

SECTION 01 11 00

SUMMARY OF WORK

R1 19 Aug 2015

8/11

PART 1 GENERAL

1.1 SCOPE

This section is a general section, which applies to all sections. The work encompassed by this specification and noted on the drawings consists of furnishing all labor, equipment, and materials unless otherwise stated, to accomplish the construction project.

1.2 Summary

The demolition, abatement and new construction will have two sequences.

Sequence 1 (one) will include the exterior mechanical enclosure, larger vault and mass briefing room (grids "A" through "C" and grids "1" through "6") of Building 1A and all of the work shown in the construction documents for Building 1 (First Floor: grids 11A through 16A and grids "AA" through "BB") and (Second Floor: grids "2A" through "16A" and grids "AA" through "BB").

Sequence 2 (two) will include the balance of the work as described in the construction documents (mechanical enclosure, The smaller vault, life support and corridor ceilings (grids "A" through "F" and grids "1" through "6", and all of the exterior work unless noted otherwise.

Sequence Timelines

Sequence 1 (one) time line begins

- Demolition and abatement (Refer to 14028 Abatement SOW and 14028 Abatement Contractor Qualification Requirements) from August 31, 2015 through November 13, 2015. Demolition is to follow along with the abatement.
- Construction from November 15, 2015 through March 25, 2016.
- NOTE: March 25, 2016 is FINAL COMPLETION Sequence 1; All areas of Sequence 1 (one) must be completed and turned over to the government on or before March 25, 2016. Partial (BOD) Occupancy.

Sequence 2 (two) time line begins

- Demolition, abatement (Refer to 14028 Abatement SOW and 14028 Abatement Contractor Qualification Requirements) and new construction from September 5, 2016 through March 17, 2017. Demolition is to follow along with the abatement (government will schedule abatement after sequence 1 (one) is completed.

- NOTE: March 25, 2017 is FINAL COMPLETION Sequence 2; All areas of Sequence 2 (two) must be completed and turned over to the government on or before March 25, 2017. BOD.

Any item left in rooms by user under construction are to be protected in place or removed and stored and returned as part of the General Contractors Bid, use plywood to protect existing tile to remain; briefly and without force or effect upon the contract documents, the work of this contract can be summarized as follows:

A. ARCHITECTURAL

Interior Improvements

The renovation areas are part of two buildings; Building 1 is an historic building and is also referred to as DUF. The other building is Building 1A. The design describes a renovation of existing spaces in Bldg 1 and 1A, to provide several Secure Vaults, several ALIS, Life Support and office spaces for the F-35 Weapon Systems Evaluation Program (WSEP).

Both buildings are joined on the main level by two outdoor court yards and the second floors are joined by a single bridge located on the west side of the buildings. The total square footage of the renovated areas as described and potentially affected is approximately:

	<u>Building 1</u>	<u>Building 1A</u>	<u>Bridge</u>
Main Floor:	2,107 s.f.	23,005 s.f.	n/a
Second Floor:	<u>6,499 s.f.</u>	<u>no renovation</u>	<u>427 s.f.</u>
TOTAL:	8,606 s.f.	23,005 s.f.	427 s.f.

Space programming was developed in discussion between the AE team, Hill Air Force Base CE Project Manager Jonathan Ramras, and end users. Space requirements and planning as depicted in this package evolved out of these discussions, through analysis of existing conditions.

Almost all spaces in the areas of study would be affected during the construction of the depicted design. A Phasing Diagram will be provided for discussion, to allow for ongoing operations throughout construction, while balancing the desire for a limited construction duration. It will be most effective to limit phasing as much as possible, to allow most efficient abatement and construction as well as to minimize interruption of users. Condition for acceptance of facility require will Security Forces terms of Accreditation per JFAN 6/9 "Secure Areas".

There are a number of changes within the existing vaults. The largest vault will be completely re-designed and the conference room will function as a

dual space, conference room and Autonomic Logistics Information System (ALIS). STC 45 walls for the ALIS and the vaults will have STC 50 walls.

Outside of the vault spaces, include offices (single and open), with most of these areas involving significant demolition of walls and ceilings and replacement of finishes. Where possible and appropriate, occupied spaces are provided with exterior windows that will have blinds between the glass panels of the insulated, blast resistant windows and a new Heritage Rooms will be part of the design.

The design presents a proposal for the renovation of the second floor. This space is all offices and office support spaces. Most of the second level will be gutted. The restrooms will be modified for accessibility requirements. There will be new finishes throughout. The bridge will have a wheelchair stair lift installed for maintaining an accessible route.

Furniture is shown on the architectural plan for coordination; however, it is anticipated that the furniture will be a separate specification and bid.

Building 5: The Exterior

Architecturally, the exterior scope includes new canopy's at the entrances of the middle court yards and entry design at the south side, This includes: Demolishing the stairs to provide new stairs plus adequate space at the landing in front of the exterior doors, to provide access for a new accessible ramps, providing a new steel structure and roof that mimics the canopy found at other locations on base.

