100% Design Analysis

Building 2606 Fire Alarm Repair

Contract Number: FA4897-20-D-0001
Delivery Order: FA4897-25-F-0020

Mountain Home Air Force Base, ID
19 December 2025

Prepared By:

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Acronyms and Abbreviations

ABA	Architectural Barriers Act
ACM	asbestos containing material
AHU	air handling unit
ATFP	Anti-Terrorism and Force Protection
ATO	authority to operate
CCI	control correlation identifiers
CFM	cubic feet per minute
CIA	confidentiality, integrity, and availability
CNSSI	Committee on National Security Systems Instruction
DA	design analysis
dB	Decibel
dBA	A-weighted decibel
DoD	U.S. Department of Defense
EI&E	Energy, Installations and Environment
FA/MNS	fire alarm/mass notification system
FARS	fire alarm reporting system
FIPS	Federal Information Processing Standards
FLS	fire and life safety
FM	FM Global
FMCU	fire alarm mass notification control unit
FRCS	facility-related control systems
HDR	HDR Engineering, Inc.
HVAC	heating, ventilation, and air-conditioning
IBC	International Building Code
ICC	International Code Council
ICS	Industrial Control Systems
IEBC	International Existing Building Code
IFS	Installation Facility Standards
IHR	Industrial Hygiene Resources

IMC	International Mechanical Code
LBP	lead based paint
LOC	local operators console
MHAFB	Mountain Home Air Force Base
MNS	mass notification systems
NAC	notification appliance circuit
NFPA	National Fire Protection Association
NICET	National Institute for Certification in Engineering Technologies
NIST	National Institute of Standards and Technology
OSHA	Occupational Safety and Health Administration
PE	platform enclave
PIT	platform IT
PIV	personal identity verification
PU	package unit
QFPE	Qualified Fire Protection Engineer
RFI	request for information
RMF	Risk Management Framework
RTU	roof top unit
SIOH	supervision, inspection, and overhead
SPD	surge protective device
SPL	sound pressure level
SOW	statement of work
UCS	utility control system
UFC	Unified Facilities Criteria
UFGS	Unified Facilities Guide Specifications
UL	UL Solutions
USAF	U.S. Air Force
VAC	volts alternating current
VFD	variable frequency drive
WAMNS	wide area mass notification system
Wyly	Wyly Cost, LLC

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1 General Description

1.1 Purpose of Report

The purpose of this Design Analysis (DA) is to provide the technical basis of design for the *B2606 Fire Alarm Repair* project at Mountain Home Air Force Base (MHAFB), Idaho. The design is in general accordance with the Unified Facilities Criteria (UFC). This report presents the best available information at the time of publication.

1.2 Scope of Report

The scope of this report covers the project from inception through the 95% design per the statement of work (SOW) provided by MHAFB, dated 26 January 2025, and HDR Engineering, Inc.'s (HDR) technical assumptions. The SOW and HDR's technical assumptions are included in Appendix A. This report captures design information and direction used during the project design process.

This project will provide 35%, 65%, 95%, 100% final design drawings, design analysis, project specifications, and cost estimate.

1.3 Background

Building 2606 (B2602) features a single-story Sanctuary with Narthex, Lobby, Choir Loft and Mechanical Mezzanine, a single-story Fellowship Hall with kitchen and mechanical room, and a single-story Chaplaincy Administrative Office, located at MHAFB, with the earliest portion of the building reportedly constructed in the mid 1940's, with recent renovations of the Fellowship Hall having been completed within the past five years. The Sanctuary, Fellowship Hall, and Chaplaincy Administrative Offices measure approximately 6,670 sq. ft., 2,655 sq. ft., and 5,070 sq. ft., respectively. The building's combined area measures approximately 14,395 gross sq. ft. The Sanctuary has a posted occupancy of 348 persons, while the Fellowship Hall's occupancy load is calculated to be approximately 258 persons.

The existing fire alarm system is obsolete, and replacement parts are no longer available. Accordingly, critical system maintenance has been deferred. Given the lack of replacement parts and deferred system maintenance, false alarms are reported to be frequent, resulting in MHAFB Fire Department making emergency runs to false alarms. A complete fire alarm system replacement is required to provide reliable system operation and eliminate false alarms.

Additionally, the existing fire alarm system lacks provisions for a mass notification system, as required for occupied buildings having more than 10 full-time employees. The replacement system will include an autonomous mass notification system.

1.4 Project Description

1.4.1 Description of Work

The project will replace the existing failing fire alarm system with a new addressable fire alarm / mass notification system (FA/MNS) throughout the entire building.

1.4.2 Architectural

Architectural work is limited to supporting the FA/MNS replacement. Anticipated architectural work includes limited patching and painting as well as the replacement of acoustical ceiling tiles impacted by the FA/MNS replacement.

Firestopping for through- and membrane-penetrations will also be required for conduit penetrations and back boxes installed at fire-resistive and smoke-rated construction.

1.4.3 Structural

No structural work is required.

1.4.4 Mechanical

Mechanical work supports the FA/MNS replacement, specifically replacing existing duct smoke detectors with new addressable duct smoke detectors and the installation of control interfaces to shut down mechanical systems in accordance with National Fire Protection Association (NFPA) 72 and applicable mechanical codes.

New duct smoke detectors will be installed on the supply-air ducts of air handling units (AHUs), package units (PUs), and roof top units (RTUs), exceeding 2,000 cubic feet per minute (CFM), where capable of spreading smoke beyond the room of origin. The mechanical systems will be interfaced with the FA/MNS to shut down AHUs, PUs and RTUs upon detection of smoke.

Additionally, supply and return air ducts having fire/smoke dampers installed in fire/smoke-rated construction will be equipped with duct smoke detectors. Fire/smoke dampers will be interfaced with the FA/MNS system to close dampers upon detection of smoke.

1.4.5 Fire Protection

Fire protection work consists of replacing the existing fire alarm system with a new addressable FA/MNS. Additionally, fire protection will include installing interfaces to automatic sprinkler systems.

The new FA/MNS will be installed in accordance with NFPA 72, UFC 3-600-01, UFC 4-021-01, and the Architectural Barriers Act (ABA).

The new FA/MNS will be sole sourced as a Silent Knight EVS Series FA/MNS. The new FA/MNS will communicate with the MHAFB AES IntelliNet 2.0 base-wide monitoring system. The FA/MNS will be equipped with a compatible radio transmitter and VHF omni-directional antenna.

Fire suppression work supports the FA/MNS replacement, specifically removing existing sprinkler system water flow and valve tamper switches from the exiting fire alarm system and connecting them to the new FA/MNS.

1.4.6 Electrical

Electrical work supports the FA/MNS replacement, specifically providing dedicated 120 volts alternating current (VAC) and electrical ground for surge protection devices. Electrical work also includes interconnecting the fire alarm control circuits to heating, ventilation, and air-conditioning (HVAC) systems, electromagnetic door closures, and fire shutters. Electrical modifications will not exceed the capacity of the existing electrical service.

1.4.7 Cybersecurity

Cybersecurity design will ensure compliance with UFC 4-010-06 *Cybersecurity of Facility Related Control Systems*. The FA/MNS system is categorized as follows:

Facility Rating:	MISSION SUPPORT
Facility Related Control Systems (FRCS):	Industrial (not typical information technology (IT) equipment)
System Group:	Fire & Life Safety (FLS)
Fire Alarm Reporting System (FARS):	New Silent Knight FA/MNS Control Units
	AES 7707P-88-ULP-M IntelliNet 2.0 Fire Subscriber transmitter
Mass Notification System (MNS):	New Silent Knight FA/MNS Control Units
	AES 7707P-88-ULP-M IntelliNet 2.0 Fire Subscriber transmitter
Preliminary C-I-A Rating:	Low-Moderate-Moderate

1.4.8 Project Schedule

Table 1-1 shows actual dates for the project.

Table 1-1. Project Schedule

Task	Responsible Party	Requirement	Days between Delivery	Running Total	Delivery Date
	GOV'T	Award			Fri, 4-Apr-25
1	ALL	Pre-Design Meeting with NTP			Wed, 30-Apr-25
1	HDR	Project Schedule			**Wed, 30-Apr-25**
1	HDR	Security vetting personnel for site visit			Wed, 30-Apr-25
1	HDR	Site Visit			Wed, 30-Apr-25
2	HDR	35% Concept Design Package	30	30	**Fri, 30-May-25**
2	*GOV'T*	*USG 35% Design Review*	*28*	*58*	*Fri, 27-Jun-25*
	ALL	35% Design Review Meeting	4	62	Tue, 1-Jul-25
3	HDR	65% Design Package	38	100	**Fri, 8-Aug-25**
3	*GOV'T*	*USG 65% Design Review*	*28*	*128*	*Fri, 5-Sep-25*
	ALL	65% Design Review Meeting	11	139	Tue, 16-Sep-25
4	HDR	95% Design Package	42	181	**Tue, 28-Oct-25**
4	*GOV'T*	*USG 95% Design Review*	*48*	*229*	*Mon, 15-Dec-25*
	ALL	95% Design Review Meeting - CANCELLED			
5	HDR	100% Design Package	4	233	**Fri, 19-Dec-25**
5	*GOV'T*	*USG 100% Design Review*	*28*	*261*	*Fri, 16-Jan-26*

The period of performance (POP) in the award document is 19 February 2026.

1.5 Authorization

366 Financial Acquisition Squadron
366 Gunfighter Ave, Suite 2102
Mountain Home AFB, ID 83648

Contract Number: FA4897-20-D-0001
Delivery Order: FA4897-25-F-0017

1.6 Design Criteria

1.6.1 Design Team

MHAFB contracted HDR to provide professional engineering services for task order *B2606 Fire Alarm System Replacement* Design. HDR subcontracted cost estimating services to Wyly Cost, LLC (Wyly).

1.6.2 Applicable Criteria

Design is in accordance with the following standards. Per UFC 1-200-01, section 1-3.1. The effective date of the standards was determined at the 35% design, 30 May 2025:

- **Unified Facility Criteria (UFCs)**
  - UFC 1-200-01 DoD Building Code, Change 4, (2024)
  - UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard, Change 3 (2021)
  - UFC 3-400-02 – Design: Engineering Weather Data, Change 2 (2024)

- UFC 3-401-01 – Mechanical Engineering, Change 1 (2015)
- UFC 3-410-01 – Heating, Ventilating, and Air Conditioning Systems, Change 9 (2024)
- UFC 3-520-01 – Interior Electrical Systems (2025)
- UFC 3-600-01 – Fire Protection Engineering for Facilities, Change 6, (2021)
- UFC 3-600-02 – Operation and Maintenance: Inspection, Testing and Maintenance of Fire Protection Systems, Change 1 (2025)
- UFC 4-010-01 – DoD Minimum Antiterrorism Standards for Buildings, Change 3 (2024)
- UFC 4-010-06 – Cybersecurity of Facility Related Control Systems (2023)
- UFC 4-021-01 – Design and O&M: Mass Notification Systems, Change 1 (2010)

- **Other Federal Standards**
  - Architectural Barriers Act (ABA)
  - Occupational Safety and Health Administration (OSHA) Regulations
- **Installation Standards**
  - MHAFB Installation Facility Standards (IFS)
  - In-Progress Mountain Home FRCS Cybersecurity Installation Design Guideline
- **International Code Conference (ICC) Codes**
  - International Building Code (IBC) (2024), as amended by UFC 1-200-01
  - International Existing Building Code (IEBC) (2024), amended by UFC 1-200-01
  - International Mechanical Code (IMC) (2024)
- **National Fire Protection Association (NFPA) Codes/Standards**
  - NFPA 1 – Fire Code (2024)
  - NFPA 70 – National Electric Code (2023)
  - NFPA 72 – National Fire Alarm and Signaling Code (2025)
  - NFPA 80 – Standard for Fire Doors and Other Opening Protectives (2025)
  - NFPA 90A – Standard for the Installation of Air-Conditioning and Ventilating Systems (2024)
  - NFPA 90B – Standard for the Installation of Warm Air Heating and Air-Conditioning Systems (2024)
  - NFPA 101 – Life Safety Code (2024)
  - NFPA 170 – Standard for Fire Safety and Emergency Symbols (2024)
  - NFPA 241 – Standard for Safeguarding Construction, Alteration, and Demolition Operations (2022)

- **Cybersecurity Standards**
  - DoDI Number 8500.01, Cybersecurity, Change 1, 7 October 2019
  - DoDI Number 8510.01, Risk Management Framework for DoD Systems, 19 July 2022
  - DoDI Number 8530.01, Cybersecurity Activities Support to DoD Information Network Operations, Change 1, 25 July 2017
  - DoDI Number 8531.01, DoD Vulnerability Management, 15 September 2020
  - DoDI Number 8551.01, Ports, Protocols, And Services Management, May 2023
  - DoDM 8140.03, Cyberspace Workforce Qualification and Management Program, 15 February 2023
  - DTM 08-060 Policy on Use of Department of Defense (DoD) Information Systems - Standard Consent Banner and User Agreement, Change 5, 25 September 2013
  - Federal Information Processing Standards Publication (FIPS-PUB) 140-3, Security Requirements for Cryptographic Modules, 22 March 2019
  - FIPS-PUB 200 Minimum Security Requirements for Federal and Information Systems, March 2006
  - Federal Information Processing Standards Publication (FIPS-PUB) 201-3, Personal Identity Verification (PIV) of Federal Employees and Contractors, January 2022
  - Air Force Manual (AFMAN) 16-1406, Volume 2, Operations Support, National Industrial Security Program: Industrial Security Procedures for Government Activities, 8 May 2020
  - Civil Engineer Control Systems (CECS) Baseline Security Controls, February 2024
  - DAFGM 2024-32-01, Civil Engineer Control Systems, Cybersecurity, October 2024.
  - DAFMAN 17-1301, Cybersecurity, Computer Security (COMPUSEC), December 2024.

1.7 Correspondence and Directives

HDR attended a kick-off meeting and site visit at MHAFB on 30 April 2025. The meeting notes describe items that were discussed and direction that was given to HDR to initiate project design. HDR facilitated the 35% design review meeting to discuss Government comments on 1 July 2025. HDR facilitated a meeting to discuss the 65% design review

comments from the Government on 16 September 2025. The Government had no comments on the 95% submittal. HDR and the Government agreed to cancel the 95% design review meeting and deliver the 100% submittal on 19 December 2025. Minutes for all meetings are included in Appendix B.

2 Design Requirements and Provisions

2.1 Site Planning

The scope of work will be performed within the existing B2606. Site planning is not applicable to this project. Figure 2-1 depicts the location of B2606.

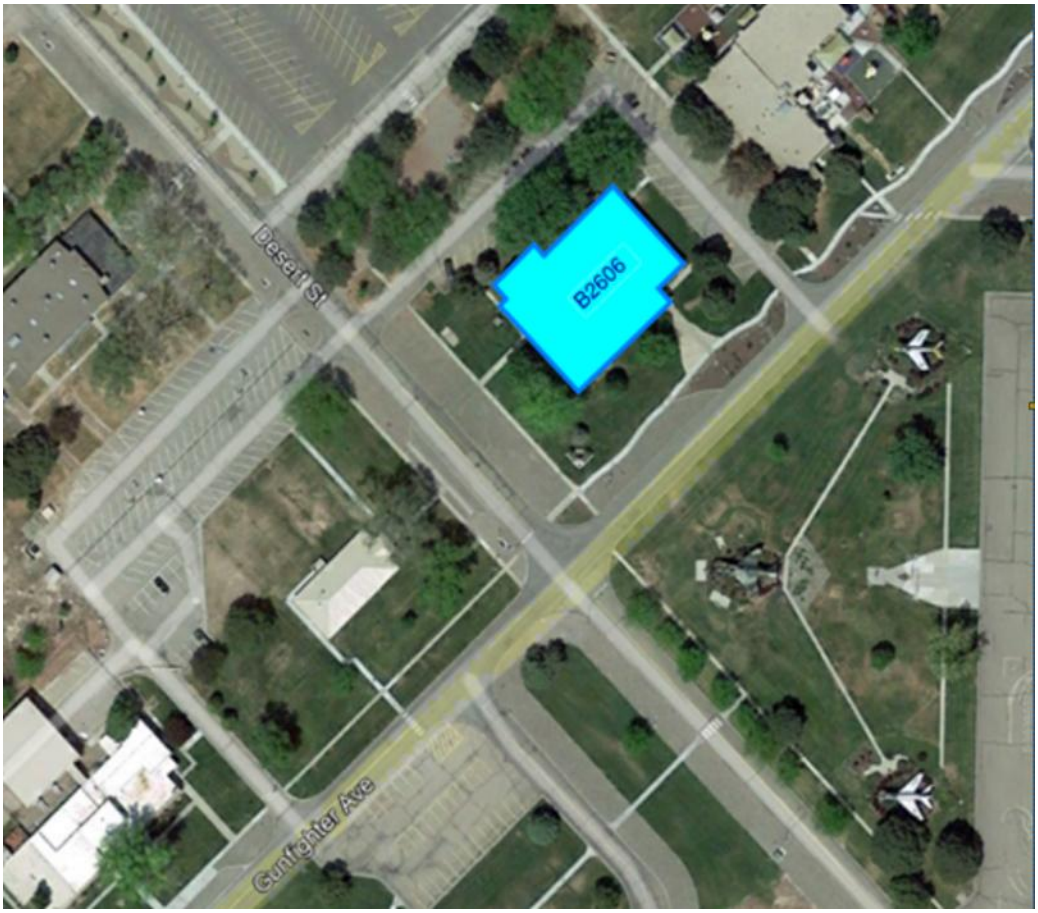

Figure 2-1. Vicinity Map

2.2 Utilities

The project will not impact existing utilities.

