not less than 22 gauge construction. A separate grab bar shall be provided at the side and back wall location in accordance with ABA requirements.

2.3.8.19. Coordinate exact location of all accessories with the project manager and Base architect prior to placement. Contractor shall provide backing as needed at all accessory locations.

2.3.9. SIGNAGE

2.3.9.1. Remove all old signage throughout the Scope of Work Area. Contractor shall provide new interior room identification signage for all rooms/doors throughout the scope of work area. All signage shall be ABA compliant and have brail below room number/name. Contractor shall submit shop drawings meeting all applicable regulations and PSFB Design Guide for review and approval, as well as to coordinate exact verbiage and room numbers. Signage at common building areas such as Janitorial rooms, comm rooms, mechanical and electrical rooms, break rooms, and restrooms shall be 9" wide x 2" high with only permanent text (no paper insert). All other signage locations shall be approximately 6" wide x 7" high and shall have a paper insert below the permanent room number. Signage and lettering color shall be selected during submittal process. Coordinate exact mounting locations with PM prior to installation.

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2.4. CIVIL

2.4.1. Contractor shall demolish northernmost outdoor stairway, to include railing, from the backside of the roll over curb on the street side, to the retaining wall and landing area nearest the facility. Contractor shall sawcut as needed to remove concrete stair and surrounding structure. Use care when demolishing and filling around existing adjacent manhole. Contractor shall backfill voids with subgrade material and provide a CDOT Class 6 base course on the top 4" compacted to 90% modified proctor. Contractor shall pour a 4" unreinforced concrete slab to match slope, color, and surrounding concrete finish. Concrete shall be a low slump between 2" and 3" for slope with minimal vibration. Terminate new concrete approximately 2 inches above final grade at the bottom of the slope.

2.4.2. Existing roll over curb will be infilled to match existing curb profile. Saw cut and demo curb 1 foot from the top of taper, away from the taper in the existing curb. Provide expansion joints where the new curb meets existing. Provide minimum 1' cut in the asphalt to allow for demo and formwork of the new curb and gutter. Backfill asphalt patch with approved asphalt mix.

2.4.3. The facility entrance outdoor stairways (stair sections 8 & 9) shall be demolished and replaced with sections as shown in drawings. Surrounding finish of concrete shall match existing concrete color and design (tooled line features). Where new roll over curb meets stair landing, provide a bond breaker. Where concrete landing length exceeds the width of the stairs, provide a contraction joint.

2.4.4. Contractor shall demolish stair landings to be demolished as needed to remove the structure and prepare the subbase and base for new stair supporting structure. Contractor shall also remove equipment pads to be replaced and properly prepare base for new equipment pad as noted in the contract documents.

2.4.5. Contractor shall ensure gutter drainage areas adjacent to facility is clean and free of sediment and debris at conclusion of the project. Include splash blocks for downspouts where feasible.

2.5. STRUCTURAL

2.5.1. All structural design and construction shall comply with UFC 1-200-01, the International Building Code, UFC 3-301-01, FRMACC Specifications, and the Peterson SFB Design Guide.

2.5.1.1. Structural load calculations are based on ASCE 7 and IBC unless noted otherwise.

Load Combinations are based on Load and Resistance Factor Design.

Risk Category = 2

Snow Loads:

Ground snow load (P_g) for flat roof balanced conditions = 47 psf

$C_e = 0.9$; $C_t = 1.2$; $C_s I = 1.0$

Roof snow load = 35.5 psf; Drift snow load = 87.7 psf

Wind Loads:

$K_z = 0.85$; $K_{zt} = 1.0$; $K_d = 0.85$; $K_e = 0.80$; $V = 113$ mph (3 sec. gust)

Exposure Category D, $G C_{pi} = \pm 0.55$

Components and cladding shall be designed to resist the pressures indicated in the table below. See drawings for roof designation and zone designation.

Wind Pressure - Components and Cladding		
Roof 1		
Zone	Pressure (psf)	
1+	-54	37
1	-54	20
2+	-68	37
2	-68	20
3	-90	20
Roof 2		
Zone	Pressure (psf)	
1+	-57	39
1	-57	21
2+	-72	39
2	-72	21
3	-94	21
Roof 3		

Zone	Pressure (psf)	
1'	-61	42
1	-61	23
2	-77	23
3	-102	23
Roof 4		
Zone	Pressure (psf)	
1	-54	20
2	-68	20
3	-90	20

Seismic Loads:

Importance Factor = 1.0

Site Classification = D

Short Period Spectral Acceleration (S_s) = 0.191 g

One Second Spectral Acceleration (S_1) = 0.057g

Response coefficient (R) = 3.25, 3.5

Design Category = B

Floor live loads:

Roof: 20 psf

Assembly: 100 psf

Mechanical: 125 psf

2.5.1.2. Contractor shall provide temporary bracing as necessary for construction.

2.5.1.3. Contractor shall validate all existing conditions and notify the Gov't when stated assumptions and existing conditions conflict.

2.5.1.4. Contractor shall provide demolition as necessary for the erection and construction of structural elements. All items Affected by said demolition shall be repaired to match existing.

2.5.2. Foundations: Allowable soil bearing capacity = 2000 psf

2.5.2.1. All compaction requirements are modified Proctor U.N.O.

2.5.2.2. Existing soil shall be scarified and recompact to 95% modified proctor beneath foundations.

2.5.2.3. Contractor shall provide a minimum 6" of CDOT Class 6 aggregate, compacted to 95% compaction, beneath all equipment pads. Contractor shall remove in situ material as needed.

2.5.2.4. Foundations shall be constructed IAW the foundation schedule below:

FOUNDATION SCHEDULE		
TYPE	DESCRIPTION	REINFORCEMENT
P1	1'0" x1'0" PILASTER	(8) - # 4 VERT REINF. W/ STD. HOOK, (4) - #3 TIES @ 3" O.C., #3 TIES @ 10" O.C. REMAINDER
	3'0" x 3'0" FTG	(4) - # 5 EACH WAY, BOT. REINF
P2	1'0" x1'0" PILASTER	(8) - # 4 VERT REINF. W/ STD. HOOK, (4) - #3 TIES, EQUIDISTANT
	2'0" x2'0" FTG	(4) - # 5 EACH WAY, BOT. REINF
MF1	20' x 10' x 16" MAT	#6 B, 12" O.C., #5 T, 12" O.C W/ 90 TURN DOWN @ ENDS.
MF2	5'x7'x16" MAT	#5 T & B, 12" O.C. W/ 90 TURN DOWN @ ENDS
EQ1	13' 2" x 8' x 16" MAT	#6 B, 12" O.C., #5 T, 12" O.C W/ 90 TURN DOWN @ ENDS.
EQ2	4' x 4' x 12" MAT	#4 T & B, 12" O.C.
EQ3	4' x 20" x 8" SLAB	#4, T & B, 12" O.C W/ 90 TURN DOWN @ ENDS
	6" x 12" CURB, CONT.	#4, CONT.

2.5.2.5. Equipment shall be anchored per manufacturer's requirements. Coordinate anchor bolt sizes & locations for placement in equipment pads. All equipment pads shall be coordinated with mechanical and electrical drawings.

2.5.2.5.1. New mini-split units on the street side shall be placed on turn down slabs, per foundation schedule above (EQ3).

2.5.2.5.2. New chiller shall be placed on EQ1 foundation.

2.5.2.5.3. New transformer shall be placed on EQ2 foundation.

2.5.3. Concrete:

2.5.3.1. Concrete shall be installed in accordance with ACI 318.

2.5.3.2. Concrete shall have a minimum f'_c of 4,500 psi and w/c not to exceed 0.45.

2.5.3.3. Concrete for foundations shall have a slump of 3"-5".

2.5.3.4. Concrete for equipment pads shall have a minimum f'_c of 4000 psi.

2.5.3.5. Reinforcing bars shall be ASTM A615, Grade 60.

2.5.3.6. Non-shrink grout shall have a minimum compressive strength of $2 \times f'_c$ U.N.O.

2.5.3.7. Where new concrete slabs or ramps are to be poured against existing, Contractor shall provide #3 dowels, drilled and set with epoxy into the existing concrete. Dowels shall be set a minimum of 4" into the existing concrete. Dowels shall extend a minimum of 18" into the new concrete.

2.5.3.8. Where all interior slabs on grade abut walls, a bond breaker of 1/2" expansion joint material shall be provided between wall and edge of slab, unless noted otherwise on the drawings. Contractor shall provide an elastomeric joint seal compound at each location requiring expansion joint material.

2.5.4. Structural Steel:

2.5.4.1. All structural steel design, materials, fabrication, and erection shall conform to the AISC Manual of Steel Construction.

2.5.4.2. All W shapes shall be ASTM A992 ($F_y = 50\text{ksi}$).

2.5.4.3. All other shapes, angles, plates, and bars shall be ASTM A36 ($F_y = 36\text{ksi}$) U.N.O.

2.5.4.4. Hollow Structural Sections (HSS) shall be ASTM A500, Grade C ($F_y = 50\text{ksi}$).

2.5.4.5. Structural pipe shall be ASTM A53, Grade B ($F_y = 35\text{ksi}$).

2.5.4.6. Anchors to concrete shall be ASTM F1554, Grade 36.

2.5.4.7. All bolted connections shall be 3/4" A-325 U.N.O.

2.5.4.8. All bolted connections are pretensioned using ASTM F959 direct tension indicating washer twist off type tension-controlled bolts.

2.5.4.9. Hole Type = STD, UNO

2.5.4.10. Welding electrodes shall be E70XX.

2.5.4.11. All welded connections shall be 3/16" U.N.O

2.5.4.12. Steel fabrication shall be such that the appropriate tolerances for thermal expansion and contraction are maintained upon placement in the field.

2.5.4.13. All steel shall be finished IAW architectural requirements.

2.5.5. Cold-Formed Metal Framing:

2.5.5.1. Cold-formed metal framing shall comply with AISI specifications and Steel Stud Manufacturer specifications.

2.5.5.2. Yield strength = 33 ksi.

2.5.5.3. Framing shall be rated for structural use.

2.5.5.4. All fasteners shall comply with AISI specifications

2.5.6. Wood

2.5.6.1. All wood construction shall comply with AWC NDS

2.5.6.2. Contractor shall provide wood species, certificate of grade, and nailing patterns for all wood assemblies. For structural lumber, contractor shall validate existing conditions and provide shop drawings indicating blocking, bridging, bracing, and connections to existing structure.

2.5.6.3. Contractor shall provide additional dimensional lumber at all roof/floor penetrations. Assumed roof/floor construction is 2x12 dimensional lumber at 16" o.c. For all penetrations that do not span multiple bays, Contractor shall provide blocking per manufacturer requirements. Where penetrations require beams to be cut, the Contractor shall provide a 2x12 cross member, with 2x12" members to be provided parallel to the existing beam system at the extents of the penetration. Contractor shall provide appropriate joist hangers or alternative connections per NDS.

2.5.6.4. Contractor shall provide (2) 2x6 header at all new door penetrations. Contractor shall provide 1 king stud per 2 studs cut at new door penetrations, and 1 jack stud, at each end of the header.

2.5.6.5. Where equipment is required to be mounted to existing walls, Contractor shall provide additional wood blocking per manufacturer recommendations.

2.5.6.6. Where new equipment is to be placed above grade, KTR shall provide additional blocking and framing per manufacturers recommendation.

2.5.7. Contractor shall provide and construct steel stairs, and all parts associated, IAW the drawings and the requirements herein.

2.5.7.1. All stair stringers shall be MC 12 x 10.6"

2.5.7.2. Stair treads and walking conveyances shall be 1/4" plate steel (ASTM A36) UNO. Plate steel on platforms leading to or servicing stairs shall be supported by L4x3x1/4, equally spaced, NTE 24" o.c., with the 4" leg facing down. L4x3x1/4 shall be welded to MC sections at each end. Refer to architectural section for plate steel finish.

2.5.7.2.1. KTR shall provide 1/4" gaps at LONGITUDINAL end bearing conditions for all plate steel.

2.5.7.3. Columns supporting stair runs shall be 3" STD Structural Pipe. Columns shall be provided at each change in direction, and at the corners of each platform UNO. Columns shall receive 1/4" base plates and 1/4" plate steel caps. Base plates shall be 6" x 6". Caps shall match the plate dimensions of the structure to remain. Base plates and caps shall receive a minimum 3/8" weld, continuous. Stringers shall match the bearing conditions of the existing

structure and shall receive a continuous weld to the cap face. Column base plates shall bear 1 ½" on a non-shrink grout. Columns shall be anchored to foundations designated P1 in the foundation schedule UNO.