CODE ANALYSIS

Hill Air Force Base
Bldg 1 AND 1A
wo55363 KRSM118018P

Included in the 'Architectural Basis of Design' are the public health, safety and general welfare of the building's design. The architectural systems will comply with the laws, ordinances, rules and guidelines that exist with the State and Local governments, the Federal Government and Hill Air Force Base. The following codes that apply to the architectural design are:

Building code

- 2012 International Building code (IBC)
- 2012 NFPA 101 Life Safety code; Existing occupancies
- UFC Department of Defense, Unified Facilities Criteria
 - UFC 1-200-01
 - UFC 1-200-02
 - UFC 3-600-01
 - UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings
- Hill Air Force Base Facility Design Standard
- Base Architectural Compatibility Standard

- Air force regulations, manuals, Technical Letters, MIL Handbooks and Pamphlets
- Hill AFB communications requirements as contained in TAB K and ETL02-12

Occupancy classification -

NFPA 101 Section 6.1.11 Businesses (Chapter 39); Assembly (Chapter 13)
And IBC Chapter 3

- B
- A-3

Type of Construction - IBC Chapter 6

- Type II-B (Fire sprinkled)
- Fire-retardant-treated wood may be used in non-bearing partitions that are not required to be rated greater than 2 hours.

Building Height/Area - IBC Table 503

- Allowable stories = 2

Actual = 2

- Allowable height = 55 feet

Actual = 40+/- feet

- Allowable area = 9,500 sq. ft.

Area Modification - IBC Section 506

- Frontage Increase - Section 506.2 not used
- Automatic Sprinkler system Increase (Section 506.3)
Per level; $9,500 \times 2 = 19,000$
- TOTAL allowable area = $9,500 + 0 + 19,000 = 28,500$ sq. ft

Occupancy Separation - IBC Table 508.3.3

- Occupancy B to A 1 hour rating

Fire Resistive Requirements - IBC Chapter 6, table 601;

- Structural Frame 0 hour rating
- Bearing Walls
 - Exterior 0 hour rating
 - Interior 0 hour rating
- Exterior Nonbearing Walls 0 hour rating
- Interior Nonbearing Walls 0 hour rating
- Floor (including supporting beam)

and joists) 0 hour rating

- Roof
(including supporting beam

and joists) 0 hour rating

- Corridor 0 hour rating (table 1017.1)

Occupancy Load Factors - IBC Chapter 10, table 1004.1.1

Description of Occupancy	Occupancy Load Factor (SF/occupant)
Business	200 gross
Assembly	number of fixed seats (Section 1004.7)

Egress Width per Person served - NFPA 101, Table 7.3.3.1

- Other = .2 inches/occupant
- NFPA 101, 39.2.3.2, Minimum corridor width is 44 inches (some exceptions)
- NFPA 101, 7.2.2.2 (b), Minimum door width is 32 inches clear;
- NFPA 101, 7.2.1.2.3 maximum door leaf is 48 inches

Common path of Egress Travel - NFPA, 39.2.5.3.1; Table A.7.6

- 100 feet (sprinkler)
- 75 feet for A occupancy

Dead end Corridors - NFPA, Table A.7.6

- Occupancy Group B the length of a dead end corridor may not exceed 50 feet
- Occupancy Group A-3 the length of a dead end corridor may not exceed 20 feet

Number of Exits - NFPA 101 39.2.4

- B = Load that exceeds 49 will require two exits.
- A-3 = Load that exceeds 49 will require two exits

Maximum Travel Distance - NFPA 101, 39.2.6.3.1

- B (sprinkler) = 300 feet
- A (sprinkler) = 250 feet

Exit Separation - NFPA 101, 7.5.1.3.3

- Exit separation in buildings = one third (1/3) the diagonal dimension of the building or area.

Stairs - NFPA 101, 7.1 and 7.2

- NFPA 10, 7.1.3.2.(1) - Rated exit enclosure is not required when exit connects only 2 stories.
- NFPA 101, 7.2.12.2.3 - Clear width of 48 inches minimum between handrail.
- NFPA 101, Table 7.2.2.2.1.1.(a) - Stair riser height shall be 7 inches maximum and 4 inches minimum. The stair tread shall be 11 inches minimum.
- NFPA 101, 7.2.2.4.4.1 - Handrail height, from nosing, shall be not less than 34 inches and not more than 38 inches.

Plumbing Fixtures required - IBC Chapter 29

- *The plumbing fixture count has been reduced to allow for accessibility.*

Interior Finishes - NFPA 101, Chapter 10

- NFPA 101, Table A.10.2.2

Exit	= Class 'A' or 'B' fire spread
Exit access Corridors	= Class 'A' or 'B' fire spread
Other	= Class 'A' , 'B' or 'C' fire spread

NFPA Chapter 10, Portable Fire Extinguishers

Roof Covering Fire Classification - IBC Table 1505.1

- Type of Construction II-B = Minimum of a 'C' Cover Fire Classification

B. CIVIL / LANDSCAPING

1. Improvements to the front of Building 1 (south side) will include:

- a. Removing the existing stairs, ADA ramp, sidewalk and asphalt pavement
- b. Installing a new concrete landing outside the existing vestibule
- c. Installing a new ADA ramp to the west of the new concrete landing. This ramp will not exceed a slope of 5% in order to mitigate the need for landings
- d. Installing a new ADA sidewalk ramp for parking lot access.
- e. Installing a new set of stairs on the east side of the new landing
- f. Installing hand rail on the south side of the landing, ramp and on both sides of the stairs