2.3 Architectural

The primary architectural scope is limited to replacing ceiling tiles where ceiling-mounted devices are removed during demolition and replacing ceiling tiles damaged by the contractor during installation of conduit and back boxes.

Additional architectural scope will include patching and painting surfaces impacted by demolition and installation activities on gypsum board ceilings and walls to match surrounding areas.

Finally, firestopping and joint sealants will be installed at through- and membrane-penetrations of fire-rated and smoke-rated construction. This project will not repair existing through- and membrane-penetrations not associated with the fire alarm system.

The contractor will protect walls, floors, carpeting, equipment and furnishings during demolition, patching and painting, to the fullest extent possible. This includes the use of clean drop cloths, plastic film and frequent debris removal during construction. Dust control measures shall be employed for all operations creating dust. All areas will be thoroughly cleaned and vacuumed by the contractor prior to installation of smoke detectors. Furnishings and equipment moved by the contractor to accommodate both demolition and new work will be returned to their original position by the contractor.

2.3.1 Ceiling Mounted Devices

The project will have minimal impact on existing lighting, air distribution, or ceiling-mounted devices. To gain access to ceiling spaces to install conduit and back boxes for the FA/MNS, the contractor may have to temporarily move ceiling-mounted devices. No acoustical ceiling grid removal is anticipated. The contractor will return ceiling-mounted devices to their original locations.

2.3.2 Roof Systems

The project will not impact existing roofing systems.

The exterior mounted omni-directional antenna will be mounted on exterior walls or at roof eaves but will not be attached to or penetrate roof coverings.

2.3.3 Ceilings

Individual existing suspended acoustical ceiling tiles will be removed, as required, to complete the demolition and installation of the FA/MNS. New replacement tiles will match existing tiles. Where the existing ceiling tiles have been discontinued, the contractor will identify a donor room from which tiles will be removed and used in other building areas to match existing tiles. All tiles within the donor room will be replaced in their entirety so that all tiles within the donor room match. No ceiling grids will be removed, replaced, re-leveled, or painted except to repair damage caused by demolition and construction.

Ceiling openings resulting from the removal of ceiling-mounted fire alarm devices will be patched, taped/floated, textured, and painted to match surrounding areas.

Cutting access openings within the existing gypsum board ceilings may be required to accommodate the installation of the new FA/MNS. The contractor will cut, patch, tape/float, texture, and paint to match surrounding ceiling areas. Where more than one opening is cut within any room, the entire ceiling will be painted from wall to wall.

2.3.4 Walls

Wall openings resulting from the removal of wall-mounted fire alarm devices will be patched, taped/floated, textured, and painted to match surrounding areas.

Cutting access openings within the existing gypsum board walls may be required to accommodate the installation of the new FA/MNS. The contractor will cut, patch,

tape/float, texture, and paint to match surrounding areas. Where more than one opening is cut within a room, the entire wall will be painted from corner to corner and floor to ceiling.

2.4 Structural

The project will not impact existing structural design.

2.5 Mechanical Systems

Existing duct-mounted smoke detectors will be removed and new addressable duct-mounted smoke detectors, compatible with the FA/MNS, will be installed within the supply-air ducts of AHUs, PUs and RTUs exceeding 2,000 CFM, where capable of spreading smoke beyond the room of origin. Addressable control modules and relays will be installed adjacent to HVAC equipment and variable frequency drives (VFDs) and arranged to shut the units down upon detection of smoke.

Where ducts penetrating fire-rated barriers are equipped with fire/smoke dampers, new addressable duct smoke detectors will be installed within 5 feet of the damper assembly. Addressable control modules and relays will be installed to close the damper upon detection of smoke within the dedicated duct detector. The installation of new fire/smoke dampers is not part of the project scope.

Duct detectors, shut down interfaces, and interlocks will be configured in accordance with the IMC, NFPA 72, and NFPA 90A/B.

Existing ATFP emergency HVAC system shut down stations will remain. Emergency HVAC shut-down controls will not be integrated into the FA/MNS LOC.

The new FA/MNS control equipment will not appreciably add to the building's heat load.

2.6 Sustainability

Sustainable design is limited to material use and specification for this limited-scope project.

2.7 Life Safety and Fire Protection Systems

2.7.1 Life Safety Code Analysis

This project is defined as an *Alteration Level I* in accordance with IEBC. An *Alteration Level I* includes the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose (IEBC §602.1). IEBC also defines an *Alteration Level I* exceeding 50 percent of the building area as an *Alteration Level III* (IEBC §604.1).

Additionally, this project is defined as a *Renovation* in accordance with NFPA 101. *Renovations* include the replacement in kind, strengthening, or upgrading building elements, materials, equipment, or fixtures that do not result in a reconfiguration of the building spaces within (NFPA 101 §43.2.2.1.2).

NFPA 101 §43.4.1.4 states that a *Renovation* shall not make the building less conforming with other sections of the code (UFC 3-600-01 and NFPA 101) than it was before the renovation was undertaken.

This project will have no impact on occupancy classification, building occupancy loads, means of egress, fire suppression systems, and fire department access.

This project is also defined as a *Major Project* in accordance with UFC 3-600-01 §2-1.20. UFC 3-600-01 §1-7.1.1 requires that a code analysis be performed for all *Major Projects*. This code analysis applies only to the project's scope (i.e., installation of a new FA/MNS). Accordingly, this code analysis is limited to defining the code path required to achieve a compliant FA/MNS.

Building 2606 is a Mixed-Use / Non-Separated Occupancy, featuring Group A-3 Assembly and Group B Business Occupancies in accordance with IBC §303.4 and 304.1. NFPA 101 additionally defines the building occupancy as non-separated Assembly and Business Occupancies. Accessory occupancies include Light Hazard Storage, Mechanical, and Electrical rooms.

UFC 3-600-01 §9-18.5 requires that fire alarm and detection be provided in accordance with NFPA 101. NFPA 101 Chapters 12 and 13 apply to New Assembly Occupancies and Existing Assembly Occupancies respectfully and NFPA 101 Chapters 38 and 39 apply to New Business Occupancies and Existing Business Occupancies, respectively. In the case of a fire alarm system replacement the alarm and detection requirements for a New Assembly and New Business are applicable. Specifically, the Detection and Alarm requirements of NFPA 101 §12.3.4 for the Assembly spaces (Sanctuary and Fellowship Hall) and NFPA 101 §38.3.4 for the administrative office spaces are applicable to this new Fire Alarm / Mass Notification System.

Initiation of the FA/MNS will be by manual and automatic means (i.e. manual pull stations, smoke detectors and heat detectors) in accordance with NFPA 101 §12.3.4.2 and 38.3.4.2. Activation of waterflow devices from the partial sprinkler system will also initiate the FA/MNS. MHAFB has requested full area detection (smoke and heat detection) be provided throughout the building as a voluntary addition to the required annual fire alarm system. This proposed system exceeds the requirement of UFC 3-600-01 §9-18.5.

Safety interfaces such as HVAC shut-down, fire-smoke damper closure and fire door closure will be provided in accordance with NFPA 72, NFPA 80 and NFPA 90A/B.

Occupant notification will be compliant with Public Mode (NFPA 72 §18.5) within common spaces. Audible appliances will sound with an SPL of at least 15 dB above the ambient sound level or 5 dB above the maximum sound level having a duration of at least 60 seconds, whichever is greater, when measured 5ft. above the floor in accordance with NFPA 72 §18.4.4.1.

Because B2606 occupancy load exceeds 10 full-time DoD personnel, mass notification is required throughout to provide timely notification to building occupants, in accordance with UFC 4-010-01 §2-3.5. Accordingly, the requirements of UFC 4-21-01 are applicable in addition to the Life Safety requirements identified in UFC 3-600-01 and NFPA 101. The contractor will satisfy the design requirements of UFC 4-021-01, including the

installation of a Local Operators Console (LOC), as well as speaker placement to ensure that voice intelligibility is achieved throughout.

MHAFB is equipped with an existing wide area mass notification system (WAMNS), also referred to as a “Giant Voice” system. MHAFB does not desire the interfacing of the new in-building mass notification system with the Giant Voice system.

2.7.2 Means of Egress

The project will have no impact on the means of egress. Additionally, all means of egress will be maintained during construction.

2.7.3 Passive Fire/Smoke Protection features

All through- and membrane-penetrations through fire-rated barriers and smoke partitions will be performed in a manner that maintains the fire-resistance and smoke ratings. All abandoned penetrations resulting from the existing fire alarm conduit demolition will be closed and/or sealed to restore fire-resistance and smoke ratings. All firestopping materials and systems will require the use of UL Solutions or FM Global approved materials.

Additionally, any access openings cut into ceilings and walls to accommodate the FA/MNS installation will be repaired in a manner that maintains the fire-resistance and smoke ratings.

2.7.4 Interior Finishes

All required patching and painting of ceilings and walls will maintain current ceiling and wall finish classifications.

2.7.5 Fire Alarm and Mass Notification

The existing fire alarm system will be demolished in its entirety and replaced by a new code compliant, addressable FA/MNS. MHAFB has designated the Silent Knight 6820EVS Series Fire Alarm and Mass Notification System model for installation for all future FA/MNS installation projects. Auxiliary control equipment includes the Silent Knight EVS-RCU remote command center (Local Operators Console), Silent Knight EVS Series Remote amplifier, available in both 50-watt and 125-watt models, and Silent Knight 5895 intelligent remote power supplies. Datasheets for the above-mentioned control equipment are provided in Appendix C.

MHAFB currently monitors existing fire alarm and FA/MNS with a Monaco D-21 Base-Wide Monitoring System with primary and secondary receivers located within the Command Post of Building 1501 (B1501) and at the MHAFB Fire Station (B206), respectively. MHAFB plans to remove the Monaco D-21 monitoring system from service in a phased approach, with all new FA/MNS systems being monitored by the new AES Intellinet 2.0 Base-Wide Monitoring System currently under procurement. Presumably, the new AES Intellinet 2.0 monitoring system will be operational prior to the B2606 fire alarm repair project going out to bid.

The contractor will be required to provide all necessary hardware, software, interfaces, and programming to establish remote monitoring of the FA/MNS system installed for this B2606 project. This includes AES 7707P-88-ULP-M IntelliNet 2.0 Fire Subscriber transmitter, omni-directional antenna, LMR-400 coaxial cable, surge suppressor and antenna mounting hardware.

The control equipment for the new FA/MNS system will be relocated from its present location due to the fact that the existing Mechanical Room is not environmentally controlled. The new control equipment will be installed within the large conditioned Mechanical Room located adjacent to the Fellowship Hall kitchen. Dedicated 120 VAC will be provided for the new FA/MNS system in accordance with UFC 3-520-01.

The new FA/MNS will be equipped with manual pull stations located at all building exits. Photoelectric beam smoke detectors will be installed within the Sanctuary. The Chaplaincy Administrative Office will feature addressable heat detectors within offices and storage rooms and addressable smoke detectors within the corridors. Unsprinklered portions of the Fellowship Hall will be equipped with addressable heat detectors. Spot smoke detectors will be installed over system control equipment, including the main FMCU, remote amplifiers and remote power supplies.

The new FA/MNS will monitor the valve tamper switches and water flow switches of the existing automatic sprinkler system currently serving only the Fellowship Hall Kitchen and Mechanical Room. Addressable monitor modules will be installed to monitor the backflow preventer tamper switches and water flow switch.

Electromagnetic door holders will be provided for the existing fire doors and will be configured to release doors upon the initiation of any fire alarm detection device.

The new FA/MNS will provide complete occupant notification via strobes and speakers/strobes within all common spaces, and with weatherproof high output speakers located immediately outside of principal building entrances.

Mass Notification Messages will be distributed throughout the buildings as a single zone. Mass Notification pre-recorded and live messages will be initiated by the Local Operators Consoles located within the Sanctuary Lobby. The LOC will be equipped with a thumb latch allowing any building occupant to initiate MNS messages.

Per MHAFB request the following voluntary additions exceeding UFC 3-600-01 and NFPA 72 requirements will be provided:

a. All exterior weatherproof speakers are upgraded to weatherproof speaker strobes.

b. Full area detection where automatic sprinkler protection is not provided consisting of both area smoke and area heat detection.

c. Photoelectric beam smoke detectors within the sanctuary,

The contract documents will demonstrate the design intent, with the final design and development of shop drawings delegated to the contractor. The contractor will complete the design, in accordance with UFGS Div 28 31 76 specifications. The contractor’s shop drawings and calculations will be prepared by an individual having a minimum Certification of National Institute for Certification in Engineering Technologies (NICET)

Level III in Fire Alarm Systems. The contractor will also secure the services of a Qualified Fire Protection Engineer (QFPE), as defined by UFC 3-600-01 §2-1.16.2. Prior to submittal to the Government, the contractor must submit drawings, calculations and material submittals to the QFPE for review, in accordance with UFC 3-600-01 §9-18.2. After thorough review and application of the QFPE's review stamp the design may be submitted to the Government.

Contractor qualifications include minimum 5-years' experience installing similar systems as well as being factory trained on the Silent Knight EVS series system. Additionally, the contractor is required to develop a detailed and comprehensive testing and acceptance plan. Pretesting includes megger testing, loop resistance testing as well as audibility and intelligibility testing to ensure that audio messages are audible and intelligible throughout the building.

2.7.6 Fire Suppression

Only the Kitchen and Mechanical Room of the Fellowship Hall are equipped with automatic sprinkler protection. Other than interfacing the FA/MNS with the existing valve tamper and water flow switches, this project will not impact on the existing automatic sprinkler system.

Building 2606 features multiple construction types ranging between Type III to Type V. UFC 3-600-01 §9-7.2.1.3 requires all single-story buildings with Type III, IV or V construction types and a gross building area exceeding 5,000 sq. ft. to be equipped with automatic sprinkler protection throughout. B2606 does not currently meet this requirement. This Pre-Existing / Non-Conforming condition will remain after this project is completed.

2.7.7 Fire Department Access

The project will have no impact on Fire Department Access.

2.8 Electrical

2.8.1 Electrical System

The electrical scope includes removing the existing dedicated 120 VAC power for the existing fire alarm system control equipment, as well as any high-voltage mechanical system interfaces to allow for the demolition of the existing fire alarm system.

Additionally, the electrical scope includes installing dedicated 120 VAC for the new FA/MNS control equipment to include main FMCU, remote amplifiers, remote NAC power supplies, LOC, etc. Dedicated 120 VAC power shall be provided in accordance with UFC 3-520-01. Where the systems loads require more than one dedicated 120 VAC circuit, a dedicated sub-panel having no less than six circuits will be installed adjacent to the FA/MNS control equipment. Breakers will be factory-painted red and breaker locks will be installed. Each piece of control equipment shall have its respective 120 VAC power circuit prominently displayed on the exterior of each enclosure, using engraved labels.

The electrical scope also includes the installation of Surge Protective Devices (SPDs) for 120 VAC circuits. SPDs will be installed within a separate enclosure adjacent to FA/MNS control equipment. The electrical grounding system will be extended as required to provide suitable low resistance ground for SPDs.

2.9 Cybersecurity

This section assumes a baseline level of understanding of the Risk Management Framework (RMF) and, more specifically, the Unified Facilities Criteria (UFC) for Cybersecurity of Facility-Related Control Systems (FRCS), UFC 4-010-06. The design, relative to the FRCS incorporated herein, is tailored to the requirements of the UFC. This criterion supports the RMF, which outlines the DoD's process for securing information systems (IS) and modern-day industrial control systems (ICS) and devices.

Although the UFC's application will not result in the issuance of an authorization-to-operate (ATO), implementation of the resulting secure configuration baseline onto FRCS, which operates at Platform Information Technology (PIT) Levels 1 or higher, will produce a system that is appropriately adapted for a favorable authorization decision. FRCS, which operates at PIT Level 0, will be identified as well. However, security will take the form of physical access control because, while they will not communicate over the network, devices may cause physical damage. An example of this would be a valve that is left in the "open" position. Where these devices and/or conditions are identified, such will be documented within the Control Systems Description Section below.

Coordination among client representatives, other AE disciplines, and the cybersecurity designer is necessary to ensure that essential details are adequately captured as early in the design process as possible. Even so, early submittals may lack substantive details. Late-stage deliverables, however, with the selection of the starting CCI list and confirmation of the C-I-A Impact Level(s), will yield a tailored set of risk mitigation measures and edited UFG 25 05 11 Specifications for incorporated FRCS, with the designer's guidance for implementing relevant security controls.

Control systems are categorized based on the impact of loss to a system's confidentiality, integrity, and availability (C-I-A) on the organization's mission, which may be classified as High, Moderate, and Low. These levels are determined jointly by the System's Owner (SO) and Authorizing Official (AO) for the respective control system. In the event C-I-A impact levels are not provided and a facility classification is identified, levels may be derived from a default list of FRCS. If neither the C-I-A impact levels nor facility classification is provided by the client, the designer may make assumptions based on UFC 4-010-06 guidance and the rationale for any hypotheses will be recorded within this document.