2.5.7.4. Contractor shall provide anchor bolts at each base plate. Base plates shall receive (4) 5/8" anchor bolts. Anchor bolts shall be in each corner, 1" o.c. from the edge of the plate. Anchor bolts shall be embedded a minimum of 12" into the concrete below. The last 2" on each end of the anchor bolt shall be threaded and receive a standard nut and washer. The washer on the embedded end shall be tack welded to the bolt in three places.

2.5.7.5. Exterior Stairs:

2.5.7.5.1. Connections to existing structure: stair stringers shall be bolted to a ¼" shear tab per drawings at all locations where they would connect to the existing structure. Bolt holes shall be short-slot holes at these locations.

2.5.7.5.2. Street side stairs:

2.5.7.5.2.1. Contractor shall provide an angle ledger where the stringers and concrete meet. Angle shall be a L6x4x1/4" and welded such that the plate steel sits flush with surrounding steel. Contractor shall provide (4) ¾" diameter concrete anchors and anchor the angle to the concrete face. Anchors shall be drilled and epoxy type anchors. Provide a minimum embedment of 4" for each anchor. Steel stringers for street side stairs shall be coped to match existing slope. Contractor shall provide a ¼" steel plate, welded to the bottom of each stringer, and a raised concrete pedestal, designated P2, 1' back from where the cope on the stringers begins. Steel plate shall match the dimensions and anchor bolt patterns of the base plates called out above. Concrete finish shall match existing.

2.5.7.5.3. Flight Line Stairs

2.5.7.5.3.1. Stringer ends shall be anchored in place via a L4x4x1/4. L4x4x1/4 shall be welded to each stringer beneath the last stair tread, such that the angle rests flush with existing concrete, and shall receive two 5/8" anchor bolts, one on each end, 6" o.c. from each stringer.

2.5.7.5.3.2. Stair 5 shall have special bearing conditions at the roof: columns bearing on the roof shall be welded to the web of a C6x10.5 section with a continuous weld. Flanges shall be oriented such that the flat face bears on the roof. C6x10.5 sections shall bear on 1'x1' rubber bearing pads, spaced no more than 36" o.c. C6x10.5s shall run transverse to the roof slope. Contractor shall provide columns at post locations identified in drawings. Each C6x10.5 shall support two columns, as shown in the drawings. C6X10.5 shall extend 16" past each column. The structure supporting the catwalk running parallel to the roof line shall be bolted to the stair runs running perpendicular to the roof line per drawings.

2.5.7.5.3.3. Foundation type for Stair 5 shall be MF1.

2.5.7.5.3.4. Contractor shall provide a HSS 10x4x1/4 at the interior of the intermediate landing of Stair 5. HSS section shall bear directly on columns. TOS shall be ¼" below the TOS for the stair stringers, such that the walkway bears directly on it without any deflection. Stair stringers shall be welded to the HSS section.

2.5.7.5.3.5. Foundation type for Stair 4 shall be MF2.

2.5.7.5.3.6. Mat foundations shall match surrounding concrete elevation. KTR shall verify all dimensions and elevations prior to fabrication of steel or placement of foundations.

2.5.7.5.3.7. Contractor shall increase the existing landing height at Stair 4. Landing height increase shall be verified in field. Contractor shall weld a ¼" plate to the exterior of the height increase such that the fascia appears continuous between existing and new. TOS plate shall not be more than ¼" below door threshold.

2.5.7.6. Interior stairs

2.5.7.6.1. Columns for the upper landings shall bear directly on a 1' x 4' x 1' raised concrete pad. Raised concrete pad shall be doveled into the concrete below. Concrete below shall be roughened to 1/4" amplitude prior to placement of new concrete. Contractor shall provide (8) #4 dowels, spaced equally. Dowels shall be embedded a minimum of 4" into existing concrete and shall have an 8" turn down. KTR shall provide # 3 ties @ T&B.

2.5.7.6.2. Contractor shall provide a new header at existing wood structure for stair 7. New header shall be a HSS 10x2x1/4". Contractor shall provide a weldable hangar where existing wood members tie into the HSS section. HSS section shall be welded to the stair stringers. Ends of the HSS section shall receive a ¼" plate steel cap, to be continuously welded to the HSS section. Edge of plate steel shall be ground flush with the HSS section.

2.5.7.6.3. Columns for lower landings shall bear directly on existing slab. Anchors shall be drilled and epoxied in place. Contractor shall provide a minimum 4" embedment for all anchors.

2.5.7.6.4. Stringer ends shall be anchored in place via a L4x4x1/4. L4x4x1/4 shall be welded to each stringer beneath the last stair tread, such that the angle rests flush with existing concrete, and shall receive two anchor bolts, one at each end, 6" o.c. from each stringer. Anchors shall be drilled and epoxied in place. Contractor shall provide a minimum 4" embedment for all anchors.

2.5.7.6.5. For stair 6, Contractor shall provide a L6x4x1/4 cross member, flush with the end of the stair stringers. L6x4x1/4 shall be through bolted to existing wood structure at a minimum of 4 locations with ½" bolts. Through bolts shall be placed at the center of wood members.

2.5.8. Contractor shall provide and construct concrete stairs, ramps, and all parts associated, IAW the drawings and the requirements herein.

2.5.8.1. Slabs

2.5.8.1.1. Slabs shall receive #3 rebar reinforcement, at 12" o.c., both ways. Contractor shall provide a 90 degree turn down for transverse rebar at all thickened edges. Turn downs shall terminate at a #3 rebar, continuous.

2.5.8.1.2. Where indicated in the drawings, Contractor shall provide structural foam. Structural foam shall have a minimum compressive strength of 15 psi at 1% strain.

2.5.8.2. Concrete Stairs

2.5.8.2.1. Contractor shall provide reinforcement as indicated in the drawings (A-503)

2.5.8.2.2. For Stair 8, Contractor shall provide a L6x4x1/4" at plate landing per drawing. Angle shall be anchored to new concrete via anchor bolts. Contractor shall provide 6 3/4" anchors, with a minimum embedment of 18". Contractor shall provide additional L6x4x1/4 at face of structure opposite. Contractor shall provide drill and epoxy anchor bolts at existing structure or equivalent connection based on existing structure.

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2.6. MECHANICAL

2.6.1. DEMOLITION:

2.6.2. Contractor shall demolish all mechanical equipment, ducts, appurtenances, etc not to be reused that is within the Scope of Work. All piping that is to be reused shall be left in a clean and workmanlike manner for new connections. Contractor shall note any piping that is damaged or degraded to the point of not being able to reuse to the Contracting Officer immediately; in general the contractor shall take into account prior to bidding the worst case scenario and plan to replace piping back to a reusable point. Contractor shall demolish ducts outside of the Scope of Work as needed for the new work shown on the drawings. This work shall be coordinated with the project manager and users minimum of 14 days prior to on-site work and shall disturb the user and area as little as possible.

2.6.2.1. Contractor shall recycle, clean, and return all refrigerant in a contractor provided 30# recovery bottle, or bottles as needed. Bottles shall meet DOT-4BA400 specifications and ARI guidelines. Bottles shall have at least 4 years of service before their expiration date. Contractor shall properly weigh cleaned refrigerant in each cylinder and provide certified weight tickets with proper labeling of each cylinder for turn over to the Government. All work for recovery shall be done in accordance with Colorado and Federal EPA standards by a Colorado certified refrigerant technician in accordance with 40CFR part 82.

2.6.3. NEW WORK:

2.6.3.1. Provide new grilles and diffusers with proper contractor provided airflows for the space. Provide new ductwork as needed for proper distribution throughout the space. Provide manbars meeting "ICD 705 Constructions Specifications" for all ductwork traversing between higher security areas and non-secured areas. All ductwork with manbars shall contain a visual access port such as the Ruskin ADHW. Manbars shall be easily seen through window in access port without opening the access door.

2.6.3.2. All new diffusers shall be full face (24"x24") or half face (12"x24"). Diffuser shall be painted white from the manufacturer. Basis of design is Titus TMS and PXP.

2.6.3.3. Provide new hydronic fan coil unit (FCU) per drawings. Units shall be tested and certified with AHRI 430 and tested in accordance with AHRI 260. The unit complies with NFPA 90A and is UL listed to U.S. safety standards. FCU consist of hydronic coils, drain pan, and centrifugal fan with motor mounted in a common cabinet. Casing shall be minimum 18ga galvanized steel with 1" insulation. Interior shall be acoustically lined with 1" material. Interior liner shall meet NFPA 90A and UL 181 and shall not contribute to mold or microbial growth. Interior liner shall be smooth and not contribute to additional dust/dirt or other fibrous degradation. Coil connections are independent for the same or opposite side location. Provide unit with knockouts in all four corners for installing the unit suspended from the ceiling with threaded rods. Unit and accessories shall be insulated with 1-inch, 1-1/2 lb/ft³ density fiberglass insulation. One-inch foil-faced and one-inch double wall insulation are also available. Provide four-row chilled water cooling coil and 2 row heating coil. All coils shall be factory tested to 450psi air under water with a standard operating condition of 300psig at 200degF for all sweated/brazed connections. Coils shall be rated under AHRI Standard 410 as shown on the drawings. Fans shall be DWDI forward curved blower type with direct drive electrically commuted motors (ECM). ECM shall allow variable speed with a touch-safe control box and built-in integrated interface and LED tachometer. Motor shall be properly

balanced at installation. All motors shall have thermal overload protection and be permanently lubricated. Drain pan shall be non-corrosive double sloped to facilitate proper drainage. Drain pan material must be suitable for installation in plenum. Drain pan shall be piped to closest building drain. Contractor shall provide new filters at final inspection and replace them in front of Government personnel on-site. If filters cannot easily be replaced without deformation of filters project contractor shall reinstall unit. All access points on FCUs (motor access, coil access, control access, etc) shall be fully accessible for maintenance personnel and shall open fully (min 90deg or more). Contractor shall determine unit's handedness prior to material submission after thorough site investigation for proper fit in existing facility. All units are expected to be manufacturer's low-profile units except in room 222 where the contractor shall determine fitment and type. Basis of design for fan coil units is Titus THBP.

2.6.3.4. Contractor shall provide new cabinet fan coil units. Cabinet unit fan coils shall match above units but shall be in exposed floor mounted flat-topped cabinets as shown in the drawings. Cabinet fan coil in room 231A shall be in wall cabinet fan coil. Exposed cabinet fan coils shall be manufacturer's standard pre-finished cabinet, color to be coordinated with base Architect prior to material submission for approval from the manufacturer's standard colors.

2.6.3.5. Provide new chiller per schedule. Chiller shall be air-cooled packaged unit from the same manufacturer as the AHU. Provide air separator, expansion tank, and piping accessories. Provide factory installed freeze protection to cycle the pumps in cold weather conditions. Provide convenience receptacle near unit. Contractor shall provide glycol feeder system to the chiller. Chiller shall have a low ambient start option to allow starting of the unit below 10degF. Expansion tank and glycol feeder shall be floor mounted with easy access for maintenance to the glycol feeder. Chiller shall be piped in accordance with manufacturer's recommendations, to include maintenance/flushing bypass. Chiller shall be piped with tee, dual valving, and blind flange for temporary chiller connection at full size (4"). Chiller controls shall accept BACnet controls for temperature water reset, enable/disable, and shall pass all available points through the BACnet controller to the Metasys system. Contractor shall provide front-end (MUI) graphics for all temperature settings and running conditions of the chilled water system. Upon a rise in chilled water temperature above setpoint for more than 15 minutes an alarm shall be generated and the chiller shall be started. Basis of design is Trane CGAM air cooled chiller.

2.6.3.6. Provide base mounted end suction pumps for new chilled water system. New pumps shall include isolation valves for maintenance mounted at high enough elevation to allow full replacement of all piping accessories, separate balancing valves, separate check valves, suction diffuser with strainer, and VFDs for balancing and operation of the system. System shall meet minimum head and flow as shown in the drawings. Pump motors shall be rated for VFDs and shall have standalone VFDs for control and soft start. VFDs shall be sized for pump motors IAW specifications and electrical criteria herein.