- g. Removing the existing asphalt along the front of the building from the existing curb and gutter going south to the existing curb and gutter, length approximately 166 feet.
 - h. Installing new asphalt concrete where removed
 - i. Restriping the parking and ADA stalls
2. Improvements between buildings 1 and 1A include the following:
- a. Saw cut and remove approximately 3,100 square feet of concrete sidewalks and stairs
 - b. Remove approximately 5,125 square feet of existing landscaping
 - c. Replace approximately 2,875 square feet of concrete sidewalk
 - d. Replace approximately 5,680 square feet of landscaping
 - e. Repairing/modifying existing irrigation system
 - f. Installing approximately 50 feet of concrete curb wall
3. Improvements to the west side of Building 1A will include:
- a. Install a concrete pad for mechanical equipment near the northwest corner of the building
 - b. install a concrete pad for mechanical equipment south of the existing door entrance

C. STRUCTURAL

The structural scope of work for remodel work at Hill Air Force Base Building 1 and 1A includes infill of existing openings in CMU walls and new openings in existing CMU walls. New infill will be constructed of CMU that matches the size of existing walls. Steel angle lintels bolted through the walls are to be installed to support the headers over new openings.

New raised seating will be constructed in the Mass Briefing room. Platforms for raised seating will be constructed from cold-formed metal framing and plywood sheathing.

New beams will be installed in Building 1 at the roof level to support new moveable partition doors in office and conference rooms. These beams are supported by steel angle haunches at existing masonry walls and by metal stud box columns at the corridor side.

This project includes construction of new canopies at selected entry doors between buildings 1 and 1A. They will be constructed from hollow structural steel sections. Steel columns will be supported on new reinforced concrete spot footings.

A simple seismic structural evaluation of Building 1 and the remodeled portion of Building 1A are performed as part of the scope of work of the project. Demand/capacity ratios for building shear walls and other deficiencies will be reported. Actual seismic upgrade work is not in the scope of the project.

Design criteria for new structural members shall meet or exceed the minimum requirements set forth in the International Building Code 2012, ASCE-7-10, and UFC.

Live Load:	50 psf
Equipment Load:	Actual Equipment Weight
Dead Load:	Self weight of system.
Seismic Load:	As calculated according to ASCE 41-13 provisions.
Wind Load:	115 mph wind speed.
Snow Load:	30 psf roof snow load plus drift per ASCE 7-10.

D. MECHANICAL

Existing HVAC Systems

Several mechanical systems serve Bldg. 1 and 1A Building 1 is served by a Mitsubishi VRF (variable refrigerant flow) system.

Building 1A is connected to the building HVAC system. Several standalone split DX systems serve rooms within the vaults. The existing gym area is served by a fan coil unit with exterior condensing unit.

Existing hot and chilled water is routed to fan coil units which are ducted to room diffusers.

Several thermostats control space temperature throughout the space.

HVAC Systems

Building 1 remodeled area

The existing Mitsubishi VRF system will remain and be revised to accommodate the new room configurations and heating and cooling loads on level 1 and 2. The supply and return ductwork along with the supply diffusers and return air grilles will be revised to accommodate new ceiling layout. Thermostats will be moved as required per new wall layout. Entire VRF system will be re-commissioned and balanced.

Building 1A remodeled vault areas

All existing HVAC equipment will be removed. These systems are being removed due to age of equipment and not being capable of providing the cooling for the new space requirements. The associated piping, ductwork and controls will be removed. Removed system connected to the building system will be capped from the building system.

A new VRF HVAC system will be provided. New supply and return ductwork, new diffusers and return air grilles will be provided. Each room will have a thermostat for space temperature control. The ALIS server rooms will be provided with separate Mitsubishi cooling systems. They will not be connected to the VRF system due to the infrequent use of these rooms with the higher cooling requirements. A humidifier will be provided for each ALIS server room and Life Support. Each room will have space temperature and humidity control. ICD 705 requirements will be maintained.

Ventilation

Building 1 system has existing ventilation make up air unit(s). The ventilation air unit will be checked for proper size and operation for the new people loads. The system will be balanced to deliver ventilation air per ASHRAE standards.

Building 1A north vault will be provided with a new makeup air unit to provide ventilation air to all vault remodeled areas per ASHRAE standards.

Building 1A south vault and life support will be provided with a new makeup air unit to provide ventilation air to all vault remodeled areas per ASHRAE standards.

Building 1 Steam piping

The existing steam piping and converter will be removed from inside the building and routed outside underground to the south east corner of the existing hanger. A new steam converter will be provided in the existing hanger.

Heating water piping

The existing heating water and secondary hot water supply and return piping currently routed through the north vault above the ceiling will remain. The secondary hot water serves radiant cabinet heaters on the second floor.

Controls

The new HVAC systems will be factory controls and connected to the building DDC control system and monitored by the base EMCS.