The project includes the design and execution of cybersecurity requirements for B2606's Fire & Life Safety (FLS) equipment. The existing Fire Alarm Panel at B2606 is antiquated and is to be replaced with a new Fire Alarm and Mass Notification System.

2.9.1 Applicable Codes and Standards

The design is based on, but not limited to, the publications and codes listed in Section 1.6 of this Design Analysis.

2.9.2 Organizational Design Criteria

Selection of Security Controls for this project will use the Cybersecurity Design Process as outlined by UFC 4-010-06, Section 3-1.2, Definition of “Organization,” unless otherwise indicated. The Security Controls will be tailored for the Contractor to implement according to this Organization’s Design Criteria.

Per the Statement of Work (SOW), submittals are to be in accordance with U.S. Air Force criteria. Therefore, the final accepting Organization for this design for all Facility Related Control Systems (FRCS) identified below shall be AIR FORCE.

For this reason, the additional organizational design requirements listed in Section 1.6 of this Design Analysis are considered to be applicable.

Network Architecture Design Basis

The Air Force has not formalized a Platform Enclave approach. And, although the Civil Engineering (CE) Community of Interest Network Enclave (COINE) is deployed at most sites, the accreditation does not extend to all CE control systems. Therefore, for this project, all control systems, their sub-systems, and associated devices are designed according to UFC 4-010-06 Appendix C, Figure C-1, 5-Level Control System Architecture, as indicated in the figure below.

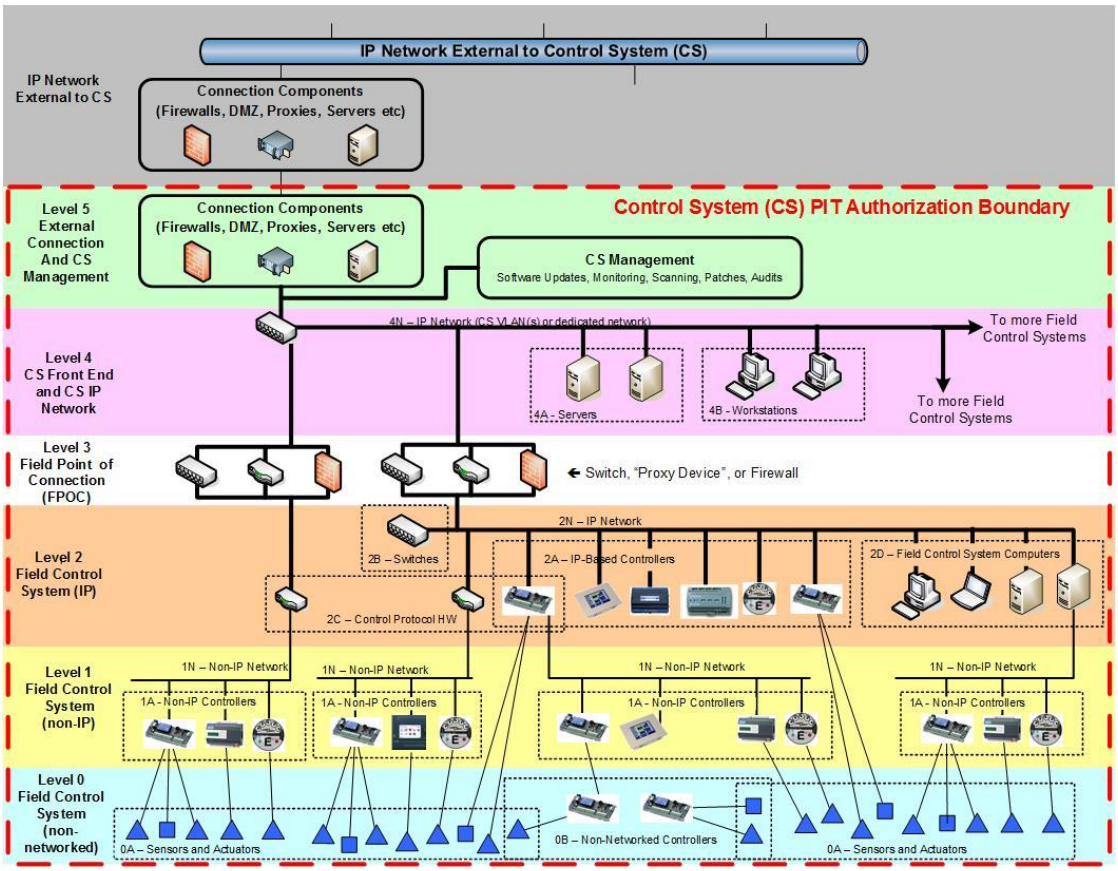

Figure 2-2 - 5-Level Control System Architecture

Cybersecurity Design Assumptions

Review of Existing Control Systems

The following FRCS have been identified as existing for this project:

DEVICE/ SYSTEM	NETWORK CONNECTIVITY	C-I-A IMPACT	SYSTEM OWNER	EXISTING ATO	AUTHORIZING OFFICIAL
Fire Alarm Reporting System (FARS)	Radio Frequency (RF)	L-M-M	TBD	TBD	TBD

Table 2-1 Existing Control Systems

Facility Classification

Following the Government response to RFI 004 on 17 July 2025, the confirmed facility classification for B2606 is Mission Essential.

Confidentiality-Integrity-Availability (C-I-A) Impact Ratings

Following the Government response to RFI 004 on 17 July 2025, the confirmed C-I-A Impact Rating for the FLS for B2606 is Low-Moderate-Moderate (L-M-M).

Control System Description

Fire & Life Safety (FLS) Systems

The scope for the FLS systems includes the replacement of the existing Fire Alarm System with an addressable Fire Alarm and Mass Notification System. The Fire Alarm and Mass Notification System will transmit trouble, supervisory, and alarm signals to the existing Fire Alarm Reporting Systems (FARS) at the MHAFB Fire Department via an AES 7707P-88-ULP-M IntelliNet 2.0 Fire Subscriber transmitter. The AES Intellinet 2.0 base-wide monitoring system is currently under procurement and will constitute the FARS.

CONTROL SYSTEM:	CYBERSECURITY FOR FIRE AND LIFE SAFETY (FLS) SYSTEMS					
C-I-A IMPACT LEVEL:	CONFIDENTIALITY	INTEGRITY		AVAILABILITY	MODERATE	
	LOW	MODERATE		MODERATE		
SOURCE:	Determined by UFC 4-010-06 Chapter 3	YES	Option 3: Office of the Assistant Secretary of Defense for Sustainment (Energy, Installations and Environment) FRCS Master List			
CYBERSECURITY SPECIFICATION REFERENCE	25 05 11	25 05 11 - CYBERSECURITY FOR FIRE AND LIFE SAFETY (FLS) SYSTEMS - MODERATE IMPACT				
CONTROL SYSTEM BI-DIRECTIONAL SPECIFICATION CROSS REFERENCE	DISCIPLINE SPECIFIED CONTROL SYSTEM/ SUBSYSTEM/ DEVICE NAME	PIT LEVEL	DISCIPLINE SPECIFIED NETWORK & COMMUNICATION TYPE	DISCIPLINE PROVIDED RISER DIAGRAM AND/OR CONNECTION DRAWING REFERENCE	SYSTEM OWNER	AUTHORIZING OFFICIAL
28 31 76 INTERIOR FIRE ALARM AND MASS NOTIFICATION SYSTEM, ADDRESSABLE	FIRE ALARM AND MASS NOTIFICATION CONTROL UNIT (FMCU)	Level 1	Closed Restricted CONNECTION TO THE BASE-WIDE MONITORING STATION AT MHAFB. SLC CONTROL LOOPS TO ADDRESSABLE END DEVICES.	FA602	TBD at next design issuance	TBD at next design issuance

Table 2-2 FLS Control System Reference Table

2.9.3 Control Correlation Identifiers (CCIs)

In response to RFI 004, the Government, on 17 July 2025, informed the AE that *"…at Bldg 2606, any cybersecurity designs are not applicable*." However, upon analysis of DAFGM 2024-32-01 and UFGS 25 05 11, which are applicable directives that MHAFB follows, it was determined that the Fire Alarm/Mass Notification System, specifically the FMCU, requires coverage under UFC 4-010-06. Therefore, the Cybersecurity Design Process, outlined in UFC 4-010-06 Section 3-1.3, is to be followed to mitigate risk to the system and the enclave IAW DoD RMF Process. As such, UFGS 25 05 11 and associated CCIs have been tailored for the FLS and included within the design due to the nature of the Fire Alarm and Mass Notification System's PIT Level 1 communications.

The requirements of the final CCI tailoring process are in accordance with UFC 4-010-06 Section 3-1.3. This part of the Cybersecurity Design process is coordinated with the other Discipline Leads throughout the Design of the Project.

2.9.4 Concept Design

The Mountain Home FRCS Cybersecurity Installation Design Guideline is based on the 2017 version of UFC 4-010-06, which contains fewer requirements than the updated version, released on 10 October 2023. To align with current standards, the 2023 version of UFC 4-010-06 was used as the design basis for the FLS Security Control Set, CCIs, and UFGS Division 25 tailoring to ensure that FRCS Cybersecurity complies with the latest requirements.

The following table lists the UFGS Specification required for the control system identified and its associated CCI List, which can be found in the appendices listed.

Appendices	Control Correlation Identifiers for FIRE AND LIFE SAFETY (FLS) SYSTEMS - MODERATE IMPACT	Section 25 05 11	CYBERSECURITY FOR FIRE AND LIFE SAFETY (FLS) SYSTEMS - MODERATE IMPACT

Table 2-3 CCI Lists per Control Systems Identified

Conceptual Network Diagram

The following Network Conceptual Diagram illustrates the general connections and system boundaries, based on the 5-level Control System Architecture, of the equipment and devices being installed. These are not comprehensive drawings.

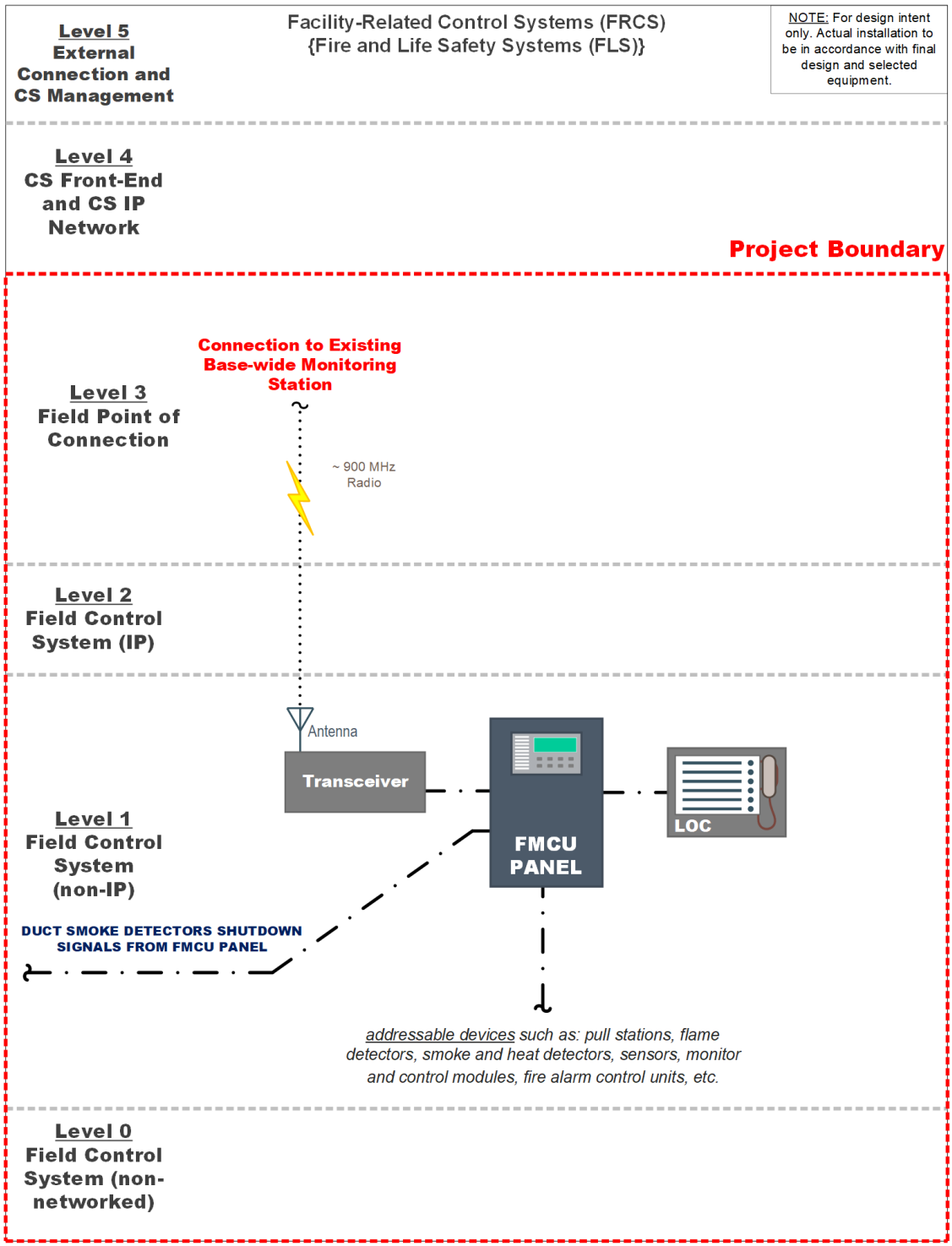

Figure 2-3 - FLS Conceptual Network Diagram

Roles and Responsibilities Matrix

Based upon the Control System identified as indicated in Control System Description Section, the table below summarizes the contractor and government boundaries for provision and installation of equipment and control system configuration. Delineation of Roles and Responsibilities are as follows:

Gov = **Gov**ernment – The Government is responsible to execute

Con = **Con**tractor – The Contractor is responsible to execute

N/A = **N**ot **A**pplicable – The execution of these responsibilities is not applicable

Cor-N = **Co**o**r**dinate-**N**ew - If a new system is being added locally and will be connected to an existing base-wide Monitoring and Control (M&C) system, then the government is responsible for reviewing all existing M&C software that will be modified to provide available or unused addressing, naming, and configuration information to the contractor to facilitate the integration of new equipment, within the scope of the project. This is to avoid conflicts between the new equipment being added with the existing system equipment. The Contractor is responsible for providing the device and system information to the government to allow the government to add the new equipment and configuration information of the new equipment in the project to the existing M&C system software. The contractor is responsible for any deconfliction and resolution of integrating the new equipment that might be discovered during the integration process.

Control System	UFGS Section	Level 5 (CS & Mgmt)		Level 4 (Front-end)		Level 3 (FPOC)		Level 2-0 (Building)	
		Equipment:	Configuration:	Equipment:	Configuration:	Equipment:	Configuration:	Equipment:	Configuration:
FLS	25 05 11	N/A	N/A	Gov	Cor-N	Con	Cor-N	Con	Con

Table 2-4 - Roles and Responsibilities

2.9.5 Pre-Final Design

As of October 2025, the materials for 95% Design Issuance, relevant to the Cybersecurity Design for all identified FRCS, have been provided as stated.

3 Economic Summary

The cost estimate will be provided under a separate cover.

4 Hazardous Material Survey

IHR conducted a hazardous materials inspection focused on asbestos containing materials (ACM) and lead-based paint (LBP). ACM is defined as containing greater than one percent asbestos. LBP is defined as quantities greater than 1.0 mg/cm^2. The inspection was conducted on 20 September 2018. The complete asbestos and lead inspection report is in Appendix D.

ACM inspection was performed on cove base and mastics, drop ceiling tiles, drywall and wallpaper, duct mastic on HVAC system, and carpet mastics in rooms and hallways. Black mastic under vinyl floor tile in the fellowship hall contained greater than one percent asbestos. A 10-day notification must be filed with the EPA prior to any renovation requiring the removal of asbestos above the threshold of 160 square feet or 260 linear feet. Al ACM should be abated by a qualified contractor utilizing AHERA trained workers.

No LBP was found on surfaces in the chapel kitchen and fellowship hall.

5 QFPE Final Design Review and Certification

The QFPE reviewed the complete 100 percent design drawings and specifications and documented in writing that the design complies with UFC 3-600-01 §1-7.3. The design compliance document is provided in Appendix E.

A

Statement of Work and HDR Technical Assumptions

21 March 2025

Technical Proposal for: Replace Fire Alarm System, Chapel, Bldg. 2606

MHAFB Project #: QYZH210041

Scope

HDR agrees to perform work in accordance with the statement of work dated 10 March 2025 along with the clarifications and assumptions included herein. A scope clarification teleconference was held on 6 March 2025, and was attended by Mr. Barrington of Mountain Home AFB, and Mr. Derr and Mr. Sachsenmaier of HDR. The key discussion items and clarifications are included in **Enclosure 1**.