2.6.3.7. Contractor shall provide new chemical bypass feeder. Chemical feeder shall be piped across pumps (inlet of chemical feeder shall be off the discharge of the pump and the outlet of the feeder shall be near the inlet to the pump) with isolation valves for isolating the feeder for maintenance and chemical addition. Feeder shall have manufacturers 6" funnel and drain valve assembly. Funnel shall be attached to feeder or piping with chain long enough to allow for proper usage yet keep it near enough to find for use. Feeder shall have at least 5 gallon

capacity for chemical additions, bottom drain for maintenance, cast iron body, and water tight sealed cap. Chemical feeder shall be similar in construction to other feeders on base such as J.L. Wingert DB-5HD.

2.6.3.8. Provide new exhaust fan for restrooms and janitor's closets. New exhaust fans shall be driven with electronically commuted motor (ECM) with integral potentiometer controller mounted for easy accessibility. ECM shall be capable of operating as low as 20% of full speed and shall initially be set to air flows by balancer. ECM shall be a minimum of 85% efficient at all speeds. Motor controller shall have BACnet communications to seamlessly integrate into BMS with a 0-10Vdc signal (not used). Spun aluminum housing for downblast configuration shall be rated use. Fan shall be backward-inclined, non-overloading and both statically and dynamically balanced for reduced sound transmission and efficiency. Fan shall be isolated from housing through factory provided and designed vibration isolation pads. Provide rigid wire birdscreen as needed around fan housing. Nameplate shall be permanently embossed plate with exact model and serial number and shall be tolerant to weather conditions exposed to. Provide fan curb to roof of adequate height and slope to ensure proper operation and increased flow characteristics. Basis of design is Greenheck G-060-VG or similar.

2.6.3.9. Provide new mini-split unit for each communication closet. Mini-split shall be sized as per drawing.

2.6.3.9.1. Outdoor condensing unit: Split system condensers shall utilize a variable speed compressor for increased efficiency. Unit shall come equipped with hail and snow guards and freeze protection for operation at low ambient temperatures (0degF). The unit shall not produce more than 60dbA of sound while running. Unit shall utilize modern refrigerant, in accordance with the Facilities Excellence Plan. Condensing unit shall automatically restart after power is restored due to a power outage. Unit shall ensure that indoor unit also is restarted at last saved controlled temperatures. Contractor shall ensure unit is installed on proper metal framed base for snow load and adequate airflow is available for unit in accordance with manufacturer's recommendations. Unit shall be placed on new equipment pad or new roof structure as indicated on the drawings.

2.6.3.9.2. Indoor evaporator units: Wall hung units shall be hung from structural support in accordance with the manufacturer's recommendation. Units shall be configured to maximize air flow through the space. All condensate drains shall be ran to nearest or most convenient floor drain. Condensate piping shall be concealed above ceiling and in walls to the greatest extent possible. All exposed piping in communication room/spaces shall be painted to blend with existing finishes, exposed piping in mechanical room(s) may be left unpainted. Care shall be used to ensure no condensate drain piping is located in electrical equipment clear space. Mini-split shall connect to EMCS front-end via BACnet MS/TP card and shall pass alarms, running status, and temperatures to the front-end. Start/stop control or temperature control is not required from the front-end.

2.6.3.10. ATFP switch: The Contractor shall provide a shutdown switch meeting UFC 4-010-01 and as shown in the Peterson "SBD1-MinimumControlPoints". Switch shall shutdown all HVAC equipment that is bringing in (DOAS AHU) or taking out (EF) air from the building through a hard shutoff connection similar to a fire alarm actuation. Switch shall be protected with a cover from accidental actuation and shall be clearly labeled as "ATFP HVAC SHUTDOWN". Switch shall be a press to actuate with a twist to release or a press to actuate press to release with a clearly identifiable pushed state (buttons that depress less than ¼" shall not be used).

ATFP shutdown switch shall be located in the Shelter-in-place as identified by the facility manager or COR.

2.6.3.11. Contractor shall reprogram all points to match existing functionality to the facility for the equipment that is reused. Contractor shall remove all points from the programming that are no longer needed and “clean” the code, regardless of whether the points were abandoned under this project or not.

2.6.3.12. Contractor shall provide new EMCS connections to boilers and all new equipment for control and monitoring per UFC 3-410-01. Boilers shall be controlled via interlinked local controls with BAS enable and temperature reset. Boiler modulation shall be done by on-board manufacturer controls. Monitoring points shall be sent to the BAS via the BACnet protocol and shall be for monitoring and troubleshooting. Contractor shall provide at minimum the following points in the below table. All points are part of base proposal, no points or associated work shall be construed as part of the proposal option. Controllers may be reused where compatible, but it is expected that new controllers will be provided for all new equipment due to age of devices in the field. The existing building BAS controller may be reused and shall utilize the Bacnet MSTP bus on the existing SNE. Contractor shall determine if an additional SNE will be required prior to bidding.

2.6.3.13. Contractor shall provide testing, adjusting, and balancing (TAB) to all new equipment and to existing diffusers affected by the new FCUs. TAB shall be performed to ensure all airflows (both airflows at new diffusers and at existing diffusers) remain correct and appropriate. New diffusers shall be balanced to airflows for new loads and existing diffusers as shown in the drawings. Contractor shall provide complete report showing values along with notes and work required on the system.

2.7. PLUMBING

2.7.1. DEMOLITION:

2.7.1.1. Contractor shall demolish all fixtures and plumbing for new work.

2.7.2. NEW WORK:

2.7.2.1. Contractor shall provide all new piping, fittings, and appurtenances as required for new work. Contractor shall consolidate vents where able to reduce the number of roof penetrations to a minimum.

2.7.2.2. The Contractor shall provide a new utility box for a future connection to GFE refrigerator ice maker. Contractor shall provide adequate length of tubing for future connection (approximately 5') inside utility box. Water shall be closed off at valve after testing and flushing until future connection. Wall box shall be minimum 6"Wx6"Hx3"D high impact polystyrene with ¼ turn brass valve. All components in contact with water supply shall be “lead-free”. Wall box shall be white with minimum of a 2" flange caulked to wall for fully finished look. Wall box shall be Oatey #39140 or equal.

2.7.2.3. Provide and install two (2) plumbing fixtures in Break Room for connection to two (2) GFE coffee makers. Connection type is 3/8 flare fitting. Provide one each ¼ turn brass valve with compression fitting to tubing firmly fixed in a wall box. See architectural section for more information on wall box. Connect valve to one-half inch (1/2") piping routed from wall

box to nearest domestic cold-water pipe. All components in contact with water supply shall be "lead-free".

2.7.2.4. The contractor shall provide new sink and faucet for kitchen breakroom. New sink shall be undermount nominal 32" by 18" by 5" deep 19ga stainless steel sink. Sink shall have lustertone style finish for easy cleaning and scratch reduction. Provide connections for 3/4hp induction motor garbage disposal. Provide 5 year extended commercial warranty to Government. Kitchen Faucet shall be a single side handle, high arc spout, ADA compliant kitchen faucet featuring a modern architectural design. Spout shall be capable of no less than 270 degree rotation. Faucet valve shall be replaceable ceramic style seal similar to Diamond seal. Faucet shall be brushed nickel or similar finish for lasting aesthetic. Faucet shall have a maximum flow rate of 1.8gpm at 60psi. Faucet shall have the capability of spray, stream, or pause operations with the push of a button. Faucet shall have an integral pull down spout spray with a minimum 68" long braided hose with self-retracting feature. Pull down unit shall be recessed in the main spout and shall not be a separate counter mounted system. Unit shall feature an overall height between 13-1/2" and 14-1/2" (measured from top of counter to highest point), a spout height of between 8" & 9" (measured from top of counter to bottom of spout outlet), and a spout reach of no less than 6-1/2" (measured from the center of faucet base to the center of spout outlet). Faucet shall be a circular single hole/center shank mount and shall not have a deck/cover plate. Faucet shall be rated for 1.5 gpm and shall be certified to meet the following standards: ASME A112.18.1/CSA B-125.1, IAPMO Green, & ADA. Faucet shall be of metal construction and shall have a spot resistant stainless finish. Faucet shall feature a lifetime limited warranty against leaks, drips, and finish defects issued by the manufacturer.

2.7.2.5. Contractor shall provide a new garbage disposal for new sink. Garbage disposal shall be rated at least 3/4hp, 34oz or greater capacity, wall switched, permanently lubricated bearings, and with anti-vibration or sound deadening insulation. Disposal unit shall be corded and plugged to switched electrical duplex receptacle (only one receptacle shall be switch other shall be always hot) to above sink for operation and switch shall be properly labeled. Disposal unit shall contain sound reduction insulation integral to the unit along with anti-vibration mounts; provide with quick connect collar. Garbage disposal shall be UL listed and mounted under the basin. Garbage disposal basis of design is Insinkerator Evolution Compact.

2.7.2.6. Provide new electric water cooler. Electric water cooler shall deliver 8.0 gph of 50° F degree water at 90° F ambient and 80° F inlet water. Electric water cooler shall include front and side push pads to activate the flow of water. Basin shall be designed to eliminate splashing and standing water. Bubbler shall be designed to reduce water consumption by 50% and have flexible guard and operate between 20 and 120 PSI. Provide factory installed glass filler. Cabinet finish shall be powder coated paint on galvanized steel. Cooling system shall use R-134a refrigerant with compressor controlled by positive sensing element. Electric water cooler shall comply with ANSI A117.1 and ADA and shall be listed by Underwriters' Laboratories to U.S. standards. Electric water cooler shall comply with ANSI/NSF 61 and be rated as lead free. Electric water cooler basis of design is Elkay EZSTL8WSLK.

2.7.2.7. Provide floor mounted water closets where shown. Water closet(s) shall be white floor mounted flushometer type water closet(s) meeting EPA WaterSense criteria for High Efficiency Toilet (HET) utilizing 1.28gpf with a MaP score of 1,000g in accordance with IAPMO testing. Water closet shall feature 16 1/2" rim height and meet ADA guidelines for ADA installations. Water closet shall have an "EverClean" surface coating or manufacturers equal.

Seat shall have stainless steel hardware, and shall meet ADA guidance. Water closet shall be “Madera FloWise” 2234.001 (or 3043.001 for ADA) water closet by American Standard or equal. Water closet flush valve shall be quiet, exposed, diaphragm-type, chrome plated closet flushometer with dual filter fixed bypass rubber diaphragm, ADA compliant non-hold-open handle with triple seal handle packing, high pressure vacuum breaker flush connection, with fixed metering bypass, adjustable tailpiece, and 1” angle stop with free spinning vandal resistant stop cap. Flushometer basis of design is “Regal Flushometer” 111-1.28 by Sloan.

2.7.2.8. Provide wall mounted water closets where shown. Water closet(s) shall be white wall mounted flushometer type water closet(s) meeting EPA WaterSense criteria for High Efficiency Toilet (HET) utilizing 1.28gpf with a MaP score of 1,000g in accordance with IAPMO testing. Water closet shall feature 16 ½” rim height and meet ADA guidelines for ADA installation. Water closet shall have an “EverClean” surface coating or manufacturers equal. Seat shall have stainless steel hardware, and shall meet ADA guidance. Water closet shall be “Afwall FloWise” 2257.101 water closet by American Standard or equal. Water closet flush valve shall be quiet, exposed, diaphragm-type, chrome plated closet flushometer with dual filter fixed bypass rubber diaphragm, ADA compliant non-hold-open handle with triple seal handle packing, high pressure vacuum breaker flush connection, with fixed metering bypass, adjustable tailpiece, and 1” angle stop with free spinning vandal resistant stop cap. Flushometer basis of design is “Regal Flushometer” 111-1.28 by Sloan.