Sequencing

Sequencing will be coordinated with the Contracting officer.

Sustainability

Mechanical and Plumbing design will utilize requirements of LEED for existing buildings within the given scope. LEED will not be pursued. The equipment will utilize DDC building energy controls. Equipment meets or exceeds ASHRAE 90.1-2007. Low flow plumbing fixtures are utilized to save water consumption.

Air Distribution

New low pressure ductwork will be constructed to SMACNA 2" pressure class. Ductwork will be sealed to SMACNA seal class C. All ductwork shall be insulated per HAFB and UFC standards.

Humidity

A wall mounted humidifier will be provided for each ALIS server room and Life Support with blower pack on the unit. This will provide steam humidity directly into the room. Spaces that are humidified shall be a separated envelop with a vapor barrier to contain the humidity.

Plumbing

The existing restrooms in building 1 level 2 will be revised to accommodate ADA requirements.

A new janitor's sink will be provided.

A new heritage room in building 1 level 1 will be provided with a sink.

New plumbing fixtures will be provided for Life Support in building 1A.

A new break sink will be provided in the north vault of building 1A

The existing sanitary system, vent and the domestic cold water systems will be extended to the new plumbing fixtures in building 1A.

A new 40 gallon electric water heater will be provided for the Life Support fixtures.

A new 2.5 gallon electric water heater will be provided for the break sink in the north vault and heritage room.

Design Environmental Conditions

Location: Hill Air Force Base, Utah

Elevation: 4912 FT.

Outdoor design temperatures: Winter 12 °F (99% Occurrence)
 Summer 91DB/61WB °F (1.0% Occ.)

Indoor design temperatures:

	Occupied		Unoccupied	
	Cooling	Heating	Cooling	Heating
Normally occupied spaces	76	70	80	68
Utility Spaces	AMB +10°	60	AMB +10°	60
Electrical Room	80	60	80	60
ALIS Server Room	72	72	72	72
ALIS Open Office	68	70	72	70
Life Support	72	70	72	70

All temperatures are dry bulb temperatures (unless otherwise noted).

Load Calculations

The building heating and cooling loads will be calculated using CHVAC.

Assumptions: Office area 150 SF per person, 250 btu/h sensible/person, 200 btu/h latent/person. 1.0 watts/SF lighting. 1.5 watts/SF equipment, 35% humidity. ALIS server room heat load will be figured per layout and information from F-35 FRD. ALIS server room to maintain 40% humidity. Life support: 40% humidity. Load calculations will be used to determine cooling capacity for the ALIS rooms.

Energy Model

An explicit 90.1 Appendix G energy model is not provided. An energy model is produced to determine the best equipment to install for the best energy saving which has been conducted qualitatively per UFC 1-200-02. The existing Mitsubishi VRF system in building 1 will remain and be revised. This system was installed in 2005 and is considered minor construction per UFC 1-200-02, chapter 3 and would not be economically feasible to replace at this time. This system has a 20 year life span. Several mechanical system options were considered for the remodeled vaults. The options included ground source heat pumps, connecting to the existing building system, separate systems including air handlers, boilers and chillers and a new Mitsubishi VFR system. The ground source system was not used due to the higher first cost, small square footage and location for bore field. Connecting to the building system was not used due to the existing building system is old and could not accommodate the higher cooling loads. The system with air handlers, boilers, chiller was not used due the installed cost and equipment space restraints.

The new VRF HVAC system selected will be provided for the vaults in building 1A. Items considered when deciding on this system are:

- Both vaults will not be constructed at the same time.
- One vault will need to be operational while the other vault is be constructed.
- Location of outdoor equipment. Equipment was discouraged on the roof.
- The equipment would be located outside on the ground.
- This equipment is typically smaller and quieter that other systems. Both vaults will be provided and operate as separate systems.
- The existing building envelope is not being upgraded.
- This system, as experienced on past projects at HAFB and outside HAFB has proven to be the most economic and energy efficient system for this size of project.
- The system was chosen for its load sharing characteristics and the ability to provide temperature controls for each rooms load requirement.
- Maintenance costs for this system are typically lower than traditional systems.

Applicable Codes and Standards

Conform to the latest edition of the following codes and standards:

2012 IBC

2012 IMC

2012 IPC

2012 IECC

ASHRAE Standard 90.1, 2007 Edition

ASHRAE Standard 62, 2007 Edition

UFC 1-200-01 Design: General Building Requirements

UFC 3-230-10A, Water Supply, Water Distribution

UFC 3-310-04, Design: Seismic Design for Buildings

UFC 3-400-01, Design: Energy Conservation

UFC 3-400-02, Design: Engineering Weather Data

UFC 3-410-01FA, Design: Heating, Ventilating and Air Conditioning

UFC 3-410-02A, Design: Heating, Ventilating and Air Conditioning (HVAC) Control Systems

UFC 3-420-01, Design: Plumbing
UFC 3-450-01, Design: Noise and Vibration Control
UFC 4-010-01, DOD Minimum Antiterrorism Standards for Buildings
2013 Base Facility Standard, Hill Air Force Base, Utah
ETL 1110-3-491, Engineering and Design Sustainable Design for Military
Facilities
F-35 Lightning II Facilities Requirements Document, Section 3: Operations
Facility Requirements
ICD/ICS 705 Technical Specifications for Construction and Management of
Sensitive Compartmented Information Facilities