General Assumptions

1. HDR assumes the notice to proceed will occur at the kick-off meeting, and the kick-off meeting will occur approximately 14 days after award.
2. The scope and fee include one site visit for the kick-off meeting/site investigation and one site visit following the 65% design review meeting.
3. The Project Manager will attend all review meetings in person. Two fire protection engineers (FPEs) will travel for the 65% design review meeting. All others will call in for the review meetings.
4. Specification assumptions:
    a. Division 00 front end (procurement and contracting) specifications will be provided by MHAFB to the contractor.
    b. HDR will utilize UFGS specifications and SpecsIntact software.
    c. The specifications will be a table of contents at 35% submittal, partially edited at the 65% submittal, and fully edited with clean error reports for the 95% submittal.
5. Standard comment tracking and response formats (MS Excel) will be used for design review coordination. MHAFB will provide clear and concise design review comments via a single summary that is free of contradictory information.
6. Accuracy of cost estimates:
    a. 35% Design, class 2 estimate: -5% to -15%; +5% to +20%
    b. 65% Design, class 3 estimate: -10% to -20%; +10% to +30%
    c. 95% and 100% Design, class 1 estimate: -3% to -10%; +3% to +15%
7. Invoicing will occur monthly based upon earned value.
8. Expense backup will not be provided with invoices.
9. Geotechnical testing, topographic survey, and hazardous materials survey are not required or included in the scope and fee.
10. Value Engineering is not included in the scope and fee.
11. Contract Procurement Services are not included in the scope and fee.
12. Functional testing of the existing Fire Alarm Systems are not included in this proposal. If identified during the site investigation that active testing is required, the testing will need to be performed by others (local fire alarm contractor) under the direction of HDR' s Qualified Fire Protection Engineer (QFPE) and will require additional effort and a modification to the scope/fee.
13. Fire alarm/mass notification systems will be delegated designs using UFGS specs, with detailed design layouts and final battery calculations provided by the awarded contractor as part of the deferred submittal process during construction. Drawings will provide system zoning and classification, performance notes, primary equipment locations, and preliminary device layouts for coordination and bidding clarity.

Architecture

14. The architecture scope of the project is limited to supporting the fire alarm/mass notification system upgrade. The existing building will not require changes to the envelope; no architectural calculations are anticipated nor included in the scope and fee.

Structural

15. Not Required, nor included in the scope and fee.

Landscape Architecture

16. Not Required, nor included in the scope and fee.

Mechanical

17. The mechanical scope of the project is limited to supporting the fire alarm/mass notification system upgrade. The existing building will not require changes to the envelope. Depending on the location of the new fire alarm/mass notification panel(s), conditioning may be required. As a result, minimal mechanical calculations may be necessary and are included in the scope and fee.
18. No life cycle cost analysis or energy modeling.

Electrical

19. The electrical scope of the project is limited to supporting the fire alarm/mass notification system upgrade. Minimal electrical calculations may be necessary and are included in the scope and fee.
20. No Arc Flash study or calculations are required, nor are they included in the scope and fee.
21. No security system is required, nor is it included in the scope and fee.
22. No lighting design is required, nor is it included in the scope and fee.

Civil

23. Not Required, nor included in the scope and fee.

Cybersecurity

24. The Cybersecurity scope of the project is limited to supporting the fire alarm/mass notification system upgrade. Design is for the systems and connectivity:
    a. Fire Alarm and Mass Notification. Rating: L-M-M
25. One CCI list will be provided for each system.
26. Specifications:
    a. 25 05 11.01 – Cybersecurity for Fire Alarm and Mass Notification

Sustainability

27. The sustainability scope is limited to a LEED Score Sheet. Since the project scope involves a fire alarm/mass notification system upgrade, it will be limited to a Meritable Goal.
28. No LEED or third-party certification of any kind.

Proposed Project Schedule

The proposed project schedule is below and is based on an assumed award date of 9 June 2025.

Task	Responsible Party	Requirement	Days between Delivery	Running Total	Delivery Date
	GOV'T	ASSUMED Award			Mon, 9-Jun-25
1	ALL	Pre-Design Meeting with NTP	14	14	Mon, 23-Jun-25
1	HDR	Project Schedule	2	16	**Wed, 9-Jul-25**
1	HDR	Security vetting personnel for site visit	7	23	Wed, 16-Jul-25
1	HDR	Site Visit	1	24	Thu, 17-Jul-25
2	HDR	35% Concept Design Package	28	52	**Thu, 14-Aug-25**
2	*GOV'T*	*USG 35% Design Review*	*28*	*80*	*Thu, 11-Sep-25*
	ALL	35% Design Review Meeting	4	84	Mon, 15-Sep-25
3	HDR	65% Design Package	39	123	**Fri, 24-Oct-25**
3	*GOV'T*	*USG 65% Design Review*	*28*	*151*	*Fri, 21-Nov-25*
	ALL	65% Design Review Meeting	4	155	Tue, 25-Nov-25
4	HDR	95% Design Package	28	183	**Tue, 23-Dec-25**
4	*GOV'T*	*USG 95% Design Review*	*28*	*211*	*Tue, 20-Jan-26*
	ALL	95% Design Review Meeting	6	217	Mon, 26-Jan-26
5	HDR	100% Design Package	14	231	**Mon, 9-Feb-26**
5	*GOV'T*	*USG 100% Design Review*	*28*	*259*	*Mon, 9-Mar-26*

Enclosure 1

Key Discussion Items and Clarifications

Clarification Questions:

Mountain Home AFB, ID Projects:

- Project Number: QYZH 250009: Replace Fire Alarm System, Bldg 2318
- Project Number: QYZH 250010: Replace Fire Alarm System, Bldg 2416
- Project Number: QYZH 210041: Replace Fire Alarm System, Chapel Bldg 2606

Questions:

1. The work included in the SOW falls under a Major Project (UFC 3-600-01, Change 6, §2-1.20), which requires the following Fire Protection Engineering Services (UFC 3-600-01, Change 6, §1-7.2):

   a. §1-7.2.2 Fire Protection Design Analysis
   b. §1-7.2.3 Life Safety Plans
   c. §1-7.2.4.1 Code Compliance Plan
   d. §1-7.2.4.2 Code Compliance Site Plan
   e. §1-7.2.5 Preliminary Hydraulic Analysis

   However, since this is a systems project (e.g., Fire Alarm/Mass Notification System Replacement), we have found that including these services has caused confusion and inflated bids on similar projects in the past. Therefore, we propose the following changes:

   a. §1-7.2.2 Fire Protection Design Analysis – Provide only what's relevant to the Fire Alarm/Mass Notification Systems upgrade.
   b. §1-7.2.3 Life Safety Plans – <u>Not required</u>; no changes to egress components in the SOW.
   c. §1-7.2.4.1 Code Compliance Plan – Provide only what's relevant to the Fire Alarm/Mass Notification Systems upgrade (E.g. Applicable Code and Standards and UFC requirements).
   d. §1-7.2.4.2 Code Compliance Site Plan – <u>Not required</u>; the work is internal to the building.
   e. §1-7.2.5 Preliminary Hydraulic Analysis – <u>Not required</u>; no fire suppression upgrades in the SOW.

   Would MHAFB be agreeable to this revised approach? This is an acceptable approach. B2606 is half sprinklered, in the kitchen. Dorms are not sprinklered.

2. *SOW §6.1.2.4 requires four design deliverables (35%, 65%, 95%, and 100%). Given that this is a systems project (e.g., Fire Alarm/Mass Notification System Replacement), and based on similar projects we have completed in the past, we generally have only three design deliverables (35%, 95%, and 100%). We would like to discuss with MHAFB whether*

they would be amenable to reducing the number of deliverables, which would also reduce the overall project duration.

   a. Submittals going to AFCEC for review. 35% would be demolition plans, spec TOC with DA. 65% new work floor plans, partially edited specs, and DA. 95% will show riser diagrams and IO matrices, error free SpecsIntact reports and DA.

3. SOW §6.1.2.2, states *"Perform a hazardous material survey for asbestos and lead-based paints".* Considering the nature of the work and the age of the buildings (e.g., B2318 and B2416 were constructed in 1998), along with the results of a previous hazardous material survey for B2606 (asbestos was found in black tar with vinyl floor tile), we would like to discuss with MHAFB whether this service is necessary.
   a. Language in specs to alert contracting if anything is encountered. Include chapel HAZMAT report in DA. Perform sampling at both dorms. No additional sampling required at chapel.

4. SOW §6.1.2.2, is there a problem with the existing fire alarm panel space. Please confirm location of existing fire alarm panel.
   a. There is a split system at the existing panel location in the dorm. Investigate recently upgraded dorms.

5. SOW §6.1.2.9 states, *"The A&E shall identify and correct any life safety deficiencies in the design as indicated by the Fire Protection Engineer."* Is it correct to assume that life safety deficiencies refer to those related to the Fire Alarm/Mass Notification Systems only?
   a. Check automatic door requirements. No other deficiency corrections beyond fire alarm/mass notification. Desire to increase conduit size. Abandon/remove existing conduit. Provide larger conduit.

6. SOW §6.1.2.3 states, *"services from a licensed FPE (state of Idaho)"* Federal projects typically don't require licensure in the state where the project is located. Is it acceptable to be licensed in a different state?
   a. Licensed engineer is acceptable.

7. SOW §6.1.2.7 states, *"the old Fire Alarm system operational until the new Fire Alarm system installed and commissioned by USG prior to demolishing the old system."* Discuss alternative methods of providing fire alarm capability during construction to allow use of existing system components in new system. Reduce cost, reduce construction schedule, reduce disturbing existing building finishes.
   a. Delete this requirement. Design will show complete demolition followed by new system installation. Dual system required at chapel. Kitchen and fellowship hall first. Move services to fellowship hall.

8. SOW §6.1.4 requires *“an analysis of alternatives, energy conservation analysis/life cycle cost analysis”.* Since the SOW requires the use of Honeywell equipment I don’t think there are alternatives to analyze.
    a. Delete this requirement.

9. SOW §6.1.6.2 states, *“each sheet shall have a professional certification seal.”* HDR will only seal the 100% drawings.
    a. Concur.

10. SOW §7.7.2 states, *“Provide various Project Schedules throughout the lifespan of the project using AF Form 3064 as a template.”* I believe this form is typically used for construction projects. We have provided a simple table showing the schedule for design in the past that is included in meeting agendas, meeting minutes, and DA. Is this still acceptable?
    a. AF Form 3064 not required.

11. SOW §7.7.5 requires use of AF Form 3000 accompany design submittals. This is a new requirement. Does MHAFB need an AF Form 3000?
    a. AF Form 3000 not required.

12. SOW §7.7.5 requires the construction contractor attend a pre-design kick-off meeting. HDR assumes MHAFB will coordinate with construction contractor.
    a. Delete this requirement

13. SOW §7.8.2 indicates, 'NFPA 72 Section 7.4.10 “System Calculations” are required during design.' Typically, on DoD projects, the Fire Alarm/Mass Notification System design is a delegated system design using UFGS performance specifications (Section 28 31 76 Interior Fire Alarm and Mass Notification System, Addressable) along with criteria drawings (outlined in Part 1 Specifier Notes of Section 28 31 76). The final working plans and calculations are to be provided by the awarded contractor as part of the deferred submittal process and reviewed during construction. The criteria drawings will include system zoning and classification, performance notes, primary equipment locations, utility connections, riser diagrams, operating matrix, and preliminary device layouts for coordination and bidding clarity. We would like clarification from MHAFB as to whether NFPA 72 calculations are required during design.
    a. Include note on drawing for contractor to perform calculations.

14. SOW §7.1.1.1 & 2 lists a pre-design meeting and NTP. HDR suggests these be combined.
    a. Happens at same time.

15. SOW §7.14 requires the design to incorporate all materials that are “Made in USA.” HDR will research the availability of made in USA materials. HDR requests CONS include the appropriate FAR clause in the construction contract to enforce this requirement.
    a. We can add to drawings.

16. SOW §9.1.6 HDR requests MHAFB provide as-built drawings of each facility.
    a. Els will investigate this. Include LIDAR scan if there are no drawings.

17. Is the chapel considered historic or historic eligible?
    a. Els will investigate this.

18. SOW §7.5 *Coordinate planning and design work with all A&E disciplines such as architectural, structural, civil, site utility & site work, telecommunications, data, HVAC, plumbing, fire protection, alarm systems, and UFC-1 200-02 “High Performance and Sustainable Building Requirements, as applicable.* Since this is a systems project (e.g., Fire Alarm/Mass Notification System Replacement), goals will be limited.
    a. Limited LEED checklist is acceptable.

19. SOW §6.1.4.1 Constructability review checklist, HDR to provide this checklist.

20. SOW §9.5.10 Quality Control Review, what is the Government’s expectation for this?
    a. Government asked to remove this requirement.

STATEMENT OF WORK
For A&E Design Services

FOR

MOUNTAIN HOME AFB

REPLACE FIRE ALARM SYSTEM, CHAPEL, BLDG 2606 PROJECT

Amendment #1

~~**25 January 2025**~~
10 March 2025

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CHANGE LOG

Revision	Date	Author	Page #'s Affected	Description of Change
Original	25Jan2025	EEB	All	Initial SOW
1	10Mar2025	EEB	1, 3, 4, 7, 9, 13, 20	Clarification with A&E to exclude non-pertinent tasks

STATEMENT OF WORK (SOW)
For A&E Design Services

FOR
Mountain Home AFB
Replace Fire Alarm System, Chapel, Bldg 2606
~~25 Jan 2025~~
10 Mar 2025

1.0 INTRODUCTION

The United States USG (USG) has a requirement for A&E (Architectural & Engineering) Title 1 services set forth under this Delivery Order at Mountain Home Air Force Base (MHAFB). The A&E Title 1 services shall develop a complete design package to replace the antiquated fire alarm system at the Chapel, Building 2606, with a new addressable fire alarm system, as required by the Fire Prevention Engineer.

The design ~~build~~ services shall develop a complete design with supporting design drawings, specifications, design analysis and calculations, cost estimates, and a proposed construction project schedule in accordance with design standards and guidance as identified in Section 10.0.

The complete design package shall be designed by a licensed Architect-Engineer (A&E) firm. Design and review shall proceed by providing 35%, 65%, 95%, and 100% design submittals. All work shall be in accordance with current Department of Defense / Unified Facility Criteria (UFC) design standards, utilizing the Unified Facilities guide Specifications (UFGS), and other design standards and guidance as identified in Section 13.0. The A&E shall provide quality control to ensure the accuracy, quality, and timeliness, and completeness of the work during execution of the design.

2.0 BACKGROUND INFORMATION

Building 2606 is a place of assembly for Mountain AFB religious services with initial construction dating back to 1950's. The building is roughly square in shape, measuring approximately 95-feet x 135-feet, with an internal space of roughly 12,684 ft^2. The building is single floor with the mechanical room being two levels and the building is physically located in the nearly the center of MHAFB, at the corner of Desert St and Gunfighter Ave. *(See ATTACHMENT # 1 through ATTACHMENT # 4)*

The existing Fire Alarm Panel in Bldg 2606 is antiquated and replacement parts are no longer available. Devices are normally scheduled to be replaced every 10-years; however, with the shortage of replacement devices, they have only replaced as needed. The wiring inside the conduits are deteriorating, which have caused false alarms to trigger, causing MHAFB Fire Department to respond to false emergencies. Since the Chapel is a "place of assembly", it is essential that it must meet all Fire Code requirements.

A complete design package shall be designed by a licensed Architect-Engineer (A&E) firm. Design and review shall proceed by providing 35%, 65%, 95%, and 100% design submittals. The A&E shall provide adequate professional supervision with licensed Fire Protection Engineer with working knowledge of Honeywell fire alarm systems, and quality control to ensure the accuracy, quality, and timeliness, and completeness of the work during execution of the design.

3.0 DEFINITIONS

All work under this SOW shall comply with all definitions and requirements in this paragraph.

3.1 As-Built Drawings: Record drawings for completed construction and repair projects.

3.2 Design Review Comments: Comments provided by the USG after receipt and review of the A&E Contractor's design submittal. The percentage of design increases by 5% after USG acceptance of the A&E Contractor's responses to the design review comments. For example, the project is at 30% design after the A&E Contractor submits the Project Definition Design to the USG. The USG will then provide written review comments back to the Contactor and in turn the A&E Contractor will provide written responses to the USGs review comments. After the USG accepts the A&E Contractor's review comment responses the project will be at 35% design.

3.3 Design Review Meeting: After the A&E Contractor receives the USG design review comments, a meeting led by the A&E Contractor is held between the A&E Contractor's design team and the USG to discuss the USG review comments prior to the A&E Contractor's submission of responses to the USG review comments.

3.4 Facility: Any real property improvement to include, but not be limited to buildings, pavement, fencing, utilities, landscaping and drainage ditches.

3.5 Final Design (100% Design): The final design is the result of the A&E Contractor's design efforts from 95% to 100%. Final Design begins after USG approval of the A&E Contractor's responses to the USG's review comments on the Pre-Final Design (95% Design) which sets project at 95% design complete. The final design includes any changes necessary to comply with USG comments to the pre-final design, complete plans and specifications, final design analysis, and color boards and finishes. Upon USG approval of the final design and USG approval of the A&E Contractor's proposed construction start date, the A&E Contractor can commence construction activities.