2.7.2.9. Provide wall mounted urinals where shown. Urinal shall be white vitreous, low-flow urinal unit. Urinal shall be designed as a system for 0.5gpf washdown fixture. Unit shall meet ADA guidelines, Watersense™ labeled, and have a minimum flowing pressure of 25psi or less. Unit shall have an adjustable tailpiece and shall be wall hung with manufacturer’s recommended assembly. Basis of design is Washbrook FloWise by American Standard. Unit shall be mounted at ADA height where shown on the drawings. Urinal flush valve shall be quiet, exposed, diaphragm-type, chrome plated flushometer with dual filter fixed bypass rubber diaphragm, ADA compliant non-hold open handle with triple seal handle packing, high pressure vacuum breaker flush connection, with fixed metering bypass, adjustable tail piece, and 1” angle stop with free spinning vandal resistant stop cap. Flushometer basis of design is “Regal Flushometer” 186.05 by Sloan.

2.7.2.10. Provide new lavatory faucets. Faucet shall be hands-free operation via IR sensor with multi-laminar spray, single hole mounting, below sink mixing valve, and hardwired via box mounted transformer. Faucet shall be cast brass body with quick-connect fittings, twist-off/shut-off solenoid assembly and flexible power supply. Faucet shall have 4” coverplate and rise 4.75” from base (mid height) and shall extend at least 5” into sink. Faucet shall have 0.5gpm flow with 30 second runtime per activation. Faucet basis of design is Sloan Optima ETF-80.

2.7.2.11. Janitor’s Closet: Mop sink shall be 24”x24”x12”H with a drop front. Mop sink shall be made of precast terrazzo to produce a compressive strength of at least 3,000 PSI seven days after casting. Mop sink shall be manufacturer’s standard white or light grey. All exposed surfaces shall be ground smooth and sealed. No air holes or pits shall be allowed on the finished surface. Sink shall have coved corners and be pitched to the drain outlet for positive drainage. Integral drain shall have a stainless steel dome strainer and provide for an inside caulked connection to a 3” pipe. Contractor shall provide tiling flange as necessary. Mop sink basis of design is Terrazzo-Ware TDF-24- BDS.

2.8. FIRE SUPPRESSION

2.8.1. Contractor shall modify existing fire suppression to fit new walls and locations. Provide shop drawings in accordance with UFC 3-600-01 and above for all fire suppression work. Contractor shall provide new semi-recessed white heads throughout the Scope of Work areas. Heads shall be centered in tile where feasible and shall be uniform within room to the extent practical with code.

2.8.2. Contractor shall demolish existing fire suppression activation for abandoned foam system from near new stairwell. Cabling shall be removed, and conduit shall be safely capped out of the way from the new work. All other work on abandoned system is out of scope of work.

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2.9. ELECTRICAL

2.9.1. Electrical Distribution: The electrical distribution consists of a 12470-480/277-volt medium voltage transformer and a 12470-208/120-volt medium voltage transformer. Both transformers are existing the secondary conductors feeding any equipment or bus duct in building 140 are to be removed, **meaning the 120/208 volt transformer is the only transformer to be removed.** There are other buildings fed from this transformer and should not be disconnected until coordination with the other facilities is made. The Main switchboard for the 480-volt distribution is in room 112A. And is to be replaced with a 2000amp 480V, 65KAIC rated switchboard with main LSIG breaker **and LSIG breakers for the feeds to the high volt panels.**

2.9.2. Demolition Electrical Work

2.9.2.1. Remove all existing light fixtures, light switches, receptacles, conduit, conductors, boxes, buss duct and all electrical equipment in the scope of work area. All conduit and conductors are to be removed back to source if they don't interfere with an "out of scope area". All other electrical light fixtures, switches, receptacles, conduits, conductors, etc. that are in "out of scope" spaces are to remain as is. If the electrical circuit that is in the "out of scope" area is supplied by a circuit that is adjacent to the space leave the conductors conduit and all electrical devices in the "out of scope" area are to remain. A new circuit will be supplied to the space via a new home run from a new electrical panel. All existing exterior lighting not on the roof shall be removed. The electrical box for the exterior light is to remain.

2.9.2.2. Remove all the existing electrical panels located in the hanger on the north and south walls. All existing conduits and conductors are to remain in the same location of the removed electrical panels for possible re-use if they service the hanger area. The (2) two existing conduits 4-inch conduits that feed from the north duct to the south duct along the ceiling are to remain **and can be used to feed the other 480 volt panel on the south side of the building.** If there are any circuits feeding an "out of scope area" they are to be fed temporarily from another electrical panel. This panel can be used to supply temporary power to those areas with personnel. The areas that are not in scope will be tied into a new electrical panel in the hanger area. A new electrical panel will be placed on the hanger wall on the north and on the south walls.

2.9.3. New Electrical Work - Power

2.9.3.1. Provide and install a new (MSB) ~~2500A~~ 480/277V, 3 Phase, NEMA3R rated switchboard, size all breakers as shown in the drawings. Provide and install (2) new 480/277V - 208/120V three phase, NEMA3R dry type transformers. Provide and install ~~(2)~~ (4) new 480/277V, 3 phase electrical panels (1) ~~4000A~~ **1500A** and (1) ~~600A~~ **1000A** rated, AIC rating and panel information is shown in the drawings. Provide (6) 208/120V, 225A, 84 circuit, 3 phase, electrical panels, AIC ratings and panel information is shown in the drawings. This shall include all conduit, conductors, conduit support brackets, breakers, and electrical fittings required for a complete and functional system as shown on the drawings. All new switchboards, and panels are to have external power meters, see design guide for power meter

2.9.3.2. Provide and install all electrical boxes, conductors, conduits, conduit supports, receptacles, and any other electrical devices as shown in the drawings for general power. The

general power shall contain all necessary electrical equipment for a complete and functional system.

2.9.3.3. Provide and install all disconnect switches, boxes, conductors, conduits and conduits supports for all HVAC equipment as shown in the drawings. The mechanical power system shall contain all necessary electrical equipment for a complete and functional system.

2.9.4. Lighting

2.9.4.1. Provide and install all new luminaires throughout out all the spaces in scope shown in the drawings to include but not limited to open offices, offices, corridors, restrooms, communication rooms, janitor's closets, conference rooms and exterior. This should include all junction boxes. Luminaire whips, conductors, supports, luminaire cables supporting the luminaire. All controls to include but not limited to switching devices such as occupancy sensors, vacancy sensors, and wall switches. Room controllers, lighting control panels and time clocks are included in the control system. Dimming controls shall be included as shown and are indicated as daylight sensors, wall dimmer switches, and programmable room controllers The controls shall also include all conductors, conduit, supports and material needed for a complete and function system as intended in the drawings. All emergency luminaires to include exit signs, 2x2 lay in luminaires, and exterior egress lighting shall be controlled via lighting inverter, contractor to provide and install all material necessary for a complete and function system. There are (2) red ~~beacon~~ obstruction lights located on the roof. (1) is on the northwest end and the to there is on the east end, both are attached to the roof with an extension pole. These are to be replaced in-kind with LED version. The mounting will be on the side of the building in lieu of penetrating the roof. Maintain all height requirements as required.

2.9.5. Lightning Protection (BID OPTION 2)

2.9.5.1. Contractor to provide stamped drawings for a complete and functional lightning protection system for Building 140, compliant with UFC 3-575-01. This system shall meet all the requirements for an Airfield as well as National Electrical Code Standards and requirements. See the drawings as a reference not for construction. The contractor shall submit all product data and shop drawings. See submittal register.

2.9.5.2. Contractor shall provide and install all lightning protection system components per stamped drawings for a complete and useable lightning protection system on the facility. All concrete and site work as well as utility coordination required for installation/burial of the grounding components shall be included.

2.9.6. Airfield Lighting (BID OPTION 3)

2.9.6.1. Provide and install Airfield luminaires at the top of the existing building on the south side for Airfield taxiway see drawings. This would include all conduit conductors, boxes, lighting controls and connection devices for a complete and functional system.

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2.10. COMMUNICATIONS

2.10.1. Outside Plant Capacity is sufficient. Only black fiber fed to facility, both multimode and single mode fed to facility. Single mode is primarily used for OSP into facility for NIPRNet service.

2.10.2. NIPR comm room 110A is the comm entry and primary comm room.

2.10.3. Run 12 strand OM4 from Room 110A to new room 106E.

2.10.4. Run (1) Black 12 strand OM4 from Room 110A to 2nd floor quarter rack (room 203) and (1) Red 12 strand OM4 from Room 110A to 2nd floor quarter rack (room 203).

2.10.5. Outside plant Backbone cabling to the building is currently sufficient. Backbone cabling from room 110A to room 119 is sufficient currently. Contractor is responsible for providing and installing distribution cabling from nearby communications rooms to adjacent work areas. NIPR service shall be fed from room 110A and 119, respectively for each side of facility. SIPR service shall be fed from room 106E and from 2nd floor quarter rack in room 203, respectively for each floor of the secure areas. See cabling section for more information.

2.10.6. Equipment Racks: Provide and install (3) three U42 19-inch floor mounted equipment racks located at or near the center of the telecommunication spaces, (2) two for the comm room 1106E. and (1) one additional rack in room 119. Existing rack in room 119 shall remain as well. Provide and install (1) one wall mounted 15U equipment rack in room 203. Full size racks in room 106E shall be fully enclosed 4 post racks capable of floor mounting. Full size rack in room 119 shall be open 2 post rack, due to space limitations. Racks shall be coordinated with room layouts, equipment, and cooling requirements. Expected racks shall pull from the front and shall dissipate heat to the rear. Provide blanking panels where equipment is not installed. Enclosed racks shall be nominally 84"x24"x42" with lockable doors. Half sized racks shall be fully enclosed wall mount assemblies double hinged where able to allow access to both front and rear without removal of equipment.

2.10.7. All the locations are shown in the drawings. A minimum of 36 inches space both in front and behind the rack, measured from the equipment, and a minimum side clearance of 24 inches on at least one end of the rack or row of adjacent racks is required. For room 110A, provide and install ~~one uplink module,~~ total of (4) four 715W power supplies @ 110VAC. Provide and install (1) one Eaton 5PX1500RTNG2 UPS, 1440W @ 110VAC. For room 119, provide and install ~~one uplink module,~~ total of (8) eight 715W power supplies @ 110VAC. And (1) one Eaton 5PX1500RTNG2 UPS, 1440W @ 110VAC. For room 106E, provide and install ~~(4) one uplink module,~~ total of (2) two 715W power supplies @ 110VAC and (1) Eaton 5PX1500RTNG2 UPS, 1440W @ 110VAC. Contractor to provide and install all Patch panels Racks Back bone cable, and all keystones/ports with deep 4-square boxes with covers for a complete and functional system. Switched will be provided and installed by the government when project is complete.

2.10.8. TELECOMMUNICATIONS CABLING (BID OPTION 1)

2.10.8.1. Provide horizontal and backbone cabling in accordance with TIA-568-C.1. All copper cable shall be CAT6 shielded F/UTP red and blue cable sheathing.

2.10.8.2. 12 stand black multimode from primary TR on the north side to the upstairs location of wall mounted rack as shown on drawings.

2.10.8.3. All cables shall have TIA minimum maintenance loop before termination. Maintenance loops shall be neatly coiled, labeled, and properly identified.

2.10.8.4. Backbone cabling from TR to TR shall include 12 strands of 62.5/125 multi-mode and 24 strands of 9/125 single-mode cable within a single outer jacket.

2.10.8.5. Contractor shall provide all cables for SIPRNet as red jacketed Cat6 F/UTP shielded conductor and shall terminate at standard red RJ-45 connectors for all SIPRNet connections shown in the drawings.

2.10.8.6. Contractor shall provide all cables for SIPRNet as red jacketed Cat6 F/UTP shielded conductor and shall terminate at standard red RJ-45 connectors for all SIPRNet connections shown in the drawings.

2.10.8.7. Red/Black separation requirements - Contractor shall follow AFSSI 7702 and CNSSAM 1-13.

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2.11. FIRE ALARMS

2.11.1. Contractor Qualification/Experience: Contractor shall provide a designer with four (4) years of experience designing EST/Fireworks systems, as required by UFC 4-021-01; Contractor shall have a NICET Level III technician providing onsite oversight to work. Contractor shall have a NICET Level IV technician overseeing the complete design process to include all device replacement for all fire alarm systems, the new EST4 fire alarm panel with battery backup and intelligibility. Contractor will provide a list of all employees' training, certifications, and experience after award as stated in the submittal register.

2.11.2. The Contractor is responsible to verify all site conditions, measurements, quantities, materials, and the existing fire alarm system equipment that is being demolished and replaced. The contractor is to complete this assessment prior to submitting a proposal.