E. ELECTRICAL

CODES AND STANDARDS

Codes, Standards, and Guidelines, which are applicable to the design of the electrical systems, are listed below. Comply with each of the latest adopted publications:

ADA, Americans with Disabilities Act
International Energy Conservation Code
EIA/TIA, Electronics Industries Association/Telecommunications Industry Association
IBC 2009, International Building Code
IEEE 1100-1999, Recommended Practice for Power and Grounding Electronic Equipment
IESNA, Illuminating Engineering Society of North America
NFPA, National Fire Protection Association (applicable sections including but not limited to):

NFPA 70, National Electrical Code
NFPA 72, National Fire Code
NFPA 101, Code for Safety to Life from Fire in Buildings and Structures

UL, Underwriters Laboratories
JAFAN 6/9 - Physical Security Standards for Special Access Program Facilities
Hill Air Force Base - Base Facility Design Standard
75th ABW/SC - Telecommunications Installation Criteria - Tab K
F-35, ALIS Program Information

1. Power:

Power shall be provided to new work stations and server racks in the ALIS Server Room per the F-35 Program Requirements. New outlets for the server room shall be circuited to a new branch panel located in the ALIS Server Room. This panel shall be fed from the existing Main Distribution Panel of building 1A. Normal power panels for non-ALIS operations shall be re-used or relocated in the building 1A remodel area.

The existing branch circuit panels in the building 1 annex remodel area shall be replaced. New feeders from the existing distribution systems shall be provided.

For the Building 1 and 1A office area remodel new phone outlets, network outlets, cabling and convenience outlets shall be added in the new office layouts as shown on the drawings.

Existing power to mechanical equipment to be removed shall be completely demolished to accommodate new mechanical equipment. New circuits shall be extended to mechanical equipment as required by the mechanical design. Small loads shall be fed from existing area power panel. Large mechanical loads shall be fed from existing Panels where possible, and terminated to new branch panels where loads and capacities dictate.

Furnish and install convenience outlets on the wall and in the ceiling for the GFE projectors where indicated on the plans. Raceways for A/V cabling shall also be provided where indicated on the plans.

Furnish and install a convenience outlet on the wall for a GFE television where indicated on plans. Raceways for A/V cabling shall also be provided where indicated on the plans.

2. Lighting:

New lighting will be specified where dictated by ceiling changes. Lighting levels will be designed to meet the needs of a typical office space according to the Recommended Illuminance Categories and Illuminance Values for Lighting Design, IES Lighting Handbook. Lighting load for the remodeled areas shall not exceed the calculated lighting power budget as defined in the 2012 IECC.

Recessed acrylic center basket fluorescent lighting shall be the main lighting in the open office areas, private offices, and flight briefing rooms. Step-dimmed fixtures will be utilized in all cases to allow for suitable control of light levels without significant cost. The direct/indirect lighting is better suited for work on computer screens and with Video Conferencing, due to the low angle of light deflection

In hallways, recessed down lights shall be installed for general illumination and egress lighting. Similar style down lights with adjustable wall wash reflectors shall be installed to highlight wall art and other items of interest in common corridors.

Lighting shall be high efficiency ballast/driver and lamp combinations or LED, IAW AF energy standards. Egress lighting shall be provided by battery back-up. Additional egress lighting are shown above code requirements. All lighting within the ALIS area shall be circuited to the ALIS branch panels.

3. Lighting Controls / Sustainability:

Automatic controls for all non-emergency egress fixtures (as required by the Energy Code) shall be provided by a 360 degree, dual-technology occupancy sensors in enclosed office areas with light reduction switches. Open areas shall be controlled by a time-clock and low-voltage over-ride system connected to a relay control panel. Light fixtures in large spaces, located within 15 feet of an exterior window, shall be controlled additionally by photo-electric sensors to shut down this lighting when adequate exterior ambient lighting is available.

4. Communications:

All new communications shall follow the SOW instructions and government direction. Fiber and copper communications cabling, as well as all terminations, backboards, patch panels, racks, grounding and routing shall comply with Specifications Section 27 10 00, 75th ABW/SC - Telecommunications Installation Criteria - Tab K and F-35, ALIS Program Information.

Existing Communication device wiring and devices throughout all remodel spaces shall be disconnected from the existing server racks and removed. New copper cabling and/or fiber optic cabling for workstations shall be terminated in new racks in the vault areas and connected to existing server racks in all other areas. A new communications room shall be provided for each secure vault areas in Building 1A in addition to the ALIS server areas. Cabling shall be extended to the existing Comm racks in Room 211 for the remodel of Building 1. All existing abandoned communication cabling above the ceilings in the demolition areas indicated shall be investigated and removed where not in use.