3.6 Intermediate Design (65% Design): The intermediate design is the result of the A&E Contractor's design efforts from 35% to 65%. Intermediate Design begins after USG approval of the A&E Contractor's responses to the USG's review comments on the Preliminary Design (35% Design) which sets project at 35% design complete. The intermediate design includes any changes necessary to comply with USG comments to the preliminary design, complete site and landscaping plans; complete floor plans, roof plans, structural plans, elevations, building sections, wall sections, mechanical plans, fire protection plans, plumbing plans, communication plans, and electrical plans with details, notes, material, and equipment schedules; specifications in rough draft; and a design analysis that includes design narrative and analysis. The design analysis shall include all design assumptions and calculations for all disciplines, code analysis by all disciplines, manufacturers' material and equipment cut sheets for major equipment, fixtures; finishes; completed environmental permit request forms; sustainable development requirements; listing of USG furnished materials, *equipment and property*; construction schedule to include any work phases to accommodate USG operations; copies of previous design review comments and responses; previous meeting minutes; and documentation of any other communication between the USG and the A&E Contractor that influenced the intermediate design.

3.7 Mandatory Criteria and Standards: Requirements established by executive orders, public laws, Department of Defense policy and guidance, Air Force policy and guidance, MHAFB policy and guidance and other directives.

3.8 Period of Performance: The duration the A&E Contractor is allowed to complete design and construction requirements of the contract.

3.9 Pre-Final Design (95% Design): The pre-final design is the result of the A&E Contractor's design efforts from 65% to 95%. Pre-Final Design begins after USG approval of the A&E Contractor's responses to the USG's review comments on the Intermediate Design (65% Design) which sets project at 65% design complete. The pre-final design includes any changes necessary to comply with USG comments to the intermediate design, complete plans and specifications, final design analysis, and color boards and finishes. The design analysis includes design narrative and analysis, all design assumptions and calculations for all disciplines, code analysis by all disciplines, manufacturers' material and equipment cut sheets for major equipment, fixtures; and finishes; completed environmental permit request forms; sustainable development requirements; specifications in rough draft; listing of USG furnished materials; final construction scheduled to include any work phases to accommodate USG operations; copies of previous design review comments and responses; previous meeting minutes; and documentation of any other communication between the USG and the A&E Contractor that influenced the intermediate design.

3.10 Preliminary Design (35% Design): The preliminary design includes any changes necessary to comply with USG comments to the Project Definition Design Report; further development of site plans, floor plans, elevations, building sections, and wall sections; single line schematic drawings for mechanical, electrical, communications, etc.; color boards for interior and exterior finishes and materials; listing of proposed specification sections for the project; and a design analysis that includes design narrative and analysis including code analysis by all disciplines; environmental permitting; sustainable development requirements, listing of USG furnished materials; copies of previous design review comments and responses; previous meeting minutes; and documentation of any other communication between the USG and the A&E Contractor that influenced the preliminary design.

3.11 Professional Certification: Professional Certification consists of affixing a seal or statement to a drawing or design document to indicate that the work to which it is affixed has been performed by a person licensed as a professional, in that area of expertise, in the state of Idaho.

3.12 Traffic Control Plan: A traffic control plan provides signage, speeds and routes to route vehicle and pedestrian traffic safely around construction activities. A traffic control plan is required anytime vehicle and/or pedestrian traffic is affected by the A&E Contractor's construction activities.

4.0 PERIOD OF PERFORMANCE

4.1 The period of performance for the following Statement of Work (SOW) shall be 264 calendar days from the Notice to Proceed (NTP).

4.2 In the event that the Contractor foresees a delay in Project completion, the Contractor shall notify the USG Contracting Officer (KO) and USG Project Manager (PM), in writing, of the reasons for the delay prior to the completion date of the project.

5.0 GENERAL PROVISIONS

5.1 Any work done without being directed to do so, in writing, by the USG will be done at the Contractor's risk.

5.2 Any work performed beyond the original scope of work shall be accomplished only at the direction of the USG Contracting Officer (KO).

6.0 SCOPE OF EFFORT

6.1 This SOW sets forth the performance requirements for a A&E Design services (full design) under this Delivery Order.

6.1.1 All work shall be in conformance with the requirements of the A&E Contract including furnishing all materials, labor, plan, tools, equipment, transportation, supervision, management, and other services (including engineering/technical design support), items and incidentals necessary thereto.

6.1.2 Design services are defined as those services provided by a licensed A&E.

6.1.2.1 The design shall consider that the continuous operation of everyday operations at MHAFB. It is critical that the Chapel, Bldg 2606, and daily activities are allowed to continue uninterrupted during the lifecycle of this Project.

6.1.2.2 Perform a hazardous material survey for asbestos and lead-based paints for Bldg 2606, as per the SOW.

6.1.2.3 Obtain services from a licensed FPE ~~(state of Idaho)~~ with familiarity of Honeywell Silent Knight Fire Alarm Panels.

6.1.2.4 The complete design package shall provide 35%, 65%, 95%, and 100% design deliverables.

6.1.2.4.1 Design Drawings

6.1.2.4.2 Specifications using SpecsIntact

6.1.2.4.3 Design Analysis

6.1.2.4.4 Calculations

~~6.1.2.4.4.1 HVAC Heat Balance~~

6.1.2.4.4.2 Voltage Drop

6.1.2.4.4.3 Others as required

6.1.2.5 The A&E shall ensure quality control to ensure the accuracy, quality, and timeliness, and completeness of the work during execution of the design.

6.1.2.6 The A&E shall verify existing conditions to determine mitigation (test, verification, replacement, etc.)

6.1.2.7 The A&E shall design the new Fire Alarm system as an independent replacement system that allows 100% fire detection capabilities, i.e., the ability for the Construction Contractor to install a new Fire Alarm system with the old Fire Alarm system operational until the new Fire Alarm system installed and commissioned by USG prior to demolishing the old system.

6.1.2.8 The A&E shall specify Honeywell Silent Knight systems; whereby, the USG will sole-source that requirement to the Construction Contractor.

~~6.1.2.9 The A&E shall identify and correct any life safety deficiencies into the design as indicated by the Fire Protection Engineer.~~

6.1.2.10 The A&E shall provide Cost Estimates in MII format.

6.1.2.10.1 35% Deliverables – Class 5

6.1.2.10.2 65% Deliverables – Class 3

6.1.2.10.3 95% Deliverables – Class 1

6.1.2.11 The A&E shall design a 100% replacement that upgrades the Fire Alarm Panels and associated devices in Building 2606 at Mountain Home AFB to include.

- 6.1.2.11.1 Sole-Sourced Addressable Honeywell Silent Knight Fire Alarm Panel (FAP),
- 6.1.2.11.2 Sole-Sourced Honeywell Silent Knight Mass Notification System Panel (MNS),
- 6.1.2.11.3 Speakers (if not included with Strobe Lights)
- 6.1.2.11.4 Sole-Sourced Honeywell Silent Knight Local Operator Console (LOC),
- 6.1.2.11.5 Communications Transceiver with antenna (compatible with FAP Head End),
- 6.1.2.11.6 Smoke Detectors with and without audible alarm,
- 6.1.2.11.7 Heat Detectors,
- 6.1.2.11.8 Pull Stations,
- 6.1.2.11.9 Duct Detectors (if applicable),
- 6.1.2.11.10 Carbon-Monoxide Detectors (if applicable),
- 6.1.2.11.11 Strobe Lights with and without audible (clear lens only),
- 6.1.2.11.12 Water flow switches,
- 6.1.2.11.13 Tamper switches
- 6.1.2.11.14 minimum of ¾-inch red conduit/raceway,
- 6.1.2.11.15 Appropriate red junction boxes; and
- 6.1.2.11.16 Other fire-related materials as specified by the Fire Protection Engineer (FPE).

6.1.2.12 Install nine (9) transmission outputs that allow for:

- 6.1.2.12.1 Eight (8) separate MNS pre-recorded messages (as per SOW Section 8.4.5),
- 6.1.2.12.2 One (1) manual microphone activation of the MNS.

6.1.2.13 Install twenty (20) outputs from:

- 6.1.2.13.1 General Supervisory Signal,
- 6.1.2.13.2 General Trouble Signal,
- 6.1.2.13.3 Kitchen Dining Room Heat,
- 6.1.2.13.4 South Hallway Pull Station,
- 6.1.2.13.5 South Hallway Heat,
- 6.1.2.13.6 North Hallway Pull Station,
- 6.1.2.13.7 North Hallway Heat,
- 6.1.2.13.8 South Offices Heat,
- 6.1.2.13.9 North Offices Heat,
- 6.1.2.13.10 Chapel Pull Station,
- 6.1.2.13.11 Chapel Heat,
- 6.1.2.13.12 Main Entrance Pull Station,
- 6.1.2.13.13 Main Entrance Heat,
- 6.1.2.13.14 Rear Entrance Pull Station,
- 6.1.2.13.15 Rear Entrance Heat,
- 6.1.2.13.16 Mechanical Room Pull Station,
- 6.1.2.13.17 Mechanical Room Heat,
- 6.1.2.13.18 CO,
- 6.1.2.13.19 Waterflow Tamper Switch, and
- 6.1.2.13.20 Any other outputs deemed necessary by Fire Prevention Engineer (FPE).

6.1.2.14 The Honeywell Silent Knight Addressable FAP/MNS shall communicate with the Transceiver and report to the head-end receiving station at the Fire Station, Bldg 206.

6.1.2.15 The installation of the integrated FAP/MNS panel shall incorporate strobes with a single lens strobe for both FA and MNS as per AFCEC guidance and UFC 4-021-01.

6.1.2.16 New ¾-inch conduits (or appropriate size as specified by FPE) shall be used for carrying new signal / power cables.

6.1.2.16.1 Compression fitting shall be used.

6.1.2.16.2 Flex conduit with code-approved connectors may be used in lieu of EMT.

6.1.2.16.3 Wallboards shall be cut, removed, and replaced as necessary to route new conduits.

6.1.2.17 Design all fire alarm conduits, boxes, and covers, and fittings (couplings / box connectors) shall be gloss red in color or painted red gloss to match FAP.

6.1.2.18 Old conduits shall be abandoned in place.

6.1.2.18.1 All wires/cables shall be removed from conduits.

6.1.2.18.2 Decorative junction box covers matching walls, ceilings, etc., shall be used to close former device junction boxes.

6.1.2.18.3 Close up open conduits as necessary with closed junction boxes or code-approved closure.

6.1.2.18.3.1 Example will be where old conduits entered old Fire Alarm Panel(s).

6.1.2.19 All conduits carrying signal / power cables shall be concealed and under no circumstances shall the conduit be surface-mounted.

6.1.2.19.1 Minimum size of conduits shall be ¾-inch, and painted gloss red to signify fire-related.

6.1.2.19.2 All boxes, fittings,-etc. for routing of signal / power cables shall be painted gloss red to signify fire related.

6.1.2.19.3 Exceptions are:

6.1.2.19.3.1 Basement

6.1.2.19.3.2 Utility Closets

6.1.2.19.3.3 Block CMU walls

6.1.2.20 The A&E shall ensure proper surge suppression is utilized in the new fire alarm system.

6.1.2.21 The A&E shall provide a Final Testing Plan for newly implemented Fire Alarm System.

6.1.2.22 The A&E shall provide catalog cut sheets for all sole-sourced BFPDs, equipment, hardware and accessories.

6.1.2.23 If applicable, the A&E shall design an appropriately sized split air-conditioning system in the area dedicated to the Fire Alarm Panel in Bldg 2606.

6.1.3 The A&E shall coordinate a Design Review Meetings within 28 calendar days after each design submittal. All USG comments will be documented by the A&E and each item resolved at the meeting. Any USG comments that result in a cost change to the awarded contract shall not be implemented unless approved by the Contracting Officer (KO). A list of attendees and minutes of the meeting shall be taken by the A&E and copies shall be forwarded to each attendee.

6.1.4 The A&E shall incorporate Design Analysis to include calculations, general description, history, assumptions, references, ~~analysis of alternatives, energy conservation analysis/life cycle cost analysis,~~ and code references, as applicable for each discipline.

6.1.4.1 The A&E Contractor shall complete and submit a Constructability Review Checklist at Preliminary, Intermediate, Pre-Final, and Final Design states.

6.1.4.2 Professional certification: The Final Design Analysis cover sheet shall have professional certification stamps.

6.1.5 The A&E shall provide the requirements for Design Specifications (UFGS) that, in conjunction with the drawings, demonstrates compliance with materials, equipment, execution, and field quality control requirements.

6.1.5.1 See Section 3.0 "DEFINITIONS", for all requirements that shall be included with the:

6.1.5.1.1 Preliminary Design (35% Design), see Section 3.10

6.1.5.1.2 Intermediate Design (65% Design), see Section 3.6

6.1.5.1.3 Pre-Final Design (95% Design), see Section 3.9

6.1.5.1.4 Final Design (100% Design), see Section 3.5

6.1.5.2 Provide Specifications iaw Unified Facilities Guide Specifications (UFGS) UFC 1-300-02.

6.1.5.2.1 Use of SpecsIntact software and the UFGS database is mandatory.

6.1.5.3 Modify the guide specification to fit the project.

6.1.5.4 Submit the SpecsIntact ".SEC" files for the 65%, 95%, and 100% Final Design review submittals.

6.1.5.5 Delete portions of the guide specification that cover work not included in the project.

6.1.5.6 When portions of the work involved are not covered in a guide specification, add requirements to the project specification, as necessary, using language and format similar to that employed in the guide specification.

6.1.5.7 Use guide specifications only as source documents and do not reference them in project specifications.

6.1.5.8 Do not combine work covered by various UFGS into one section unless the work to be incorporated is of a minor nature.

6.1.5.8.1 The specified products, equipment, fixtures, devices, and systems submitted by the A&E Contractor and accepted or approved by the USG shall be used to construct the project.

6.1.5.9 Any applicable manufacturer or industry specifications associated with material, supplies, or systems shall be utilized. If a discrepancy exists between these documents, the A&E shall bring this to the attention of the USG and shall utilize the most stringent requirement(s) in the preparation of the project design.

6.1.5.10 The A&E shall provide two (2) sets of hard copy specifications and one (1) set of Adobe PDF electronic files to the CO at each required design level.

6.1.5.11 Professional certification: The final specification cover sheet shall have professional certification stamps.

6.1.5.12 Incorporate MHAFB Environmental Protection Plan, Section 01 57 19, into Specifications.

6.1.6 The A&E shall provide the requirements for Design Drawings.

6.1.6.1 Basic design criteria utilized for each discipline will be included on the appropriate drawings. Examples would include wind and live/dead loads assumed for structural elements, function specific conditions such as lighting levels or future use considerations for electrical systems, site specific climatic design conditions for mechanical systems, and International Building Code analysis.

6.1.6.2 Each sheet shall have a professional certification seal.

6.1.6.3 Professional certification: All life safety plans, fire suppression and alarm plans and pre-engineered structure plans shall be submitted with professional certification affixed. See Section 17.0 "SUBMITTALS".

6.1.6.4 Develop a complete design (35%, 65%, 95%, and 100%) using professional architectural/engineering standards, fire prevention engineering standards, and other standards and practices for a 100% replacement of the fire alarm system in Building 2606, as identified by the A&E Design Drawings, Specifications, and other documentations specified by the FPE.

6.1.6.5 Design drawings shall be submitted conforming to applicable provisions of the Tri-Services CADD/GIS Technology Center's Architectural, Engineering and Construction (A/E/C) CADD Standards.

6.1.6.5.1 See Section 14.1.16 for specific requirements on formatting.

6.1.6.5.2 Preliminary Design drawings (35%, 65%, and 95%) shall be submitted as PDFs

6.1.6.5.3 Final Design drawings (100%) shall be submitted in both PDF and AutoCAD 2020 formats, conforming to applicable provisions of the Tri-Services CADD/GIS Technology Center's Architectural, Engineering and Construction (A/E/C) CADD Standards.

6.1.6.6 Dependent of design milestones, design hard-copy drawings shall be either:

6.1.6.6.1 35% -- 2 each, ANSI Size B, 11-inch x 17-inch

6.1.6.6.2 65% -- 2 each, ANSI Size B, 11-inch x 17-inch

6.1.6.6.3 95% -- 2 each, ANSI Size B, 11-inch x 17-inch

6.1.6.6.4 100% -- 2 each, ANSI Size B, 11-inch x 17-inch; and
2 each, ANSI Size D, 22-inch x 34-inch.

6.1.7 In addition to the Design Drawings and Specifications, provide any additional design criteria during the Design Phase, e.g.,

6.1.7.1 Design Analysis

6.1.7.2 Supporting Calculations

6.1.7.3 Equipment Guide List

6.1.7.4 Design and Construction Procedures

6.1.7.5 Design Manuals

6.1.7.6 Signage Designs

7.0 REQUIREMENTS

Under this Delivery Order, the Contractor shall:

7.1 Perform all requirements set forth in this SOW.

7.2 Assign an individual to serve as a single point of contact between the A&E and the USG for all services.

7.3 Follow the most stringent requirements, standards, codes, or regulations (local, state, or federal) listed in Section 13.0 "References". In case of conflict, the strictest code shall be applied and based on practical engineering judgment.

7.4 The A&E and FPE shall perform an investigative pre-design survey to verify, evaluate, and record existing conditions, dimensions and establish a baseline for a 100% replacement of the fire alarm system in Building 2606, as identified by the A&E Design Drawings, Specifications, and other documentations specified by the FPE.

7.4.1 The A&E and FPE shall be aware that this project is essentially a remodeling project and as such, certain items and sizes cannot be fully illustrated nor explained in the drawings without field observation.