2.11.3. The contractor shall coordinate all utility outages as defined by the MACC Specifications. Individual branch circuit or feeder circuit outages shall be coordinated with the building manager. An outage of an entire distribution section shall be coordinated through the required utility outage process.

2.11.4. This project requires a registered NICET Level IV Engineer to provide a fire alarm design analysis with voice intelligibility, in accordance with UFC 04-021-01 paragraph 3-2.1, and to review, approve, and stamp the fire alarm system design. The NICET Level IV Engineer shall submit evidence of qualifications and experience for approval prior to starting any design work.

2.11.5. Prior to completion of the project, testing of fire alarm systems installed as part of this project shall be performed as per specifications. Fire alarm systems shall be witnessed and approved by a licensed NICET level IV engineer, as per UFC 3-600-01.

2.11.6. Contractor shall provide supplementary record of inspection and testing form from NFPA 72 para 7.8 to the Fire Department prior to requesting final testing of the fire alarm system. These forms shall be submitted to show the contractor's functional testing to facilitate the ease of the final fire alarm testing with the CO, Fire Department, and 21 CES fire alarm shop.

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2.12. SECURITY (BID OPTION 1)

2.12.1. All existing wireless technology devices within the Secure Boundaries shall be removed prior to turnover of completed space.

2.12.2. Contractor shall provide a complete and functional Intrusion Detection System (IDS) for the Secure Boundary areas as required and shall comply with DOD 5200.01 VOL 3 and all security regulations (special attention shall be paid to ensure all appropriate systems have continuous power as required). New system shall meet PSFB requirements for AMAG system connections and reporting. The contractor shall provide all equipment, hardware, labor, and programming to make the security system fully functional and integrated with the existing security system within the facility and at the headend equipment in Building 1. The security system shall be tested and fully operational prior to pre-final inspection. The contractor shall provide certified, licensed, and authorized personnel to work on the security system (currently LVW, BW systems, and Adjoiner are authorized vendors for installation). Proof of certification, licensing and authorization shall be submitted to the COR and approved prior to the start of any work on the security system. The contractor shall coordinate all work with the security forces electronic security systems section and notify of any work requiring 21SFS escorting or on-site 21SFS testing no later than two weeks in advance of associated work.

2.12.3. Contractor shall ensure all premise control units (PCUs) are located appropriately within the area that they are serving and are accessible only by local personnel. IKE keypads shall be similarly located within secured room and shall also be located to quickly and easily be utilized by incoming personnel for arming and disarming the system (i.e. disarming panel shall be located close enough to the entry point to prevent an excessive alarm delay).

2.12.4. Contractor shall provide all new equipment required for a fully functional system, including but not limited to Premise Control Units and endpoint devices. Provide all new security on AMAG system as required. All new equipment shall be listed as approved on non-nuclear CMD list. Contractor shall reutilize existing connection to base wide system, provide new cable as required.

2.12.5. Contractor shall ensure that all secure boundary windows and doors receive appropriate IDS coverage, regardless of the floor height. Windows on 2nd floor are at or near 18 feet above grade below, but grade slopes up quickly within a short distance from the building and therefore windows shall receive coverage.

2.12.6. Contractor shall provide a complete and usable system prior to turn over of facility. System shall be fully tested IAW all specifications, regulations, and manufacturer's recommendations prior to final turnover and BOD.

2.12.7. Contractor shall salvage and turn over any existing Premise Control Units (if applicable) to the Government (21SFS)

2.12.8. ACCESS CONTROL SYSTEM (ACS)

2.12.8.1. Contractor shall provide access control system for secured areas in accordance with all regulations and DoD 5200.01 VOL 3. ACS shall meet PSFB standard requirements and shall be properly coordinated with all base agencies during design.

2.12.8.2. Contractor shall provide a complete and usable system prior to turn over of facility. System shall be fully tested IAW all specifications, regulations, and manufacturer's recommendations prior to final turnover.

2.12.8.3. Proximity badge readers shall be compatible with HID Global DuoProx II cards/credentials and shall NOT have wireless or Bluetooth technology incorporated. Basis of Design RPK40 pivCLASS reader model 921PHPTEK00000. All electronic access controlled doorways shall be provided with a means of reporting forced entry and hold open conditions on the doors, as well as a Request-to-Exit or other means to shunt the signal for these ACS alarms upon a valid exiting scenario from the associated space.

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2.13. FURNITURE (BID OPTION 1)

2.13.1. Contractor shall provide and install furniture as indicated in Attachment 2 drawings and as described herein. Contractor is responsible for providing a fully functional turn-key furniture installation with all applicable power and telecom connections as noted in the drawings and SOW. Refer to Electrical and Communications section for further information.

2.13.2. Product data and shop drawing layout shall be provided for the full furniture scope, and shall include 3D axonometric views of each style/type of furniture as well as 3D views of furniture layout for each independent room in the scope of work area.

2.13.3. Exact finish colors, wood species, and fabric selections shall be determined through the submittal process. Contractor shall provide the following minimum options for selection of furniture finishes:

2.13.3.1. Wood veneer options: contractor shall provide minimum 20 wood veneer options, inclusive of a minimum 5 wood species.

2.13.3.2. Laminate options: contractor shall provide full range of manufacturer's laminate options, inclusive of minimum 12 patterned laminates, 15 solid color laminates, and 20 woodgrain laminates for selection.

2.13.3.3. Fabrics: contractor shall provide minimum 30 fabric options and 15 faux leather/vinyl options for any upholstered products, within the manufacturer's standard listing.

2.13.3.4. Pulls and trims: contractor shall provide full range of trim options, inclusive of minimum (4) separate pull style options.

2.13.3.5. Other miscellaneous finishes and accessories shall be provided as a submittal to the Government along with items listed above for selection from the manufacturer's standard line of options.

2.13.4. The Contractor shall be responsible to phase delivery and installation of furniture to meet the needs of construction sequencing. Any storage and protection of new and/or existing furniture shall be the sole responsibility of the Contractor when required by construction work.

2.13.5. Contractor is responsible for furniture connection to building power and data prior to turnover to the government.

2.13.6. Contractor shall ensure that power poles do not protrude into main walkways. Power poles shall be minimally used in this project, and are only to be considered in locations where wall power and wall communications feed is infeasible. Conference rooms shall not incorporate power poles, refer to Architectural section for conference table raceway information.

2.13.7. Not more than two cubicles are permitted to be served by a single circuit.

2.13.8. Contractor shall coordinate exact placement of new wall outlets, thermostats, and data devices to avoid concealment by furniture panels or other conflicts with furniture shop drawings.

2.13.9. Rooms in Attachment 2 with “COMMAND SUPPORT STAFF” OR “CSS” in the title are considered Command Staff areas for applicable references in this Furniture section.

2.13.10. PRODUCT - SYSTEMS FURNITURE

2.13.10.1. System furniture panels shall be frame and tile construction, 3” thick +/- 10%. Panels must have stacking capability and have the option to include raceway on one side, both sides, no raceway or open base. Panel trim options shall include aluminum, and steel. Tiles must have the capability to be segmented. Tiles finish options shall include fabric, laminate, steel, glass, markerboard, slat, or open. STC Rating shall be 10 or greater for standard tile, 17 or greater for high acoustical tile.

2.13.10.2. Systems furniture power shall accommodate 8-wire/3-circuit wiring with both 15amp and 20amp options for receptacles. Power and data shall be routed through concealed raceways.

2.13.10.3. Systems furniture shall have GREENGUARD Gold certification and FSC Certified products available for inclusion. A lifetime warranty shall be included with the systems furniture.

2.13.11. PRODUCT - HEIGHT ADJUSTABLE TABLES

2.13.11.1. Height Adjustable tables shall minimally be capable of ranging height between 24” - 48” with electric control and programmable presets. Dual motors shall be provided for height adjustment mechanism, with 12 year warranty for mechanism. Lifting capacity, including work surface, shall be minimum of 250 lbs. Worksurface depth shall be minimum of 23” or as indicated in Furniture Types section, whichever is greater. Contractor shall ensure that comm patch cable lengths/routing at adjustable height tables allow for full range of height adjustment motion. Wire management shall be provided by contractor.

2.13.11.2. A 12 year warranty shall be included for all height-adjustable mechanisms

2.13.12. PRODUCT - STORAGE

2.13.12.1. Metal pedestals, metal lateral files, metal storage cabinets, and metal wardrobe/personal storage towers shall be constructed of painted steel. Drawer front material options shall include painted steel, wood veneer, and laminate options. Product shall allow for selection from a minimum of (6) separate pull style options. Drawers must allow for full drawer extension, and shall have capability for a minimum of 1” glide adjustment range. Adjustable shelves shall be provided for metal storage cabinets and metal wardrobe/personal

storage towers and allow for installation at 6" increments +/- 1". Counterweights shall be provided for file drawer arrangements.

2.13.13. PRODUCT - PRIVATE OFFICES - WOOD/VENEER

2.13.13.1. Laminate/wood private office furniture shall be of glue and dowel case clamped construction. Drawers shall allow for full extension slides and shall be of miterfold or English dovetail construction. Drawers shall include filing rails and lateral file drawers shall have full wood bottoms.

2.13.13.2. Contractor shall provide grommets, modesty panel cutouts, vertical wire management, hinged modesty panels, and cable chains where applicable. Grommet size and quantity shall be adequate for the anticipated number of computers, monitors, and associated cabling expected at each workstation, IAW the Telecommunications Drawings. Each separate network drop in the Drawings represents a separate computer that will be utilized at each desk.

2.13.13.3. Wood/veneer private office furniture shall have GREENGUARD certification, a limited lifetime warranty for general construction, and a minimum 12 year warranty on any wood veneer finishes.

2.13.14. PRODUCT - METAL/LAMINATE DESKING

2.13.14.1. Drawers shall be accompanied by full extension steel ball bearing slides and front drawer material shall allow for selection from steel, laminate, or wood.

2.13.14.2. Contractor shall provide grommets, modesty panel cutouts, adjustable keyboard pads, and wireways where applicable. Grommet size and quantity shall be adequate for the anticipated number of computers, monitors, and associated cabling expected at each workstation, IAW the Telecommunications Drawings. Each separate network drop in the Drawings represents a separate computer that will be utilized at each desk.

2.13.14.3. Metal/Laminate desking shall have GREENGUARD Gold certification, limited lifetime warranty for laminate and general construction, and a minimum 12 year warranty for wood veneer finishes.

2.13.15. PRODUCT - ERGONOMIC ACCESSORIES

2.13.15.1. Dual monitor arms shall allow for finger touch dynamic height adjustment, minimum 14" arm extension and 4" arm retraction, dual-direction monitor tilt, dual-direction 90 degree VESA rotation, capable up to minimum 15 lb. weight capacity per arm, monitor quick-release option, shall meet or exceed BIFMA x5.5 guidelines. Product warranty shall be minimum 15 year.

2.13.16. PRODUCT - CONFERENCE TABLES

2.13.16.1. Conference table top surface shall accommodate selection from high pressure laminate or natural wood veneer at a minimum. Wood veneer finish shall accommodate selection from a minimum of 7 species options. Table base heights shall be available minimally between 22" and 40" and shall be centrally supported to maximize leg space in lieu of perimeter supports (such as column or disc bases or similar). Power and data cable management shall be provided as required to conceal any cabling feeding the conference table. Power receptacles and data port connections shall be provided in the table construction as required by the Drawings and the conference table types in the list below. Flip top power and data modules shall be provided for any power and data requirements, incorporated at locations on the table within reach of the associated seats needing to connect to the power and data. Conference tables in rooms with VTC equipment shall also provide concealed cable management under table to a brush-style or grommet pull-through box for AV cabling that will be installed at a later date.

2.13.17. PRODUCT - ROUND TABLES

2.13.17.1. Round tables shall be wood laminate or wood veneer finish (dependent on type) with disc base. Acceptable table height range between 28.5" and 30.5". (Basis of Design: Haworth Masters Series Round Table or equal). Side/Guest chairs shall be provided with round tables where indicated by the Furniture Types section or by the Drawings.