A new unclassified and new classified data cabinet/rack shall be provided for each ALIS server room for termination of ALIS telecommunication outlets. Provide patch panel racks, the size as indicated on the drawings. Each cabinet shall have vertical and horizontal wire management for cable organization. Each cabinet shall have adequate patch panels for the number of drops indicated on the plans and by the F-35 Program. Each cabinet shall be fed with one L6-20R twist lock receptacle with isolated grounding per base standards. Power shall be fed from the new branch panel in the ALIS Server Room.

A new unclassified and new classified data rack shall be provided for the new communication room in vault 119 for termination of non-ALIS telecommunication outlets. A new shared unclassified/classified data rack shall be provided in vault 115 for termination of non-ALIS telecommunication outlets. Non-ALIS telecommunications outlets shall consist primarily of fiber optic cable drops to workstation areas for data and Cat 6 cabling for classified and unclassified voice and future data connections. Each rack shall be fed with one L5-20R twist lock receptacle with isolated grounding per base standards. Power shall be fed from the existing or relocated branch panel.

New cable tray shall be run to accommodate ALIS cabling and new communication cabling in the 119 and 115 vault areas. Classified wiring shall be run in a separate cable tray from unclassified wiring in the vault areas and the cable trays shall be identified as classified or unclassified. A shared cable tray system will be utilized in non-vault areas. Classified cabling and unclassified cabling will maintain minimum separation of 4" for unshielded cable and 2" where shielded cable is utilized.

Each new non-ALIS rack shall be fed from the main point of presence at the existing main fiber optic telecom service entrance in room 116 with (1) dedicated 12 strand SM fiber optic cable and ST connectors. The existing 25-pair cable feed from the main telecom service entrance in the main electrical room to vault 119 shall be re-used. A new 25-pair cable to vault 115 shall be run to the existing main telecom service entrance in the main electrical room. Fiber optic feeds to the new ALIS cabinet/racks shall be fed from the non-ALIS rack with (1) 12 strand SM fiber optic cable and ST connectors.

ALIS telecommunications locations shown in plans shall consist of a 4"x4" deep junction box, with 1.25" conduit with the required cabling and terminations. ALIS workstations data communications ports are to be (4) shielded Cat 6E, 4 pair cable fed from the ALIS server room data cabinets. Fiber optic cabling shall also be utilized to the new mass brief area and maintenance area outside the vault.

Standard workstation data communications ports are to be (2) blue, shielded Cat 6E, 4 pair cable fed from the existing Comm Room. All copper locations shall be 4"x4" deep junction box with an extension ring added to provide area for cable bend radius. A single gang mud ring will be used and with terminations, appropriate data port plates, and 1.25" conduit extended to the ceiling plenum. Where telecommunications connections are required in STC walls, the walls should be increased in depth to allow for the deeper boxes.

Data conduits that penetrate the STC walls in the ALIS area shall be in conduit. A ladder type cable tray shall be located above the patch panel racks in the ALIS server room and extended to above the ceiling for data cable organization.

Two sets of new telecommunications outlets (8) classified and (8) unclassified shall be located in the new flight briefing Rooms. Cabling shall be extended to the ALIS Server Room. Normal classified and unclassified telecommunications outlets consisting of optical fiber for data communication and copper cabling for voice communication shall be installed on each wall of the briefing rooms for non-flight briefing purposes. Fiber connections shall be the standard style of connection in vaults 119 and 115.

Areas outside of the vaults shall receive base standard copper connections through (2) Cat 6 cables per drop for voice and data.

Fiber Optic Connecting Hardware: Connectors shall meet performance requirements of TIA/EIA-568-B. Fiber optic patch panels shall be ST-interface.

Provide patch panel racks, the size as indicated on the drawings. Each cabinet shall have vertical wire management for cable organization. Each cabinet shall have adequate patch panels for the number of drops indicated on the plans and by the F-35 Program. Each cabinet shall be fed with one L6-20R twist lock receptacle, cord suspended with strain reliefs. Power shall be fed from the new branch panel in the ALIS Server Room.

Classified and un-classified communications lines shall be run in separate 1.25" conduit to the ceiling space and in the cable tray to the appropriate patch panel. All classified communications cabling shall be bundled and separated in accordance with JAFAN/DCID and F-35, ALIS Standards.

5. Special Systems:

The Access Control and Intrusion Detection systems shall be provided in accordance with the SOW. Access Control and Intrusion Detection is required for the new secure doors as indicated on the drawings. The system shall be provided in accordance with JAFAN (DCID) 6/9 requirements. New devices shall be as manufactured by "Vindicator" and be compatible with the existing head end equipment. New V5 modules shall be installed as needed to accommodate the new zones.

New Access Control and Intrusion Detection devices are to be installed as indicated on the drawings. The system shall be Vindicator compatible with Hill AFB security systems.

Furnish and install junction boxes and empty conduits for an Owner furnished projector in the new conference room on the second level of building 1 and in the ops desk.

Furnish and install a junction box and empty conduit for an Owner furnished television in the new conference room on the second level of building 1.

6. Grounding: Grounding Conductors

Grounding conductors shall be installed with all feeder and branch circuits. An additional isolated grounding conductor shall also be provided to all 120/208-volt branch panel boards.