7.4.2 The A&E and FPE are advised to visit and examine the job site and building in every detail as pertains to this project and make allowances in the proposal for all conditions that will affect the work.

7.5 Coordinate planning and design work with all A&E disciplines such as architectural, structural, civil, site utility & site work, telecommunications, data, HVAC, plumbing, fire protection, alarm systems, and UFC-1 200-02 "High Performance and Sustainable Building Requirements, as applicable.

7.6 Responsible for obtaining all professional licenses/stamps required.

7.7 Provide various Project Schedules throughout the lifespan of the project using AF Form 3064 as a template.

7.7.1 Deliver all deliverables herein this SOW per approved submitted schedule. *(See Section 10.0 for guidance/template in developing this Project Schedule)*

7.7.2 USG recommends project schedule to be in MS Projects format.

7.7.3 Project Schedule is dedicated to the "design" of the project and shall be delivered to USG Contracting Officer (KO) and USG Project Manager (PM) within 14 calendars days after Notice to Proceed (NTP) and shall contain:
(See Section 10.0 for guidance in developing this Project Schedule)

7.7.3.1 Pre-Design Meeting / NTP / Kickoff
7.7.3.2 Deliver Project Schedule
7.7.3.3 Identifying Key Personnel and Security Vetting for MHAFB Access
7.7.3.4 Investigative Site Survey
7.7.3.5 35% Concept Design Package
7.7.3.6 35% USG Design Review
7.7.3.7 35% Design Review Meeting
7.7.3.8 65% Design Package
7.7.3.9 65% USG Design Review
7.7.3.10 65% Design Review Meeting
7.7.3.11 95% Design Package
7.7.3.12 95% USG Design Review
7.7.3.13 95% Design Review Meeting
7.7.3.14 100% Design Package
7.7.3.15 100% USG Design Review
7.7.3.16 Deliverables to USG
7.7.3.17 Final Invoice / Close-Out

7.7.4 Deliver all deliverables herein this SOW per schedule identified in Section 10.0.

7.7.5 All submittals listed in the Statement of Work and in the Schedule of Submittals shall be provided at the 35%, 65%, and 95% design stages for USG review and comments ~~using the AF Form 3000~~. A pre-design kick-off meeting will be held prior to the start of design to be attended by Mountain Home AFB personnel, and A&E~~, and construction contractor~~. All submittals for design will be reviewed by the USG for compliance to the UFGS and the UFC. All submittals listed in the attached Schedule of Submittals will be reviewed for compliance. Any submittals that are reviewed and it is determined that the submittal or any individual items in that submittal do not comply with USG requirements will be marked as unacceptable and returned to the contractor for correction. All review comments made by the USG to the A&E during each phase shall be reviewed and incorporated into the design if applicable. ~~Contractor shall submit a separate AF Form 3000 for MHAFB Environment requirements listed for review and approval.~~

7.8 Provide all written reports of all calculations, study, and analysis to USG Contracting Officer (KO), USG Contracting Specialist (KS), and USG Project Manager (PM).

7.8.1 Responsible for checking calculations, drawings, details, notes, and other work products to verify the design intent, technical adequacy and scope of work have been met.

7.8.2 Fire Alarm system calculations shall include the following iaw 2019 NFPA 72 Section 7.4.10 "System Calculations", Section 10.6.7.2 "Capacity", and 10.6.10 "Storage Batteries":

7.8.2.1 Battery Calculations

7.8.2.2 Notification appliance circuit voltage drop calculations

7.8.2.3 Other required calculations, such as line resistance calculations, where required.

7.8.3 USG will only accept a system that has battery calculations / design with 20% added capacity and 48-hour test with 15-mintue operational load test based upon having a combination FAP/MNS system and the system electrical draw per NFPA.

7.8.4 USG Contracting Officer (KO), USG Contracting Specialist (KS), and USG Project Manager (PM) reserves the right to request additional calculations to meet project scope and requirements.

7.9 Comply with current MHAFB standards and Air Force Standards as set forth by UFC 1-200-01 and UFC 1-200-02 DoD Building Codes.

7.10 FPE shall provide requirements for testing of the newly installed FAP, MNS, LOC, and respective devices.

7.11 Conduct all meeting and conferences pertinent to the services under this Delivery Order as directed by the USG, to include chairing all meeting and managing meeting time effectively.

7.11.1 The following milestones for the meeting include:

7.11.1.1 Pre-Design Meeting (Kick-Off Meeting)

7.11.1.2 NTP

7.11.1.3 35% Design Review

7.11.1.4 65% Design Review

7.11.1.5 95% Design Review

7.11.1.6 Deliverables (if required)

7.11.1.7 Close-Out Meeting

7.11.2 Meetings other than those stated herein, may be held whenever requested by the USG for discussion of questions and problems relating to the services required.

7.11.3 Provide a record of all conferences, meetings, discussions, verbal directions, and telephone conversations on matters. Forward each report to the USG no later than 5 working days after the event.

7.11.4 In the event that the A&E foresees a delay in Project completion, the Contractor shall notify the USG Contracting Officer (KO) and USG Project Manager (PM), in writing, of the reasons for the delay prior to the completion date of the project.

7.12 Any work done without being directed to do so, in writing, by the USG will be done at the A&E's risk.

7.13 Any work performed beyond the original scope of work shall be accomplished only at the direction of the USG Contracting Officer (KO).

7.14 The A&E shall ensure that the design of this deliver order incorporates all materials that are "Made in USA".

- 7.14.1 Coordinate with USG Contracting Officer (KO) and USG Project Manager (PM) if any materials in the design cannot be found as "Made in USA"; whereby allowances will be made for substitute of equal or better quality.

7.15 All boxes and fittings, etc. for routing of signal / power cables shall be painted gloss red to signify fire-related.

- 7.15.1 Materials used to support any boxes or conduits are not required to be painted gloss red.

7.16 The A&E shall incorporate a design such that fire detection systems maintains 100% seamless operations, before any old systems are demolished.

- 7.16.1 The A&E shall note the following in the drawings
  - 7.16.1.1 All gypsum wall board (Type-X) and ceiling cavities areas opened up for construction shall be closed within 14-days.
  - 7.16.1.2 All ACT ceiling tiles to be in place at the end of the workday.

8.0 REQUIREMENTS – MASS NOTIFICATION SYSTEM

Contractor should use professional judgment and notify on-site USG Project Manager (PM) or USG Project Inspector of any deviations in accordance with Section 16.0.

8.1 The Honeywell Silent Knight Addressable FAP/MNS shall communicate with the Transceiver and report to the head-end receiving station at the Fire Station, Bldg 206.

8.2 USG will only accept a Fire Alarm system that has battery calculations / design with 20% added capacity and 24-hour test with 15-mintue operational load test based upon having a combination FAP/MNS system and the system electrical draw per NFPA.

8.3 USG will only accept the UFC and AFCEC requirements to be a combination FAP/MNS and per NFPA 72 requirements.

8.4 The MNS shall follow guidance given UFC 3-600-01 and 4-021-01.

8.4.1 In accordance with UFC 4-021-01 Sections 5-5.5, the power supply shall meet at least the minimum NFPA 72 requirements for standby power capacity. In addition, secondary (standby) power should be provided as follows: immediately upon loss of normal AC power, the standby source of power shall provide a minimum of 60 minutes of mass notification at the maximum connected load.

8.4.2 All tones that proceed each pre-recorded message shall be a different tone than that of the fire alarm system tone.

8.4.3 All recorded messages shall be in a female voice and in English.

8.4.4 All recorded messages shall override the fire alarm system.

8.4.5 The MNS shall have the following eight (8) pre-recorded messages.

8.4.5.1 Shelter in Place

8.4.5.1.1 Three 1000 Hz tones (1-second each) are played, followed by the message.

8.4.5.1.2 “Attention, attention. A terrorist threat has been received. Effective immediately, implement shelter in place procedures. All personnel should remain calm and stay where you are. Shut down HVAC systems and await further instructions.”

8.4.5.1.3 Provide a 2-second pause…repeat the message.

8.4.5.2 Bomb Threat

8.4.5.2.1 Three 1000 Hz tones (1-second each) are played, followed by the message.

8.4.5.2.2 “Attention, attention. A bomb threat has been issued for this building. All personnel are to evacuate immediately using the nearest exit. Further instructions will be issued outside the building by emergency response teams”.

8.4.5.2.3 Provide a 2-second pause…repeat the message.

8.4.5.3 Active Shooter

8.4.5.3.1 Three 1000 Hz tones (1-second each) are played, followed by the message.

8.4.5.3.2 “Lockdown, lockdown, lockdown. Active shooter on base, active shooter on base. Lockdown, lockdown, lockdown”.

8.4.5.3.3 Provide a 2-second pause…repeat the message.

8.4.5.4 Exercise Active Shooter

8.4.5.4.1 Three 1000 Hz tones (1-second each) are played, followed by the message.

8.4.5.4.2 “Exercise, exercise, exercise active shooter on base. Lockdown, lockdown, lockdown”.

8.4.5.4.3 Provide a 2-second pause…repeat the message.

8.4.5.5 Weather Warning-Lightning Within 5 Miles

8.4.5.5.1 Three 1000 Hz tones (1-second each) are played, followed by the message.

8.4.5.5.2 “A weather warning has been issued for observed lightning within 5 nautical miles of the base and is valid from now until further notice”.

8.4.5.5.3 Provide a 2-second pause…repeat the message.

8.4.5.6 Fire Emergency

8.4.5.6.1 Three 1000 Hz tones (1-second each) are played, followed by the message.

8.4.5.6.2 “May I have your attention please? A fire emergency has been reported in this building. Please leave the building by the nearest exit or exit stairway. Do not use elevators”.

8.4.5.6.3 Provide a 2-second pause…repeat the message.

8.4.5.7 System Test

8.4.5.7.1 Three 1000 Hz tones (1-second each) are played, followed by the message.

8.4.5.7.2 “This is a system test, please take no action, this is only a test”.

8.4.5.7.3 Provide a 2-second pause…repeat the message.

8.4.5.8 All Clear

8.4.5.8.1 Three 1000 Hz tones (1-second each) are played, followed by the message.

8.4.5.8.2 “All Clear, the emergency has now ended. Please resume normal operations. Thank you for your cooperation”.

8.4.5.8.3 Provide a 2-second pause…repeat the message.

9.0 BASELINE PROCEDURE

Contractor should use professional judgment and notify on-site USG Project Manager (PM) or USG Project Inspector of any deviations in accordance with Section 16.0.

9.1 Initiate a Pre-Design Meeting (Kick-off Meeting) (NTP, 1-day)

- 9.1.1 Coordinate with USG Contracting Officer (KO) and USG Project Manager (PM).
- 9.1.2 Validate project objectives, steps for completion, and to gain design input from USG Project Manager (PM), and all stakeholders involved.
- 9.1.3 Review and establish a current team directory. Include functional title, address, telephone, and e-mail address for each member.
- 9.1.4 Review all available criteria documents, standards, previous studies, etc.
- 9.1.5 Review the MHAFB Environmental Protection Plan and identify points of contacts (POC) for Base environmental issues.
- 9.1.6 Collect available as-built drawings of building's utilities plan affected by this project.
- 9.1.7 Provide a written report of Meeting Notes within 5 working days.

9.2 Prepare and submit Concept Design (35%, 42-days)

- 9.2.1 Identify key A&E Design Engineering personnel and process for Security vetting for access requirements at MHAFB.
- 9.2.2 Perform a hazardous material survey for asbestos and lead based paints for Bldg 2606.
- 9.2.3 Perform A&E and FPE Investigative Site Survey / Inspection at Buildings 2606.
- 9.2.4 Deliver Project Schedule to USG Contracting Officer (KO) 14-days after NTP. The Project Schedule shall minimally consist of the following:
  - 9.2.4.1 NTP
  - 9.2.4.2 Identification of Key Personnel and Security Vetting with Access to MHAFB
  - 9.2.4.3 Investigative Site Survey
  - 9.2.4.4 35% Concept Design Package
  - 9.2.4.5 35% USG Design Review
  - 9.2.4.6 35% Design Review Meeting
  - 9.2.4.7 65% Design Package
  - 9.2.4.8 65% USG Design Review
  - 9.2.4.9 65% Design Review Meeting
  - 9.2.4.10 95% Design Package
  - 9.2.4.11 95% USG Design Review
  - 9.2.4.12 95% Design Review Meeting
  - 9.2.4.13 100% Design Package
  - 9.2.4.14 100% USG Design Review
  - 9.2.4.15 Deliverables to MHAFP
  - 9.2.4.16 Close-Out
- 9.2.5 Provide a Class 5 Cost Estimates in MII format.
- 9.2.6 All design work on this project shall be in accordance with UFC 1-200-01 and its referenced codes, standards, and instructions.
- 9.2.7 Incorporate Investigative Site Survey / Inspection as necessary into 35% drawings.
  - 9.2.7.1 Shop Drawings
  - 9.2.7.2 Field Notes
  - 9.2.7.3 Previous Studies
- 9.2.8 USG will only accept a Fire Alarm system that has battery calculations / design with 20% added capacity and 48-hour test with 15-mintue operational load test based upon having a combination FAP/MNS system and the system electrical draw per NFPA.

9.2.9 Prepare 35% preliminary drawings that include, but not limited to, General Sheet, Electrical, and Fire Alarm Sheet:

9.2.9.1 Cover Sheet with Contract Number and Task Order Number.

9.2.9.2 Drawings shall include device layout / equipment layout.

9.2.9.2.1 2 each, ANSI Size B, 11-inch x 17-inch

9.2.9.2.2 1 each, electronic PDF

9.2.9.3 Prepare an "outline" Specifications addressing all areas of work involved.

9.2.9.3.1 Use of SpecsIntact software and the UFGS database is mandatory.

9.2.9.3.2 In accordance with Unified Facilities Guide Specifications (UFGS) UFC 1-300-02.

9.2.9.3.3 1 each, electronic PDF

9.2.9.4 Design Analysis

9.2.9.4.1 1 each, electronic PDF

9.2.10 USG Civil Engineering Branch will review and provide comments within 28-days, followed by a face-to-face review meeting.

9.2.11 Provide a written report of Meeting Notes within 5 working days.

9.3 Prepare and submit Intermediate Design (65%, 28-days)

9.3.1 All design work on this project shall be in accordance with UFC 1-200-01 and its referenced codes, standards, and instructions.

9.3.2 Incorporate all review comments from previous 35% submittal.

9.3.3 Prepare 65% drawings that include, but not limited to, General Sheet, Electrical, and Fire Alarm Sheet:

9.3.3.1 Cover Sheet with Contract Number and Task Order Number.

9.3.3.2 Drawings shall include device layout / equipment layout.

9.3.3.2.1 2 each, ANSI Size B, 11-inch x 17-inch

9.3.3.2.2 1 each, electronic PDF

9.3.3.3 Prepare a Specifications addressing all areas of work involved.

9.3.3.3.1 Use of SpecsIntact software and the UFGS database is mandatory.

9.3.3.3.2 In accordance with Unified Facilities Guide Specifications (UFGS) UFC 1-300-02.

9.3.3.3.3 1 each, electronic PDF

9.3.3.4 Design Analysis

9.3.3.4.1 1 each, electronic PDF

9.3.4 Provide a Class 3 Cost Estimates in MII format.

9.3.5 Provide catalog cut sheets for all fire alarm equipment, devices, hardware, and accessories.

9.3.6 USG Civil Engineering Branch will review and provide comments within 28-days, followed by a face-to-face review meeting.

9.3.7 Provide a written report of Meeting Notes within 5 working days.

9.4 Prepare and submit Pre-Final Design (95%, 28-days)

9.4.1 All design work on this project shall be in accordance with UFC 1-200-01 and its referenced codes, standards, and instructions.

9.4.2 Incorporate all review comments from previous 65% submittal.

9.4.3 Prepare 95% drawings that include, but not limited to, General Sheet, Electrical, and Fire Alarm Sheet:

9.4.3.1 Cover Sheet with Contract Number and Task Order Number.

9.4.3.2 Drawings shall include device layout / equipment layout.

9.4.3.2.1 2 each, ANSI Size B, 11-inch x 17-inch

9.4.3.2.2 1 each, electronic PDF

9.4.3.3 Prepare a Specifications addressing all areas of work involved.

9.4.3.3.1 Use of SpecsIntact software and the UFGS database is mandatory.

9.4.3.3.2 In accordance with Unified Facilities Guide Specifications (UFGS) UFC 1-300-02.

9.4.3.3.3 1 each, electronic PDF

9.4.3.4 Design Analysis

9.4.3.4.1 1 each, electronic PDF

9.4.3.5 Provide a Class 1 Cost Estimates in MII format.

9.4.3.6 Provide the method of making electrical / device connections shall be specified.

9.4.3.7 Provide a FAP, MNS, LOC, Transceiver, Devices schedule shall be provided that lists individual devices and connectivity.

9.4.3.8 Provide the performance requirements of all equipment shall be included in an appropriate schedule.

9.4.3.9 Provide the options on materials for the fire alarm systems shall be furnished as part of the design criteria.

9.4.3.10 Provide the requirements for Fire Alarm system identification shall be specified.

9.4.3.11 A sequence of operation shall be included, where required, to clearly understand the function or operation of any systems or equipment.