2.13.18. PRODUCT - SEATING

2.13.18.1. Ergonomic task chairs shall accommodate back material options inclusive of mesh, knit, and back jacket in leather/fabric/faux leather. Product shall accommodate lumbar vertical and depth adjustment, seat depth and height adjustment, waterfall front edge style, and 4D adjustment arms (H+W+D+P). Frame and base shall be aluminum and plastic with hard casters. Seat mechanism shall allow for standard tilt tension, forward tilt option, reclining range of 20 degrees minimum, and a back lock/back stop option. Product shall have a 12 year minimum warranty for 24/7 use at minimum of 300 lbs rating.

2.13.18.2. Conference chairs shall match ergonomic task chairs.

2.13.18.3. Side/Guest chairs shall be 4-leg chairs, metal or wood frame. Seats shall be fully upholstered and backs shall be fully upholstered or offer a wood back option. Product shall have fixed arms, offer stacking capability and option for casters. Product shall have a 12 year minimum warranty for 24/7 use at minimum of 300 lbs rating.

2.13.18.4. Compact Lounge Chairs shall be fully upholstered single-seat compact lounge chairs in mid-grade fabric. Base can be metal or wood. (Basis of Design: Haworth Poppy Lounge or equal)

2.13.18.5. Mothers Nursing Chair shall be a mid-size lounge chair with head rest and ottoman, 4-star base, Grade 5 finish (Basis of Design: National Mabel N77GH4LM or equal)

2.13.18.6. 4-Cube lockers shall accommodate minimum four separate lockable personal storage cabinets with wood laminate finish (Basis of Design: Haworth X-Series or equal)

2.13.18.7. Podiums shall be wood veneer standing presentation podiums with storage and built-in cubby. No power or data needs. Wood veneer finish shall accommodate selection from a minimum of 5 species options and shall coordinate with associated conference room table finish. (Basis of Design: Haworth Planes Cart-Podium or equal)

2.13.18.8. Side Tables shall be round wood laminate tables minimally 18" in diameter. Height shall be 20" +/- 2". (Basis of Design: Haworth Jive Table - Post Extruded Base or equal)

2.13.19. FURNITURE TYPES (See Room Requirements Schedule for locations and quantities):

2.13.19.1. Benching Station Type B - Workstation:

- 54" High systems furniture panels
- Powered by a base-feed with (3) triplex receptacles
- (1) 30"D x 66"W worksurface, height adjustable, wood grain laminate finish
- (1) Drawer pedestal, mobile, box/box/file, wood grain laminate finish
- (1) Dual monitor arm
- (1) Ergonomic Task Chair
- (1) Desktop Power Module

2.13.19.2. Benching Station Type C - Workstation:

- 54" High systems furniture panels
- Powered by a base-feed with (3) triplex receptacles
- (1) 30"D x 60"W worksurface, height adjustable, wood grain laminate finish
- (1) Drawer pedestal, mobile, box/box/file, wood grain laminate finish
- (1) Dual monitor arm
- (1) Ergonomic Task Chair
- (1) Desktop Power Module

2.13.19.3. Benching Station Type D - Hotel:

- 54" High systems furniture panels
- Powered by a base-feed with (3) triplex receptacles
- (1) 30"D x 48"W worksurface, height adjustable, wood grain laminate finish
- (1) Drawer pedestal, mobile, box/box/file, wood grain laminate finish
- (1) Dual monitor arm
- (1) Ergonomic Task Chair
- (1) Desktop Power Module

2.13.19.4. 6x6 Cubicles:

- 54" High systems furniture panels

- Systems furniture panels in command staff areas shall incorporate 12" frosted glass above 42" solid panels.
- Powered by a base-feed with (3) triplex receptacles
- (1) 30"D x 72"W worksurface, height adjustable, wood grain laminate finish
- (1) 24"D x 42"W return worksurface, fixed, wood grain laminate finish
- 42"W slat tile above return worksurface with slat tile accessories
- (1) Drawer pedestal, mobile, box/box/file
- (1) Dual monitor arm
- (1) Ergonomic Task Chair
- (1) Desktop Power Module

2.13.19.5. Private Office Desk Type A:

- (1) 30"D x 72"W worksurface, fixed with inset modesty panel, wood veneer finish
- (1) 24"D x 48"W side worksurface, fixed, wood veneer finish
- (2) Drawer pedestals, attached, box/box/file, wood veneer finish
- 78"W Wall mounted overhead with hinged doors above side worksurface, wood veneer finish
- 78"W Wall mounted tackboard
- Under mounted LED task light
- (1) 24"W Personal Storage Tower with wardrobe, closed storage shelving, and file/file pedestal, wood veneer finish
- (1) Dual monitor arm
- (1) Ergonomic Task Chair
- (1) Desktop Power Module
- (1) Keyboard Tray
- (2) Side/Guest chairs

2.13.19.6. Private Office Desk Type B (Executive/Command):

- (1) 30"D x 72"W worksurface, fixed with inset modesty panel, wood veneer finish
- (1) 24"D x 78"W rear credenza, wood veneer finish
- (1) 24"D x 48"W side worksurface, fixed, wood veneer finish
- (3) Drawer pedestals, attached, box/box/file, wood veneer finish
- (1) 36"W Lateral file cabinet (2-drawer), attached, wood veneer finish
- 78"W hutch with hinged doors above credenza, wood veneer finish
- 78"W tackboard in hutch
- Under mounted LED task light
- (1) 24"W Personal Storage Tower with wardrobe, closed storage shelving, and file/file pedestal, wood veneer finish
- (1) Dual monitor arm
- (1) Ergonomic Task Chair
- (1) Desktop Power Module
- (1) Keyboard Tray
- (1) 42" round table (wood veneer top) with (4) Side/Guest chairs

2.13.19.7. Conference Tables (Variable Size and Seat Quantity - See Attachment 2 Drawings):

- Hexagon-shaped, pebble-shaped, or rounded rectangle-shaped conference table meeting size and seat quantities identified in Furniture Schedule, wood veneer table finish. Note: Conference Table sizes listed in Attachment 2 are minimum sizes

required and are permitted to be increased to accommodate function, layout, availability, or other criteria.

- (1) Flip-top power/data module or minimum required to accommodate number of communications drops required at each table, whichever is greater
- Wire management for concealment of all wiring and cabling
- Ergonomic task chairs matching quantity shown at each table location
- Guest/Side chairs matching quantity shown around perimeter of room, where occurs

2.13.19.8. Round Table A (Executive Offices):

- Round table with wood veneer to match executive desk in room
- (4) Side/guest chairs

2.13.19.9. Round Table B (Break Room):

- Round table with wood grain laminate
- (4) Side/guest chairs

2.13.19.10. Print Stations (Variable Size - See Attachment 2 Drawings):

- 54" high panels typical at back and sides
- (2) triplex receptacles in panels above worksurface height
- 24" deep worksurface with storage cabinets below (wood grain laminate finish), keyed alike. Length of worksurface dependent on location - refer to Room Requirements schedule

2.13.19.11. Presentation Control Desks:

- 24 X 60 Metal/laminate/veneer casegood desk, wood veneer finish
- Modesty panel, finish to match desk top
- (1) Dual monitor arm
- (1) Ergonomic Task Chair
- (1) Desktop Power Module
- (1) Keyboard tray

2.13.19.12. Small Storage Cabinets:

- Provide 36" wide, 2 door, 3-high storage cabinet, all keyed alike, wood grain laminate finish
- 36" wide x 24" deep worksurface, wood grain laminate finish

2.13.19.13. Large Storage Cabinets:

- Provide 2 door, 5-high storage cabinet (wood grain laminate finish), all keyed alike in each area. Widths vary by location, refer to Room Requirements Schedule

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2.14. ROOF

2.14.1. The roof shall be replaced at Roof Type A, Roof Type B, and Roof Type C areas as depicted in the roof key plan. All roofing details and specifications shall be in accordance with the National Roofing Contractors Association (NRCA) Standards. The Contractor shall comply with UFC-3-101-01 and UFC 3-110-03. Roof Type A and Roof Type C areas have been core sampled and consist of layers from top to bottom, acrylic coating, modified bitumen (3-ply membrane), perlite board, polyisocyanurate, and wood deck. The core thicknesses to the top of the deck are between 4 inches and 5 inches thick. Roof Type B area is a shingled roof approximately 1,950 SF. The total roof area is 43,012 SF + shingle roof of 1,950 SF totaling 44,962 SF.

2.14.2. Red line shop drawings will be required upon completion of the new modified bitumen roof system outlining all components of the roof to include the Polyisocyanurate foam board roof insulation layout and taper system layout. Final shop drawings shall also include roof equipment, drains and any changes made to the roof perimeter fascia, flashing, parapets, curbs, or other roofing components.

2.14.3. Warranty Requirements: Provide a No Dollar Limit (NDL) 20-year minimum warranty for 130 mph wind uplift and up to 2-inch hail coverage. The warranty shall cover full term of warranty on a new modified bitumen roof or standing seam metal roof as dictated by this SOW. Multiple-source warranties are not acceptable. This warranty shall be a total system warranty from edge-to-edge. Manufacturer's watertight warranty shall include coverage for all metal trim, flashings, and penetrations associated with the modified bitumen and standing seam roof areas. Warranty shall also include the following on all newly installed metal: 20-year coverage on finish including checking, crazing, peeling, chalking, fading and/or adhesion, and shall commence on the date of a completed pre-final and beneficial occupancy or final inspection. Installer shall provide manufacturer with a 2-year warranty covering roofing system installation and water tightness, provide a single warranty by a single approved manufacturer membrane roof manufacturer, including metal detailing and transition between the two material types. Roof installer must be certified by the material manufacturer for the warranties. Quantitative and performance-based material characteristics outlined in this SOW are provided as a minimum quality standard, to be increased or improved by the Contractor when necessary to achieve and provide the warranty requirements of the system as described. UFC prohibits warranties requiring periodic inspections or repairs at the Government's expense. Roof warranty requirements are also provided in the PSFB Design Guide.

2.14.4. Contractor is to provide at a minimum, weekly inspection reports from the manufacturer with photographs.

2.14.5. This facility is on the flightline, so work will require a FAA Form 7460 to be filled out and provided to 21 CES Project Manager no later than 67 days prior to expected work is to be commenced. In addition to base access, an entry authorization list (EAL) may be required for access to controlled area on flightline side of fence.

2.14.6. Demolish roofing system down to deck. Contractor is to assume that 10% of decking will need to be replaced and included in the base bid. Contractor shall use a controlled means of removing waste materials and debris from the roof to minimize flying debris. Location of dumpster shall be approved by the CO prior to placement.

2.14.6.1. Contractor will be required to provide daily cleanup of the project site to prevent any roofing materials from blowing around the base and on to the flightline. The contractor shall clean-up any roof debris and/or product that has fallen inside or outside of the facility. The facility spaces directly below the roof will be occupied for the duration of construction. The building face shall be protected from damage, liquid products, and product spills: The staging area shall be kept orderly, and the paved surfaces area shall be protected from damage. Any damage to the asphalt parking lot shall be repaired by the Contractor. The Contractor will access the roofs from the exterior. Contractor shall provide their own fall protection. All safety requirements shall be adhered to and shall be the responsibility of both the general contractor and subcontractors. Any damage to the existing landscaping, sod, native grass, and concrete shall be restored to its original condition.

2.14.7. For each roof installation type, furnish a typewritten information card for facility records and a card laminated in plastic and framed for interior display at roof access point.

2.14.8. Contractor shall replace existing roof access ladders to be OSHA compliant, securely attached, and coordinated with flashing and fascia.

2.14.9. The complete roof covering assembly must be Class A fire resistance in accordance with ASTM E108. Fire resistance must be determined based off the building's construction type.

2.14.10. Deliver materials in manufacturer's original unopened containers and rolls with labels intact and legible. Store materials against moisture absorption, contamination, or other potential damage. Do not install damaged materials in the work or materials that show visible signs of biological growth.

2.14.11. Contractor shall not install roofing during precipitation, or fog, or when air temperature is below 40 degrees F. Often, manufacturers specify not to install materials below a certain temperature.

2.14.12. Examine surfaces to receive roofing and flashing. Ensure that surfaces are plumb and true, clean, even, smooth, dry, and free from defects and projections which might affect the roof installation.

2.14.13. All work on the roof shall minimize impact to operations within the facility.

2.14.14. The contractor shall conduct hazardous material testing for the existing roof system. If hazardous materials exist proper mitigation measures must be taken during demolition. Contractor shall assume mitigation measures will be needed.