A grounding riser system shall be installed throughout telecommunication and equipment rooms consisting of a grounding bus mounted on the wall in each room near the telecommunications boards and two grounding conductors (one extending to the main ground bus of the main distribution panel and

the other extended to building steel).

1.3 CONTRACT DRAWINGS

SHEET	DESCRIPTION
<u>GENERAL</u>	
1. GO01	COVER SHEET
2. G002	INDEX OF DRAWINGS, VICINITY MAPS, SYMBOLS LEGEND AND CODE CRITERIA
3. G003	GENERAL NOTES AND ABBREVIATIONS
4. G004	ADA REQUIREMENTS
5. G005	ADA REQUIREMENTS
<u>CIVIL</u>	
6. C101	OVERALL CIVIL PLAN
7. CD101	NORTH DEMOLITION PLAN
8. CD102	SOUTH DEMOLITION PLAN
9. CG101	NORTH GRADING PLAN
10. CG102	SOUTH GRADING PLAN AND SECTIONS
11. L101	NORTH LANDSCAPING PLAN
12. GD101	GENERAL DETAILS - 1
13. GD102	GENERAL DETAILS - 2
<u>STRUCTURAL</u>	
14. SE001	GENERAL STRUCTURAL NOTES
15. SE002	GENERAL STRUCTURAL NOTES
16. SE003	GENERAL STRUCTURAL NOTES
17. SB101	MAIN LEVEL STRUCTURAL PLAN
18. SB102	FOOTING AND FOUNDATION PLAN (FOR CANOPY COLUMN FOOTINGS)
19. SF101	SECOND FLOOR FRAMING PLAN
20. SF102	ROOF FRAMING PLAN
21. SF501	ROOF FRAMING DETAILS
22. SF502	FRAMING DETAILS
<u>ARCHITECTURAL</u>	
23. AE001	CODE ANALYSIS/PHASING
24. AEO02	CODE ANALYSIS/PHASING
25. AE003	WALL TYPES
26. AD101	MAIN LEVEL DEMOLITION FLOOR PLAN
27. AD102	SECOND LEVEL DEMOLITION FLOOR PLAN
28. AD103	MAIN LEVEL DEMOLITION CEILING PLAN
29. AD104	SECOND LEVEL DEMOLITION CEILING PLAN
30. AE100A	MAIN LEVEL OVERALL FLOOR PLAN
31. AE100B	SECOND LEVEL OVERALL FLOOR PLAN
32. AE101	MAIN LEVEL FLOOR PLAN - AREA A
33. AE102	MAIN LEVEL FLOOR PLAN - AREA B
34. AE103	SECOND LEVEL FLOOR PLAN - AREA A
35. AE104	SECOND LEVEL FLOOR PLAN - AREA B
36. AE105	MAIN LEVEL FINISH FLOOR PLAN - AREA A
37. AE106	MAIN LEVEL FINISH FLOOR PLAN - AREA B
38. AE107	SECOND LEVEL FINISH FLOOR PLAN - AREA A
39. AE108	SECOND LEVEL FINISH FLOOR PLAN - AREA B
40. AE109	MAIN LEVEL CEILING PLAN - AREA A

41.	AE110	MAIN LEVEL CEILING PLAN - AREA B
42.	AE111	SECOND LEVEL CEILING PLAN - AREA A
43.	AE112	SECOND LEVEL CEILING PLAN - AREA B
44.	AE201	ELEVATIONS AND SECTIONS
45.	AE400	ENLARGED PLANS
46.	AE401	INTERIOR ELEVATIONS
47.	AE402	INTERIOR ELEVATIONS
48.	AE403	INTERIOR ELEVATIONS
49.	AE500	PLAN DETAILS
50.	AE501	PLAN DETAILS
51.	AE510	CEILING DETAILS
52.	AE530	WALL SECTION DETAILS
53.	AE550	CASEWORK DETAILS
54.	AE560	DETAILS
55.	AE570	DOOR DETAILS
56.	AE580	WINDOW DETAILS
57.	AE601	DOOR SCHEDULE
58.	AE610	WINDOW TYPES
59.	AE620	FINISH AND ACCESSORIES SCHEDULE
60.	AE630	SIGNAGE SCHEDULE
61.	AE640	SIGNAGE DETAILS