9.4.3.12 All supports, other than standard supports, shall be shown on the drawings and clearly detailed.

9.4.4 Provide catalog cut sheets for all fire alarm equipment, devices, hardware, and accessories.

9.4.5 Prepare Specifications addressing all areas of work involved in UFGS format.

9.4.5.1 Provide marked-up Specification Sections using SpecIntact “Show Revisions” function when editing and printing to show deletions from and additions to the UFGS Master Sections.

9.4.5.2 Use the default setting in SpecIntact that displays deletions lined out and additions underlined.

9.4.5.3 Print Project Specifications Section using SpecsIntact “Show Section Dates” function, to display the official date of release of the master guide specification and version of the Specifications Used.

9.4.6 Provide a strawman Testing Plan for newly implemented Fire Alarm System and devices.

9.4.7 Provide latest revision of Environmental Specifications.

9.4.8 Design submittal shall be complete to this stage and require only minor corrections if necessary.

9.4.9 USG Civil Engineering Branch will review and provide comments within 28-days, followed by a face-to-face review meeting.

9.4.10 Provide a written report of Meeting Notes within 5 working days.

9.5 Prepare and submit Final Design (100%, 28-days)

9.5.1 All design work on this project shall be in accordance with UFC 1-200-01 and its referenced codes, standards, and instructions.

9.5.2 Drawings shall include device layout / equipment layout.

9.5.3 Incorporate all review comments from previous 95% submittal.

9.5.3.1 All previous USG review comments shall have been addressed.

9.5.4 Prepare a complete set of 100% drawings that include, but not limited to, General Sheet, Electrical, and Fire Alarm Sheet.

9.5.4.1 2 each, ANSI Size B, 11-inch x 17-inch

9.5.4.2 2 each, ANSI Size D, 22-inch x 34-inch

9.5.4.3 1 each, electronic PDF

9.5.4.4 Prepare an "Final" Specifications addressing all areas of work involved.

9.5.4.4.1 Use of SpecsIntact software and the UFGS database is mandatory.

9.5.4.4.2 In accordance with Unified Facilities Guide Specifications (UFGS) UFC 1-300-02.

9.5.4.4.3 1 each, electronic PDF

9.5.4.5 "Final" Design Analysis

9.5.4.5.1 1 each, electronic PDF

9.5.5 Provide catalog cut sheets for all BFPDs, equipment, hardware and accessories.

9.5.6 Prepare a complete Final Specifications addressing all areas of work involved in UFGS format with redlines executed.

9.5.7 Provide a Final Submittal Register.

9.5.8 Provide a Final Testing Plan for newly implemented Fire Alarm System.

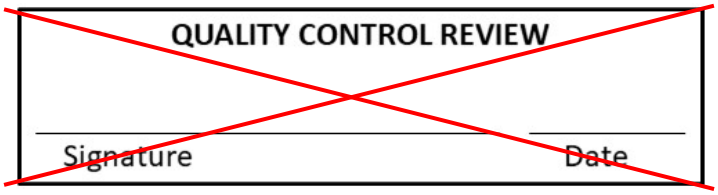
9.5.9 Design submittal shall be complete to this stage and require only minor corrections if necessary.

~~9.5.10 Provide a Quality Control Review.~~

~~9.5.10.1 Evaluate both technical accuracy and discipline coordination.~~

~~9.5.10.2 With the Final Submittal, provide a single set of 100% prints and Specifications highlighted to validate that the review was performed, and that the corrections were made.~~

~~9.5.10.3 Provide a stamp on the cover page of the Drawings and Specifications as shown below.~~



~~9.5.10.4 Mark and verify correctness of such items as section, detail, and note references to other sheets, major dimensions, and equipment locations.~~

~~9.5.10.5 Verify that all equipment is correctly identified the same way on all sheets and in the Specifications.~~

~~9.5.10.6 Ensure that all work as indicated on the drawings is fully consistently specified.~~

9.5.11 USG Civil Engineering Branch will back-check the 100% design submittal to verify 95% comments have been incorporated. In the event that there are any comments from 95% to 100% that were not included, or errors are discovered, USG reserves the right to require another 100% Final design submittal.

9.5.12 Provide a written report of all Meeting Notes.

10.0 DELIVERABLES – SCHEDULE

10.1 The A&E shall keep the approved schedule of the work current, and notify the Contracting Officer (KO) and Project Manager (PM) of any changes.

Tasks		Days Tasked	Day (Start)	Day (Complete)
1	Pre-Design & Construction Meeting	1	D - 1	D + 0
2	NTP – Design Phase	0	D + 0	D + 0
3	Deliver Project Schedule to USG	14	D + 0	D + 13
4	Key Design Personnel Identification & Security Vetting / Access Requirements for Work at MHAFB	21	D + 1	D + 21
5	On-Site Investigation	14	D + 22	D + 35
6	35% Concept Design Package	28	D + 36	D + 63
7	35% USG Design Review	28	D + 64	D + 91
8	35% Design Review Meeting	1	D + 92	D + 92
9	65% Design Package	28	D + 93	D + 120
10	65% USG Design Review	28	D + 121	D + 148
11	65% Design Review Meeting	1	D + 149	D + 149
12	95% Design Package	28	D + 150	D + 177
13	95% USG Design Review	28	D + 178	D + 205
14	95% Design Review Meeting	1	D + 206	D + 206
15	100% Design Package	28	D + 207	D + 241
16	100% USG Design Review	28	D + 242	D + 276
17	Deliverables to USG	1	D + 263	D + 263
18	Final Invoice / Close-Out	1	D + 264	D + 264
	Total:	264		

Note: All schedule days are calendar days

11.0 SPECIAL CONSIDERATIONS/REQUIREMENTS

11.1 The A&E shall be responsible to ensure all deliverables are correct.

11.2 The A&E shall conduct a thorough site investigation, with minimal interruption to the daily operations of the Chapel, Bldg 2606, prior to design work.

12.0 COORDINATION REQUIREMENTS

12.1 A&E shall coordinate all onsite activities with appointed USG Contracting Officer (KO) and USG Project Manager (PM) with at least 7 calendar days' notice.

12.1.1 The A&E shall provide personnel identification of those personnel needing MHAFB access to USG Contracting Specialist (KS) and/or USG Contracting Officer (KO).

12.2 Any required inspections, tests, and reports made by the A&E, subcontractors, specifically trained technicians, equipment manufacturers, and others as required shall be coordinated through USG Contracting Officer (KO) and USG Project Manager (PM).

13.0 REFERENCES

13.1 AFI 10-701 Air Force OPSEC Program
13.2 Architectural Barriers Act (ABA)
13.3 DoD Directive 5205.02 DoD OPSEC Program
13.4 International Building Code (IBC)
13.5 International Fire Code (IFC)
13.6 International Mechanical Code (IMC)
13.7 International Plumbing Code (IPC)
13.8 NEC National Electric Code (NFPA 70)
13.9 NFPA 1 Fire Code
13.10 NFPA 3 Standard for Commissioning of Fire Protection and Life Safety Systems
13.11 NFPA 72 National Fire Alarm and Signaling Code
13.12 NFPA 90A Standard for the Installation of Air-Conditioning and Ventilating Systems
13.13 NFPA 101 Life Safety Code
13.14 UFC 1-200-01 General Building Requirements
13.15 UFC 3-600-1 Fire Protection Engineering for Facilities
13.16 UFC 4-021-01 Mass Notification Systems

14.0 MANDATORY CRITERIA AND STANDARDS

14.1 The A&E design shall comply with the versions of the following references that are current at contract award. The references are available on the internet, except as noted:

14.1.1 Unified Facilities Guide Specifications (UFGS) except as noted below for Environmental. The UFGS is available from the Whole Building Design Guide website at http://www.wbdg.org/ffc/dod

14.1.2 Unified Facilities Criteria (UFC) and Facilities Criteria (FC). The UFCs require compliance with many industry standards to include, but not be limited to, International Building Code, International Mechanical Code, National Electric Code, and National Fire Protection Association Codes, International Fuel Gas Code and International Plumbing Code. See UFC 1-200-01, DoD Building Code (General Building Requirements). The UFCs are available from the Whole Building Design Guide website at http://www.wbdg.org/ffc/dod

14.1.3 Latest Version MHAFB Installation Development and Design– Provided by 366 Civil Engineer Squadron (**MHAFB Only**). Standard can be located at https://www.wbdg.org/ffc/af-afcec/installation-facilities-standards-ifs.

14.1.4 Latest Version MHAFB Temporary Environmental Controls Specification 01 57 19, (**MHAFB Only**), see SOW Attachment 1.

14.1.5 Air Force Corporate Facilities Standards (AFCFS). The AFCFS are available from the Whole Building Design Guide website at http://www.wbdg.org/ffc/dod (**MHAFB Only**).

14.1.6 Air Force Prototypes and Standard Designs. These documents are available from the Whole Building Design Guide website at http://www.wbdg.org/ffc/dod (**MHAFB Only**).

14.1.7 Air Force Design Guides and Standards. These documents are available from the Whole Building Design Guide website at http://www.wbdg.org/ffc/dod (**MHAFB Only**).

14.1.8 Air Force Guides, Handbooks, Instructions and Pamphlets. These documents are available from the Air Force e-Pub website at http://www.e- publishing.af.mil/ (**MHAFB Only**).

14.1.9 Air Force Engineering Technical Letters (AFETL). The AFETLs are available from the Whole Building Design Guide website at http://www.wbdg.org/ffc/dod (**MHAFB Only**).

14.1.10 Corps of Engineers Manual, EM 385-1-1, entitled “Safety and Health Requirements Manual,” as amended. The manual can be obtained from the USG Printing Office, Washington DC 20402 (**MHAFB Only**).

14.1.11 Occupational Safety and Health Administration (OSHA) General Industry Safety and Health Standards (29 CFR 1910), Publication V2206. 29 CFR 1910 is also included as part of OSHA Publication 2207 which combines both Parts of 1910 and 1926 as they relate to construction safety and health. They are for sale by the Superintendent of Documents, U.S. USG Printing Office, Washington, DC 20402 (**MHAFB Only**).

14.1.12 OSHA Construction Industry Standards (29 CFR 1926). 29 CFR 1926 is included as part of OSHA Publication 2207 which combines both Parts of 1910 and 1926 as they relate to construction safety and health. They are for sale by the Superintendent of Documents, U.S. USG Printing Office, Washington, DC 20402 (MHAFB Only).

14.1.13 National Emission Standards for Hazardous Air Pollutants (40 CFR, Part 61) (**MHAFB Only**).

14.1.14 Asbestos Containing Material or any Class 1 ozone depleting chemical compounds are prohibited, any asbestos material or Class 1 ozone depleting chemical compounds installed by the Contractor shall be removed and disposed of by the Contractor at the Contractor's expense and shall not be subject to a claim against the USG (**MHAFB Only**).

14.1.15 Hazardous Materials: Refer to hazardous and toxic materials/substances included in Subparts H and Z of 29 CFR 1910 and to others as additionally defined in Fed. Std. 313. (Those most commonly encountered include asbestos, LBS, polychlorinated biphenyls (PCBs), explosives, and radioactive material, but may include others. The most likely products to contain asbestos are sprayed-on fire proofing, insulation, boiler lagging, pipe covering floor tile and carpet mastic, roof mastic, and drywall mud.) (**MHAFB Only**).

14.1.16 Drawing Criteria:

14.1.16.1 US Army Corps of Engineers (CoE), Engineer Research and Development Center (ERDC), CAD/BIM Technology Center for facilities, infrastructure, and environment, A/E/C CAD Standard to include the ERDC_ITL_TR-19-6 and the ERDC_ITL_TR-19-7. The A/E/C CAD Standard is available from the Whole Building Design Guide website at http://www.wbdg.org/ffc/dod (**MHAFB Only**).

14.1.16.2 All drawing shall be prepared using latest version of Autodesk AutoCAD computer aided drafting software. The Auto CAD drawing shall be independently referenced with all font and symbol set incorporated such that the documents may be readily opened by USG personnel (**MHAFB Only**).

14.1.16.3 Drawing sheets shall use standard English scales on either Standard D (24" x 36") or Standard B (11" x 17") paper size **(MHAFB Only)**.

14.1.16.4 The MHAFB cover sheet and title blocks shall be used. Templates for these will be provided to the Contractor on disk in AutoCAD **(MHAFB Only)**.

14.1.16.4.1 The title block shall contain project information including but not limited to Project number, TO number, Project Name, and date **(MHAFB Only)**.

14.1.17 Survey Requirements:

Accuracy level in accordance with "Geospatial Positioning Accuracy Standards, Part 2: Standards for Geodetic Networks," published by the Federal Geographic Data Committee (FGDC), dated July 1998. All geodetic data shall be collected using the coordinate and projection system – Mountain Home Air Force Base uses Universal Transverse Mercator coordinates (UTM), Zone 11 North. The geodetic datum shall be the World Geodetic System 1984 reference frame (WGS84). The basis for all elevations shall be the North American Vertical Datum of 1988 (NAVD 88). GPS derived orthometric heights shall be calculated using the EGM08 model with the EPOCH clearly defined. The Contractor shall use survey grade GPS, at an accuracy level of +/- 2cm. All units of measure shall be meters.

14.1.18 Geographic Information System (GIS): GIS data shall be provided in ESRI's ArcGIS 10.x shapefile (SHP) format. All additional attribution for the data will be based on the Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) release 3.1 data model.

14.1.18.1 Entity naming conventions, attribute fields, and domain names shall be collected in the format defined by the SDSFIE release 3.1, except where modified by the USG. For more information, go to https://www.sdsfieonline.org/Home/Index.
(Cut and paste above link in browser)

15.0 USG FURNISHED EQUIPMENT (GFE)

15.1 Base Civil Engineering Squadron (CES) shall provide all current and as-builts drawings. When drawings are not available, the Contractor shall be responsible to attain required information during the site survey / inspection.

15.2 All files will be available upon request via cloud for a 7-day period by Base Civil Engineering Squadron (CES) Project Manager (PM).

16.0 REVISIONS AND ENGINEERING CHANGES

16.1 Upon receipt of this SOW, prior to the A&E's bid, any questions or proposed alterations (if any) to the SOW by the Contractor shall be submitted in writing to the USG Contracting Officer (KO) and USG Project Manager (PM) for clarification and/or approval of proposed alterations. Upon clarification/approval the Contractor's proposal shall include the entire scope of this SOW.

16.2 Any and all revisions, alterations, and/or engineering changes proposed by the A&E after initiation of the project shall be brought to the attention of the USG Contracting Officer (KO) and USG Project Manager (PM) in writing for approval prior to performing any and all changes. In turn, the A&E shall be notified immediately of any revisions, alterations, and/or engineering changes to the original SOW and/or addendums by the USG Contracting Officer (KO) and USG Project Manager (PM); and shall note such changes in the Change Log. Any additional costs to USGe from the Contractor for such changes shall be submitted in writing by the A&E to the USG Contracting Officer (KO). No work shall commence on such changes until written approval by USG Contracting Officer (KO) has been submitted in writing to the A&E for such changes.

17.0 SUBMITTALS

17.1 Design Submittals: The A&E shall provide design packages, but not limited to design drawings, Engineering specifications and a design analysis.

17.2 Professional certification: All life safety plans, fire suppression and alarm plans, Lightning Protection System plans and all shop drawings as directed by the CO shall be submitted with professional certification affixed.

18.0 QUALITY CONTROL

18.1 The A&E shall designate on-staff personnel as project superintendents to document and resolve all quality control problems and accomplish daily quality control inspections.

19.0 WORKING HOURS

19.1 Normal working hours at MHAFB are 8 hours per day with core-hours between 9-2:30 daily; however, any reasonable time between 06:00am to 6:00pm is allowed by Contractor to implement this project.

19.2 Deviations from this schedule shall be coordinated with the USG Project Manager (PM) or USG Representative (Inspection Manager) 24-hours in advance.

19.3 The USG reserves the right to change and/or revoke all considerations without notice.

19.4 Occasionally, US Military forces will conduct various disaster or contingency exercise. Should the A&E be in an area subject to control, he shall immediately comply with the direction of Security Forces personnel. This may include stoppage of work and immediate departure from the area. The USG will make every effort to minimize disturbances to the A&E due to Military exercises. When directed by the USG Contracting Officer (KO), the Contractor shall make every effort to minimize schedule alteration due to the Military exercise.

20.0 SECURITY CONSIDERATIONS

The security requirements set forth in this section represent the minimum acceptable security standards for this project. The security requirements set forth in this section are intended to supplement the contract, other specifications and other security standards applicable to the Contractor. Nothing in this section is intended to supersede the contract, other specifications or other security standards applicable to the Contractor. Any questions concerning the purpose and scope of this section or any perceived conflicts between this section and other contract documents and security standards should be immediately brought to the attention of the USG Contracting Officer (KO) and USG Project Manager (PM).

20.1 The A&E's work shall be performed under strict security conditions as stipulated by the Supervising Security Authority (SSA) at the project location.

20.2 All workers shall be subject to the base rules of entry and exit and subject to search at any time.

20.3 The A&E shall cooperate fully in any and all security matters, which may arise relating to this contract and/or base activities.

20.4 It is prohibited to carry/use cameras, weapons, etc. on the site without prior USG approval. If approval is granted, personnel will abide by Base policies for authorized use.