2.14.15. Contractor shall demolish the existing roofing systems on Building 140 for Roof Type A, Roof Type B, and Roof Type C down to the decking (approximately 44,962 square feet). Contractor shall provide and install a new modified bitumen roof system for Roof Type A and Roof Type C areas and any associated flashings, counter flashings, copings, perimeter trim, expansion joints, and all other sheet metal and accessories that are integral to the new roofing system or impacted by installation of the new roofing system. Contractor shall provide and install a new standing seam metal roof system for Roof B area. The roof deck shall be clean of all roof debris prior to installing the new roof system. Only demolish the amount of

roof per day that can be replaced prior to the end of each day. The complete modified bitumen assembly must be installed in the same day aside from the gravel. The gravel application must be installed within 6 weeks of installation of roof assembly. Install new edge flashing, coping, fascia, and new joint sealants shall be provided to restore proper drainage and watertight conditions. New “2-by” wood nailers shall be installed at roof edge where tapered slope allows. Where parapet is less than 5”, gravel stops are required for the modified bitumen assembly to prevent foreign object debris (FOD) from entering the airfield.

2.14.16. Remove and replace all rain collars, pitch pans, rubber boots, and any other penetration closure accessories.

2.14.17. Install pre-manufactured metal expansion joint covers, capable of lateral shear movement conditions, over any existing rubber expansion joints. This includes roof, wall, and curb expansion joints or any combination of these. Existing expansion joint conditions that place top of curb or joint less than 8 inches above roof surface shall be built up with wood nailers or metal framing to provide a minimum of 8 inches of vertical separation and coordinated mounting condition with expansion joint cover product. Contractor shall ensure that continuity of air barrier, moisture barrier, and vapor retarder (where applicable) is maintained below the metal expansion joint cover with flashing membrane bellows product compatible with the underlying substrate and roofing materials. Existing fire rated joint fill materials and assemblies shall be protected in place or replaced with tested fire rated filler assemblies of equal or greater fire rating duration, where damaged or removal is required. Basis of design: Balco FR Series assembly or similar.

2.14.18. Remove and replace all vent pipe caps.

2.14.19. Install new coping caps, compliant with material and thickness requirements outlined in UFC 3-110-03. Install sealant at all coping cap seams/joints, inclusive of backer rod where applicable. Selected coping material, metal flashings, and fastening materials shall be compatible with each other and with adjacent interface and cladding materials in order to minimize corrosion.

2.14.20. Contractor will protect existing light fixtures, HVAC roof top units, and all electrical components (to include communication equipment and lightning protection system), and associated equipment. All equipment shall be disconnected and coordinate outages with the user and CE project manager. HVAC roof top unit sleepers shall be replaced with curbs incorporated into the roof system. Contractor will coordinate any outages and reconnect upon completion of the project and ensure operability as needed.

2.14.21. The Contractor shall take appropriate measures to ensure that their construction supplies and equipment do not exceed the design live and dead loads of the building roof.

2.14.22. For all roof types, the contractor shall meet UFC 3-110-03 for wind uplift pressure and dimensions of the corners, perimeter, and field and provide stamped wind uplift calculations broken out by zone to the government for approval. Contractor shall ensure appropriate fastening quantities for each pressure zone and provide shop drawings with fastener patterns for government review and approval.

2.14.23. New standing seam metal roof system (SSMRS) shall meet UFC 3-110-03. All metal panels shall be formed to the final profile and configuration in the factory, with the

exception of field-formed seams. The entire standing seam system is defined as the assembly of roofing components, including roofing panels, flashing, fasteners, underlayment and accessories which, when assembled properly result in a watertight installation. The SSMRS must resist positive and negative loads specified and panels must support walking loads without permanent distortion or telegraphing of structural supports.

2.14.23.1.1. The basis of design for the roof metal is a finished dark bronze, low reflectivity, consistent with Berridge manufacturer or similar, matte finish, model type: Tee-panel.

2.14.23.1.2. SSMRS panels shall be continuous lengths up to manufacturer's standard longest lengths with no joints or seams. Panel width must be between 12 inches and 24 inches. Ribs of adjoining sheets must be in continuous contact from eave to ridge. Snap together types systems must be removable for replacement of damaged panels.

2.14.23.1.3. There shall be no exposed or penetrating fasteners, except where indicated, or specified on approved shop drawings. If fasteners are exposed, they must be gasketed or have gasketed washers on the exterior side of the covering to waterproof the penetration. Washer material must be compatible with the covering and have a minimum diameter of 3/8 inch for structural connections. Fasteners into steel must be zinc coated steel, corrosion resisting steel, zinc cast head, or cadmium/nylon plated steel screws. There shall be a minimum of two fasteners per clip. Single fasteners are allowed when supporting structural members that are pre-punched or predrilled. Screws shall be no smaller than No. 14 diameter if self-tapping and not smaller than No. 12 diameter if self-drilling and self-tapping. All bolts shall be no smaller than 1/4 inch diameter, shouldered or plain shank as required with proper nuts. Blind rivets must be stainless steel and not smaller than 1 inch.

2.14.23.1.4. All sealants shall be elastomeric containing no oil or asphalt. Exposed sealant must cure to rubberlike consistency. Concealed sealant must be non-hardening. Seam sealant shall be factory-applied, non-skinning, non-drying, and must be manufacturer compliant. Silicon-based sealants must not be used in contact with finished metal panels and components unless approved otherwise by the Contracting Officer.

2.14.23.1.5. Existing thermal insulation in attic shall be replaced with new blanket insulation meeting an R-value of 49. There will be no additional insulation required above deck for SSMR.

2.14.23.1.6. Manufacturer approved underlayment for wood substrate shall be used.

2.14.23.1.7. Snap together type systems must have a capillary break and a positive side lap locking device. Field-formed seam type systems must be mechanically locked closed by the manufacturer's locking tool. The seam must include a continuous factory applied sealant when required by the manufacturer to withstand the wind loads specified.

2.14.23.1.8. Roof panel anchor clips must be minimum 16-gauge, concealed and designed to allow for longitudinal thermal movement of the panels. Provide for lateral thermal movement in panel configuration or with clips designed for lateral and longitudinal movement.

2.14.23.1.9. Submittals shall be provided per the submittal register and this SOW. Shop drawings of metal roof panels and fastener locations shall be provided for approval.

Additionally, the product data for roofing panels, attachment clips, closures, accessories, fasteners, sealants, insulation shall be provided for approval. The contractor shall provide physical samples of the roofing panels (12 inches long by full width section of a typical panel), and color chips for government color selection approval before beginning work. Contractor shall provide sample warranty letter for approval. Contractor shall provide manufacturer's installation manual, instructions, and standard details for installation. Finally, contractor shall provide a typewritten card or photoengraved aluminum card containing the contract number, deck/substrate type, slopes of deck/roof structure, insulation type & thickness, vapor retarder type (if present), preformed steel standing seam roofing description (manufacturer, model, width, gage, method of attachment), coating color & finish, date of roof completion, warranty period, and roofing contractor's information.

2.14.23.1.10. Roofing panels, clips, closures, and other accessories must be standard products of the same manufacturer and designed by the manufacturer to operate as a complete system for the intended use. Roofing panels must replicate ASTM E 1592 tested assembly with respect to clip type, gauge, spacing, and attachment.

2.14.23.1.11. Panel finish of the base metal will be analyzed by the government for microchecking, cracking, peeling, blistering, chalking, loss of adhesion or color, or corrosion. The surface of panels exposed to the exterior must have a specular reflectance of not more than 10 when measured in accordance with ASTM D523 at an angle of 85 degrees.

2.14.23.1.12. Submit roofing drawings to supplement the instructions and diagrams. Include design and erection drawings containing an isometric view of the roof showing the design uplift pressures and dimensions of edge, ridge and corner zones; and show typical and special conditions including flashings, materials and thickness, dimensions, fixing lines, anchoring methods, sealant locations, sealant tape locations, fastener layout, sizes, and spacing, terminations, penetrations, attachments, and provisions for thermal movement. Details of installation must be in accordance with the manufacturer's Standard Instructions and details or the SMACNA 1793. Prior to submitting shop drawings, have drawings reviewed and approved by the manufacturer's technical engineering department.

2.14.23.1.13. The preferred protective coating for carbon steel is 55% (by weight) aluminum-zinc alloy (such as Galvalume) in application rate of .55 oz. minimum per ft.² (15.6 g minimum per 0.1 m²) for unpainted material (AZ55) and .50 oz. minimum per ft.² (14.2 g minimum per 0.1 m²) for pre-painted material (AZ50). When unpainted 55% AlZn (such as Galvalume) material is used it must have an additional protective coating of acrylic applied at a nominal thickness of 0.3 mil (.0076 mm). Provide material with a minimum thickness of 0.023-inch thick (24 gage) minimum except when midfield of roof is subject to design wind uplift pressures of 60 psf or greater, entire roof system must have a minimum thickness of 0.030 inch (22 gage). Steel roofing materials must contain a minimum of 30 percent total recycled content. Provide data identifying percentage of recycled content for steel roofing product.

2.14.23.1.14. Provide factory applied, thermally cured coating to exterior and interior of metal roof and wall panels and metal accessories. Provide exterior finish topcoat of 70 percent resin polyvinylidene fluoride with not less than 0.8 mil dry film thickness. Provide exterior primer with not less than 0.8 mil dry film thickness. Interior finish must consist of 0.2 mil dry film thickness prime coat and 0.5 mil dry film thickness backer coat. Provide clear factory edge coating on all factory cut or unfinished edges.

2.14.23.1.15. Intermediate supports, if needed, shall be fabricated from galvanized steel G90 Grade D (16 gage or heavier), Grade A (18 gage or lighter), or steel prime painted with zinc-rich primer. Attachment clips shall be fabricated from steel hot-dip galvanized or series 300 stainless steel. All accessory metal must be a thickness not less than that used for metal panels and match the material and finish color of the metal panels.

2.14.23.1.16. Closures shall be set in joint sealant material and apply sealant to mating surfaces prior to adding panels.

2.14.23.1.16.1. Rib Closures must be made of corrosion resisting steel, closed-cell or solid-cell synthetic rubber, neoprene, or polyvinyl chloride pre-molded to match configuration of rib opening. Material for closures must not absorb water.

2.14.23.1.16.2. Ridge closures must be made of metal-clad foam or metal closure with foam secondary closure matching panel configuration for installation on surface of roof panel between panel ribs at ridge and headwall roof panel flashing conditions and terminations. Foam material must not absorb water.

2.14.23.1.17. If utilized, fabricate liner panels of the same material as roof panels and formed or patterned to prevent waviness and distortion. Liner panels must have a factory applied, on mil thick minimum painted coating on the inside face and a prime coat on the liner side.

2.14.23.1.18. Refer to UFC 3-110-03 for Snow Retention Device requirements.

2.14.23.1.19. Installation

2.14.23.1.19.1. Install in accordance with the approved manufacturer's erection instructions, shop drawings, and diagrams. Panels must be in full and firm contact with attachment clips. Where prefinished panels are cut in the field, or where any of the factory applied coverings or coatings are abraded or damaged in handling or installation, they must, after necessary repairs have been made with material of the same color as the weather coating, be approved before being installed. Seal completely openings through panels. Correct defects or errors in the materials. Replace materials which cannot be corrected in an approved manner with non-defective materials. Provide molded closure strips where indicated and where necessary to provide weathertight construction. Use shims as required to ensure attachment clip line is true. Use a spacing gage at each row of panels to ensure that panel width is not stretched or shortened.

2.14.23.1.19.2. Apply roofing panels with the standing seams parallel to the slope of the roof. Provide roofing panels in longest practical lengths from ridge to eaves (top to eaves on shed roofs), with no transverse joints except at the junction of ventilators, curbs, skylights, chimneys, and similar openings. Install flashing to assure positive water drainage away from roof penetrations. Locate panel end laps such that fasteners do not engage supports or otherwise restrain the longitudinal thermal movement of panels. Form field-formed seam type system seams in the field with an automatic mechanical seamer approved by the manufacturer. Attach panels to the structure with concealed clips incorporated into panel seams. Clip attachment must allow roof to move independently of the structure, except at fixed points.