MECHANICAL

62.	M001	MECHANICAL LEGEND, SYMBOLS & ABBREVIATIONS
63.	FP101	MAIN LEVEL FIRE PROTECTION PLANS
64.	FP102	SECOND LEVEL 2 FIRE PROTECTION PLAN
65.	MD101A	MAIN LEVEL MECHANICAL DEMOLITION FLOOR PLAN, AREA A
66.	MD101B	MAIN LEVEL MECHANICAL DEMOLITION FLOOR PLAN, AREA B
67.	MD102A	SECOND LEVEL MECHANICAL DEMOLITION FLOOR PLAN AREA A
68.	MD102B	SECOND LEVEL MECHANICAL DEMOLITION FLOOR PLAN AREA B
69.	MH101A	MAIN LEVEL MECHANICAL FLOOR PLAN AREA A
70.	MH101B	MAIN LEVEL MECHANICAL FLOOR PLAN AREA B
71.	MH102A	SECOND LEVEL MECHANICAL FLOOR PLAN AREA A
72.	MH102B	SECOND LEVEL MECHANICAL FLOOR PLAN AREA B
73.	MH201	MECHANICAL SCHEMATICS
74.	MH202	MECHANICAL SCHEMATICS
75.	MH203	MECHANICAL SCHEMATICS
76.	MH501	MECHANICAL DETAILS
77.	MH601	MECHANICAL SCHEDULES
78.	MH602	MECHANICAL SCHEDULES
79.	MP101A	MAIN LEVEL MECHANICAL PIPING FLOOR PLAN - AREA A
80.	PD101A	MAIN LEVEL PLUMBING DEMOLITION FLOOR PLAN AREA A
81.	PD101B	MAIN LEVEL PLUMBING DEMOLITION FLOOR PLAN AREA B
82.	PD102A	LEVEL 2 PLUMBING DEMOLITION FLOOR PLAN AREA A
83.	PD102B	LEVEL 2 PLUMBING DEMOLITION FLOOR PLAN AREA B
84.	PL101A	MAIN LEVEL PLUMBING FLOOR PLAN AREA A
85.	PL101B	MAIN LEVEL PLUMBING FLOOR PLAN AREA B
86.	PL102A	LEVEL 2 PLUMBING FLOOR PLAN AREA A
87.	PL102B	LEVEL 2 PLUMBING FLOOR PLAN AREA
88.	PL401	ENLARGED PLUMBING PLANS
89.	PL601	PLUMBING SCHEDULES

ELECTRICAL

90.	EG001	GENERAL NOTES AND SYMBOL SCHEDULES
91.	EG002	SYMBOL SCHEDULES
92.	EG501	GENERAL DETAILS
93.	EG502	GENERAL DETAILS
94.	EDL111	MAIN LEVEL DEMOLITION LIGHTING PLAN - AREA A
95.	EDL112	MAIN LEVEL DEMOLITION LIGHTING PLAN - AREA B
96.	EDL113	SECOND LEVEL DEMOLITION LIGHTING PLAN - AREA A
97.	EDL114	SECOND LEVEL DEMOLITION LIGHTING PLAN - AREA B
98.	EDP101	MAIN LEVEL DEMOLITION POWER PLAN - AREA A
99.	EDP102	MAIN LEVEL DEMOLITION POWER PLAN - AREA B
100.	EDP103	SECOND LEVEL DEMOLITION POWER PLAN - AREA A
101.	EDP104	SECOND LEVEL DEMOLITION POWER PLAN - AREA B
102.	EDP701	DEMOLITION ONE-LINE DIAGRAM
103.	EL111	MAIN LEVEL LIGHTING PLAN - AREA A
104.	EL112	MAIN LEVEL LIGHTING PLAN - AREA B
105.	EL113	SECOND LEVEL LIGHTING PLAN - AREA A
106.	EL114	SECOND LEVEL LIGHTING PLAN - AREA B
107.	EL501	LIGHTING DETAILS
108.	EL601	LIGHT FIXTURE SCHEDULE
109.	EL602	RELAY PANEL AND PUSH BUTTON SCHEDULE
110.	EP101	MAIN LEVEL POWER PLAN - AREA A
111.	EP102	MAIN LEVEL POWER PLAN - AREA B
112.	EP103	SECOND LEVEL POWER PLAN - AREA A
113.	EP104	SECOND LEVEL POWER PLAN - AREA B
114.	EP201	POWER ELEVATIONS
115.	EP401	ENLARGED POWER PLANS
116.	EP501	POWER DETAILS
117.	EP502	POWER DETAILS
118.	EP503	POWER DETAILS
119.	EP504	POWER DETAILS
120.	EP601	EQUIPMENT SCHEDULE
121.	EP701	ONE-LINE DIAGRAMS
122.	EP801	PANEL SCHEDULE
123.	EP802	PANEL SCHEDULE
124.	EP803	PANEL SCHEDULE
125.	ET101	MAIN LEVEL TRAY PLAN - AREA A
126.	ET102	LEVEL 2 TRAY PLAN
127.	EY101	MAIN LEVEL SYSTEMS PLAN - AREA A
128.	EY102	MAIN LEVEL SYSTEMS PLAN - AREA B
129.	EY103	SECOND LEVEL SYSTEMS PLAN - AREA A
130.	EY104	SECOND LEVEL SYSTEMS PLAN - AREA B
131.	EY501	SYSTEM DETAILS
132.	EY502	SYSTEM DETAILS
133.	EY701	SPECIAL SYSTEMS ONE-LINE DIAGRAMS
134.	EY702	ACCISS CONTROL ONE-LINE DIAGRAMS
135.	EY703	INTRUSION DETECTION ONE-LINE DIAGRAMS
136.	FA101	MAIN LEVEL FIRE ALARM PLAN - AREA A
137.	FA102	MAIN LEVEL FIRE ALARM PLAN - AREA B
138.	FA103	SECOND LEVEL FIRE ALARM PLAN - AREA A
139.	FA104	SECOND LEVEL FIRE ALARM PLAN - AREA B
140.	FA701	FIRE ALARM RISER DIAGRAM

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

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