2.14.23.1.19.3. Flashing fastener spacings must be in accordance with the panel manufacturer's recommendations and as necessary to withstand the design loads indicated. Install fasteners in roof valleys as recommended by the manufacturer of the panels. Install fasteners in straight lines within a tolerance of 1/2 inch in the length of a bay. Drive exposed penetrating type fasteners normal to the surface and to a uniform depth to seat gasketed washers properly and drive so as not to damage factory applied coating. Exercise extreme care in drilling pilot holes for fastenings to keep drills perpendicular and centered. Do not drill through sealant tape. After drilling, remove metal filings and modified bitumen from holes prior to installing fasteners and washers. Torque used in applying fasteners must not exceed that recommended by the manufacturer. Remove panels deformed or otherwise damaged by over-torqued fastenings and provide new panels.

2.14.23.1.20. Protect applied roofing. Do not permit storing, walking, wheeling, and trucking directly on applied roofing materials. Provide temporary walkways, runways, and platforms of smooth clean boards or planks as necessary to avoid damage to applied roofing materials, and to distribute weight to conform to indicated live load limits of roof construction.

2.14.23.1.21. Clean exposed sheet metal work at completion of installation. Remove any metal shavings, fillings, nails, bolts, and wires from roofs. Remove grease and oil films, excess sealants, handling marks, contamination from steel wool, fittings and drilling debris and scrub the work clean. Exposed metal surfaces must be free of dents, creases, waves, scratch marks, solder or weld marks and damage to the finish coating.

2.14.23.1.22. All Roof Systems shall meet all American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) 90.1 and PSFB Design Guide requirements. Contractor shall provide vapor pressure differential calculations and simplified hygrothermal analysis of roof system to be installed, in accordance with UFC 3-101-01 Section 1404. "Cool" roofing systems as described in UFC 3-110-03 shall not be provided at PSFB unless accompanied by a transient hygrothermal analysis indicating a satisfactory vapor control solution for the specific interior environment and exterior climate for the project.

2.14.23.2. For modified bitumen assembly, the contractor shall install 2 layers of Polyisocyanurate insulation with minimum R-30 value with staggered seams, mechanically attached per approved wind uplift fastener patterns per zone as defined in ASCE 7. Roofing systems that are not directly over conditioned space are not required to meet the minimum R-30 value for insulation. ~~Only tapered insulation may be required~~ Select roof areas may require tapered insulation to meet appropriate roof slope for drainage, due to flat structure or structure slope lesser than UFC-directed minimum slopes. Contractor shall match existing roof slope in ~~these~~ areas that may not be feasible for steeper slope, where justified as infeasible and confirmed acceptable by the Government. The only area known by the Government to be infeasible at this time to increase slope greater than existing is at the flight line 1st floor roof, flight line canopy roof, and flight line lower 2nd floor roof (due to limitations of metal panel wall cladding height above roof system). Adhered insulation attachment may be considered upon written request to the Government, along with an approved adhesive density/pattern tested to equal standards. The polyisocyanurate must have a minimum compressive strength of 25 psi (172 kPa).

2.14.23.2.1. The contractor shall install a compatible, approved cover board set in a highly

elastomeric, one step, volatile organic compound (VOC) compliant, high rise roof insulation adhesive. Cover board product shall be noncombustible or fire-retardant treated for roof conditions required to be rated or noncombustible in Type I or Type II facility construction. Contractor shall also provide cant strips where horizontal field meets vertical parapet wall, but not interfere with drains or scuppers. The adhesive shall contain no solvents and set in minutes.

2.14.23.2.2. Contractor shall install a tapered insulation system to allow for proper drainage to the roof drains and to prevent any standing water at corners. Crickets shall also be installed behind any curbs and other large obstructions which will not allow water flow to a roof drain or gutters. Contractor shall provide a layout of the taper system with an indication of the thickness.

2.14.23.2.3. Following the cover board on the modified bitumen assembly, a layer of a minimum 80-mil fiberglass reinforced sandwiched by Styrene-Butadiene-Styrene (SBS) rubber modified base sheet set in ZERO VOCs cold processed high-performance non-asphaltic based modified polyether adhesive system. The SBS will be followed by a layer of a minimum 145-mil fiberglass reinforced asphalt polyurethane thermoset modified membrane cap sheet also set in a ZERO VOC cold processed high-performance non-asphaltic based modified polyether. Polyurethane thermoset modified membrane cap sheet flashings shall be run up and over the curb, or below the wood nailer on parapets, terminating on the vertical surface of the opposite side of the parapet (concealed behind the copings/metal flashings).

2.14.23.2.4. For modified bitumen assembly, the contractor shall coat membrane flashing (at parapet walls or curbs) with base coat of a gray, fire-retardant roof coating formulated from water-based, pure acrylic, self-curing latex polymers at 1.5 gallons per 100 square feet. Apply 2 coats of a non-toxic, fire-retardant roof coating formulated from water-based, pure acrylic, self-curing latex polymers at 1.5 gallons per 100 square feet. All laps with asphalt bleed out shall be coated with a water based acrylic primer at no less than ½ gallon per 100 square feet (as recommended by the manufacturer) prior to application of the coating. Primer product shall be as required by the manufacturer of the coating materials. Contractor shall ensure that no base coat will be flashing thru the finish coat. If another layer of finish coating is needed, the contractor shall apply accordingly.

2.14.23.2.5. For final flood coat on the modified bitumen assembly, the contractor shall apply 2 gallons per 100 square feet of a multi-purpose, liquid adhesive for the benefits of a graveled roof system (thickness of a credit card) coating, and allow layer to cure for 24 hrs. Then apply another 2 gallons per 100 square feet of the same specified adhesive. Then, the contractor shall apply 250 lbs. per 100 square feet of approved gravel. Gravel shall be minimum ½" and embedded in the WET multi-purpose, single component, aliphatic, polyurea, liquid adhesive coating with a heavy-duty barrel roller. Excess non-embedded gravel will be broomed off to prevent FOD. The contractor shall apply water based acrylic primer to any bleed outs as needed. Aggregate surface shall be installed in accordance with the IBC Code and Table 1504.9 based on the exposure category and basic wind speed at the building site.

2.14.23.2.6. Maintain locations of downspouts and trough drains to include supports. Trough channels running horizontally across lower roofs shall be minimally composed of 24 gauge prefinished steel or .063 aluminum. Trough channels shall be open faced with hemmed edges and shall be anchored to the roof adequately by means of premanufactured roof support blocks or steel support structures to prevent movement. Any roof penetrations by block or

structure members shall be properly flashed and sealed IAW Roof manufacturer's recommendations. Contractor shall provide a stamped drainage calculation by manufacturer of roof system.

2.14.23.2.7. Install new metal flashing material in compliance with UFC 3-110-03 Section 4-3. Parapet cap (coping) material shall match the width of the existing (or modified, where applicable) parapet assembly with minimum $\frac{1}{2}$ " per foot top slope. Coping front and rear faces shall be minimum $1\frac{1}{2}$ " vertical legs or height required to extend minimum $\frac{1}{2}$ " below the top of exterior cladding/finishes, whichever is greater. Copings shall be installed with concealed cleats or other premanufactured clip system that allows for thermal movement and minimizes or eliminates exposed fasteners. Copings shall be interlocking at seams or provided with an approved splice assembly system and shall accommodate thermal movement. Provide prefabricated, mitered corners, unless otherwise approved by the Government in writing. Install copings and metal flashings according to New American National Standards Institute/Single Ply Roofing Institute (ANSI/SPRI) ES-1.

2.14.23.2.8. All new perimeter metal edge and fascia shall follow UFC 3-110-03 and approved by manufacturer, bent for the application, (counterflashing, drip edge, gutters, downspouts, trough drains, storm collars, etc.). All existing metal fascia is failing and shall be replaced. All metal joints shall have butyl caulking applied. Drip edge metal shall be primed with recommended Manufacturer guidelines prior, followed with a bead of urethane sealant along the edge of the cap sheet and the drip edge. All exposed sheet metal must be of the same material, and all fastener and metal interfacing shall be coordinated to avoid Galvanic corrosion between dissimilar metals. Contractor is responsible for ensuring perimeter fascia profiles are designed and constructed to fully contain and protect existing and new assembly materials, inclusive of any additional insulation and tapered thickness required for proper roof slope.

2.14.23.2.9. Any area where a termination bar is required, the contractor shall install the manufacturers approved roof cement three coarse application over the termination bar and install a metal counterflashing over the termination bar. Consult the government on any termination bar application with a request for information if applicable.

2.14.23.2.10. All pitch pans shall be removed and detailed with a polymethyl-methacrylate (PMMA) system for all roof penetrations and deck-secured equipment flashing where feasible. If not feasible a pitch pan or some other manufacturer approved application may be used.

2.14.23.2.11. Contractor shall account for new metal walkways/stairs and integrate with roof system with either rubberized blocks or curbing to the deck supported securement. Coordination with stair installation and roof replacement schedule is required.

2.14.23.2.12. Where applicable, any new or existing curbs or parapets shall meet the 8" minimum height per National Roofing Contractors Association (NRCA) and UFC standards. If needed, treated dimensional lumber matching existing parapet width, shall be installed to meet the required height. Any sleeper shall also be treated 4x4 blocks or pre-manufactured sleepers.

2.14.23.2.13. Any metal counterflashing or other areas requiring caulking shall receive a polyurethane sealant. The polyurethane sealant shall be a single-component, moisture-curing and non-sagging. It shall create an effective bond and seal between materials of similar and

dissimilar surfaces, porosities, and coefficients of expansion. Sealant shall be a urethane caulking approved by manufacturer.

2.14.23.2.14. The following modified bitumen roofing materials shall be sourced from a single manufacturer that meets the following salient characteristic and all roofing materials including metal to be supplied shall be warranted by one manufacturer. A modified bitumen warranty shall cover all roofing materials from a single supplier.

2.14.23.2.14.1. Base Sheet: Base sheet shall be a minimum 80 mil, high strength, puncture, and fatigue resistant, rubber modified roofing membrane designed for use as the waterproofing and reinforcement layer of a built up or modified roofing system.

2.14.23.2.14.2. Vapor Barrier: If determined to be necessary through a hygrothermal analysis, the vapor barrier layer must have a polymer modified base sheet with a high strength polyester, fiberglass, polyester reinforcement. Elongation properties must allow for the thermal expansion and contraction in the Colorado region.

2.14.23.2.14.3. Cap sheet: Cap sheet membrane shall be minimum 145 mil, asphalt-based membrane, modified with polyurethane resin to extend roof longevity. The cap sheet shall demonstrate long lasting puncture and fatigue resistance.

2.14.23.2.14.4. Adhesives: The membrane and flashing adhesive shall be a high-performing modified hot asphalt adhesive. If applicable, the vapor retarder adhesive shall also be a modified hot asphalt adhesive product. Additional primers and sealers may be determined by manufacturer and provided as a submittal with product data to the government.

2.14.23.2.15. Roofing metal throughout shall have the following properties and follow UFC 3-110-03: may be coated on both sides with an epoxy primer or on the weathering surface with a factory applied color coating of polyvinylidene fluoride (PVF2, PVDF) or approved equal fluorocarbon coating. The finish on the sheet stock shall not peel, crack, blister, or chip. Crazing or stretching of finish visible from 10' distance is not acceptable in accordance with AAMA 2605-17 criteria. Metal at the interior roof surface area shall be matched in color with the exterior of building. Field applications of color coatings are prohibited and will be rejected. All roofing metal drip edges shall receive a minimum ½ inch bend and hemmed edge. Open hemmed edges are acceptable where sheet metal thickness and bend radius dictates to avoid crazing or stretching of finish.

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3. BID OPTIONS

3.1. BID OPTION 1: NON-REAL PROPERTY SCOPE - SEE SOW SECTIONS 2.3.8.2, 2.3.8.4, 2.3.8.5, 2.10.8, 2.12, 2.13, and any other sections within SOW specified as “(BID OPTION 1)”

3.2. BID OPTION 2: LIGHTNING PROTECTION - SEE SOW SECTION 2.9.5 FOR DESCRIPTION OF LIGHTNING PROTECTION SCOPE.

3.3. BID OPTION 3: AIRFIELD LIGHTING - SEE SOW SECTION 2.9.6 FOR DESCRIPTION OF AIRFIELD LIGHTING SCOPE.