20.5 Cellphones are authorized on the site; however, it is prohibited to use the camera portion while on the site without prior USG approval.

20.6 All personnel shall be vetted by the USG before given access to the project site.

20.7 A&E access to restricted/controlled areas at MHAFB requires accompaniment by a USG provided escort.

20.8 All the aforementioned security procedures are strictly enforced. Inappropriate action and/or violations may result in the immediate termination and removal of said individual and/or Contractor from the base.

20.9 Upon award of contract, the A&E shall be required to provide a list, with background information, of all workers for USG review and approval as soon as possible, but no later than three weeks prior to project start-up. The USG reserves the right to prohibit the use of any proposed workers. The A&E shall notify USG Project Manager (PM) or USG Representative (Inspection Manager), at minimum, twenty-four (24) hours in advance of any trucks/heavy equipment and/or personnel entering the compound.

20.10 Any violation or failure to fulfill the requirements of this Section by the A&E may result in:

- 20.10.1 Immediate suspension and removal from the site and compound of individuals suspected to be involved in any violation of project security.
- 20.10.2 Termination and permanent removal from the site and compound of individuals determined to be involved in any violation of project security.
- 20.10.3 Termination of Contractor determined to be involved in any violation of security.
- 20.10.4 Termination of the contract.
- 20.10.5 Suspension or loss of corporate and/or individual's base clearances.
- 20.10.6 Suspension or debarment of Contractor and/or individual Personnel; and/or civil or criminal prosecution of corporate and/or individual violators.

20.11 If it is determined that the Contractor has violated a security violation of this section, the Contractor shall be responsible for:

- 20.11.1 All the costs associated with the removal and replacement of personnel.
- 20.11.2 All costs associated with reordering and shipping of materials or equipment.
- 20.11.3 All costs associated with the removal and replacement of work affected by the violation; and
- 20.11.4 Additional U.S. USG inspection, personnel and material costs resulting from the violation.

20.12 USG personnel involved with the project shall be afforded complete and unrestricted access at any time to all portions of the project site and any support sites.

21.0 SAFETY AND HEALTH

21.1 In order to provide safety controls for protection to the life and health of employees and other persons, for prevention of damage to property, materials, supplies, and equipment, and for avoidance of work interruptions in the performance of this contract, the Contractor shall comply with all pertinent provisions of the Corps of Engineers Manual, EM 385-1-1, entitled "Safety and Health Requirements Manual," as most recently amended at time of notice to proceed (NTP). The Contractor shall also take or cause to be taken such additional measures as the CO, or his/her designated representative may determine to be reasonably necessary for the purpose.

21.2 The A&E shall review entire procedure and ensure proper precautions and safety are observed while performing this project.

21.3 The A&E is required to establish and maintain a safe practices during this project.

21.4 The A&E will be responsible for the safety and health compliance of all subcontractors.

21.5 The A&E shall comply with OSHA General Industry Safety and Health Standards (29 CFR 1910), Publication V2206 and OSHA Construction Industry Standards (29 CFR 1926).

21.6 The A&E shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work.

21.7 The A&E will maintain an accurate record of, and will report to the CO, or his/her designated representative, in the manner and on the forms prescribed by the CO or his/her designated representative. The A&E will report exposure data and all accidents resulting in death, traumatic injury, occupational disease, and damage to property, materials, supplies, and equipment incident to work performed under this contract.

21.8 The A&E shall provide professionals qualified for the work undertaken.

21.9 The A&E shall provide appropriate protective equipment (PPE) to employees, if applicable. This includes safety glasses, hart-hat, reflective vest, welding mask, gloves, and hearing protection.

21.10 The A&E shall ensure all personnel on Site wear safety glasses, reflective safety vest and closed toe boots or shoes at all times, if applicable.

21.11 The A&E shall provide all applicable safety barricades and signs if required, if applicable.

21.12 The A&E shall ensure any additional measures the USG Contracting Officer (KO) determines reasonable necessary for safety are taken.

21.13 The A&E shall inform the USG of work-related issues than may impact Federal employee safety.

21.14 The KO or his/her designated representative will notify the A&E of any noncompliance with the foregoing provisions and the action to be taken. The A&E shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the site of the work, shall be deemed sufficient for this purpose. If the A&E fails or refuses to comply promptly, the CO may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time or for excess costs or damages by the A&E.

21.15 The A&E shall submit to the USG Contracting Officer (KO) a full report of damage to USG property and/or equipment by the A&E's employees. All damage reports shall be submitted within 24 hours of occurrence. If the KO determines that the damage was the responsibility of the A&E, the A&E shall rectify the damage promptly.

22.0 PRECAUTIONS AGAINST HAZARDS

22.1 The A&E shall comply with the following:

22.1.1 A&E shall comply with all applicable state, local, and installation laws, ordinances, and regulations relative to noise control, to include applicable quiet hours. Specific local fire protection requirements are found in UFC 3- 600.01, AFI 32-2001, AFI 91-203 (these references are not all inclusive and may identify additional guidance).

23.0 SMOKING IN AIRFORCE FACILITIES

23.1 The Air Force has banned use of all tobacco products on Air Force bases except in designated outdoor locations. A&E employees and visitors are subject to the same restrictions as are USG personnel.

24.0 PROGRAM MANAGEMENT

24.1 The A&E shall provide a program manager and staff for executing the work under this contract. The program management staff shall have project design oversight, quality control, construction and financial management capability.

25.0 PROJECT EXECUTION AND TECHNICAL CAPABILITY

25.1 The A&E shall have a support staff that includes clerical, quality control, project superintendent, drafting and design personnel as necessary to execute the design phase.

26.0 POINTS OF CONTACT

Contracting Officer (KO)	Ryan Rubenstein	ryan.rubenstein.1@us.af.mil	208-828-1810 (desk)
Contracting Specialist (KS):	Ashley Huston	ashley.huston@us.af.mil	208-828-3116 (desk)
USG Project Manager (PM):	Elsworth Barrington	elsworth.barrington.2@us.af.mil	208-828-6404 (desk) 208-866-0913 (cell)
USG Fire Subject Matter Expert	Shelly Freeman	cheryl.freeman.2@us.af.mil	208-828-4141 (desk)
USG Fire Chief	Darren Amos	darren.amos.1@us.af.mil	208-828-3623 (desk)
USG Safety	Brian Reynolds	brian.reynolds.13@us.af.mil	208-828-6814 (desk)

Attachment #1
MHAFB Overview

Attachment #2
Road Overview
Base Exchange
Commissary
Aadrvark Ave
Falcon St
Gunfighter Ave
Phantom Ave
Desert St
Gunfighter Ave
Chapel
Bldg 2606
Liberator St
Static Displays

Attachment #3
Bldg 2606 Overview
Desert St
Gunfighter Ave
Chapel
Bldg 2606

Attachment #4
As-Built Layout

B

Meeting Minutes

65% Design Review Meeting - AGENDA

Subject:	65% Design Review Meeting - AGENDA		
Client:	Mountain Home AFB		
Project:	Fire Alarm Repair; B2318, B2416, B2606	HDR Project No: MHAFB Contract No: Delivery Order:	10429816, 10430456, 10430451 FA4897-20-D-0001 FA489725F0017, F0018, F0020
Meeting Date:	16 September 2025	Meeting Location:	Bldg. 1300

Agenda:

9:00 – 11:00 Kick-off Meeting & Site Visit
- 9:00 Introductions
  - Schedule discussion
- 9:15 Discuss Government comments
- 10:15 HDR questions
  - Applicability of Cybersecurity to FLS discussion
- 10:45 Wrap up and action item review
- 11:00 Adjourn

Project Schedule

Task	Responsible Party	Requirement	Days between Delivery	Running Total	Delivery Date
	GOV'T	Award			Fri, 4-Apr-25
1	ALL	Pre-Design Meeting with NTP			Wed, 30-Apr-25
1	HDR	Project Schedule			**Wed, 30-Apr-25**
1	HDR	Security vetting personnel for site visit			Wed, 30-Apr-25
1	HDR	Site Visit			Wed, 30-Apr-25
2	HDR	35% Concept Design Package	30	30	**Fri, 30-May-25**
2	*GOV'T*	*USG 35% Design Review*	*28*	*58*	*Fri, 27-Jun-25*
	ALL	35% Design Review Meeting	4	62	Tue, 1-Jul-25
3	HDR	65% Design Package	38	100	**Fri, 8-Aug-25**
3	*GOV'T*	*USG 65% Design Review*	*28*	*128*	*Fri, 5-Sep-25*
	ALL	65% Design Review Meeting	11	139	Tue, 16-Sep-25
4	HDR	95% Design Package	28	167	**Tue, 14-Oct-25**
4	*GOV'T*	*USG 95% Design Review*	*27*	*194*	*Mon, 10-Nov-25*
	ALL	95% Design Review Meeting	3	197	Thu, 13-Nov-25
5	HDR	100% Design Package	21	218	**Thu, 4-Dec-25**
5	*GOV'T*	*USG 100% Design Review*	*29*	*247*	*Fri, 2-Jan-26*

The period of performance (POP) in the award document is 19 January 2026.

1. HVAC shutdown for systems providing greater than 2000 cfm?
2. Need sounder base on single activation for each dorm room. Evacuation triggered with second alarm.
3.

65% Design Review Meeting - Minutes

Subject:	65% Design Review Meeting Minutes		
Client:	Mountain Home AFB		
Project:	Fire Alarm Repair; B2318, B2416, B2606	HDR Project No: MHAFB Contract No: Delivery Order:	10429816, 10430456, 10430451 FA4897-20-D-0001 FA489725F0017, F0018, F0020
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	ALL	65% Design Review Meeting	11	139	Tue, 16-Sep-25
4	HDR	95% Design Package	42	181	**Tue, 28-Oct-25**
4	*GOV'T*	*USG 95% Design Review*	*28*	*209*	*Tue, 25-Nov-25*
	ALL	95% Design Review Meeting	7	216	Tue, 2-Dec-25
5	HDR	100% Design Package	21	237	**Tue, 23-Dec-25**
5	*GOV'T*	*USG 100% Design Review*	*29*	*266*	*Wed, 21-Jan-26*

The period of performance (POP) in the award document is 19 January 2026.

Project Discussion:

1. Paul Derr, HDR project manager, started the meeting with introductions. See attached sign-in sheet for list of attendees.

2. Government review comments were discussed. Complete list of comments are included at the end of the meeting minutes. Comment and response apply to all three buildings unless otherwise noted. Notable comments include:
   a) B2318, 2416: FD101A – missing emergency HVAC shutdown button. Reviewed UFC 3-600-01 and 4-021-01 during the meeting. There is a circular reference between these UFCs regarding the requirement to provide an emergency HVAC shutdown button. HDR and 366CES to investigate.
   b) B2318: FA501 – duct detector details were removed in response to Government comment that there is no equipment in the building that provides more than 2,000 cfm airflow. During site investigation after the meeting HDR identified an air handling unit on the third floor in B2318. Duct detectors will be included in the design.
   c) B2318, 2416: DA page 30 – HDR will include language in the design analysis addressing the fire alarm & mass notification system components do not add heat load to the building. Heat balance is not required.
   d) B2416: FD101 – MHAFB will provide room numbers.
   e)

Action Items:

1. HDR to provide meeting minutes. – CLOSED
2. HDR & MHAFB to investigate requirement for emergency HVAC shutdown button.
3. MHAFB to provide room numbers – CLOSED

65% Design Review Meeting - Attendance Roster

Subject:	65% Design Review Meeting – Attendance Roster		
Client:	Mountain Home AFB		
Project:	Fire Alarm Repair; B2318, B2416, B2606	HDR Project No: MHAFB Contract No: Delivery Order:	10429816, 10430456, 10430451 FA4897-20-D-0001 FA489725F0017, F0018, F0020
Meeting Date:	16 September 2025	Meeting Location:	Bldg. 1300

#	Attendee	Organization	Phone	Email
1	Paul Derr	HDR	208-387-7091	Paul.Derr@hdrinc.com
2	Robert Richter	HDR	210-841-2920	Robert.Richter@hdrinc.com
3	William Cunard	HDR	402-299-4881	William.Cunard@hdrinc.com
4	Zach Sachsenmaier	HDR	402-399-4998	Zachary.Sachsenmaier@hdrinc.com
5	Darren Amos	CES FD	208-828-3623	darren.amos.1@us.af.mil
6	Elsworth Barrington	CES/CENP	208-828-6404	elsworth.barrington.2@us.af.mil
7	Shelley Freeman	CES	208-828-4141	cheryl.freeman.2@us.af.mil
8	Matthew Cassaway	CES/CEIHD	207-927-2408	matthew.cassaway@us.af.mil
9	Keith Fish	CEIHD	208 828 1401	keith.fish.1@us.af.mil
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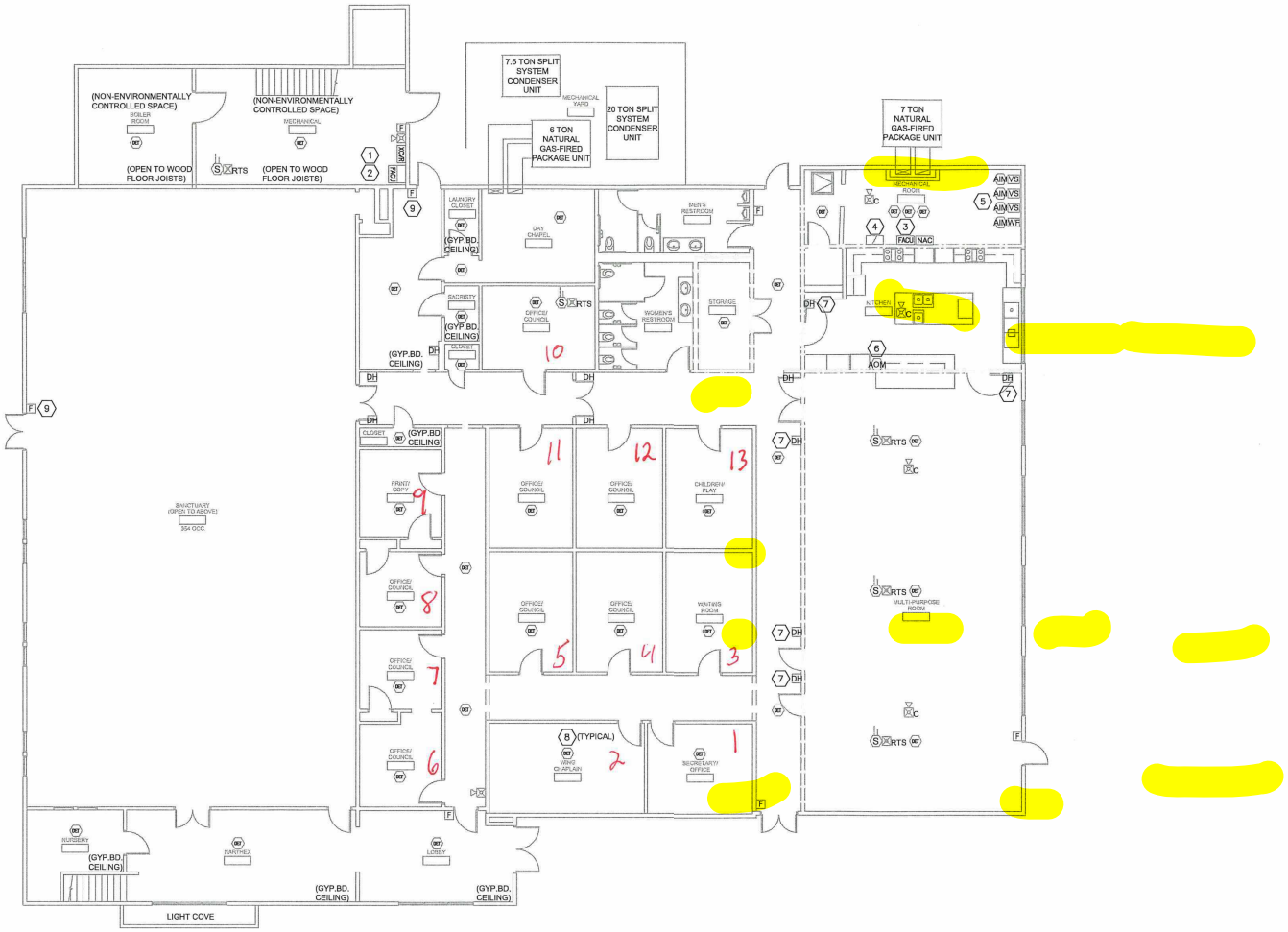

A1 LEVEL ONE DEMOLITION PLAN - FIRE ALARM

SCALE: 1/8" = 1'-0"

SHEET NOTES

1. REMOVE EXISTING FIRE ALARM SYSTEM IN ITS ENTIRETY. PATCH AND PAINT WALL AND CEILING OPENINGS NOT SLATED FOR RE-USE TO MATCH SURROUNDING SURFACES.
2. THIS BUILDING WILL BE OCCUPIED DURING CONSTRUCTION. PERFORM WORK IN SUCH A MANNER AS TO LIMIT INTERRUPTION OF BUILDING OCCUPANTS.
3. WORSHIP SPACES INCLUDING THE SANCTUARY, CHOIR LOFT, CRY ROOM, NARTHEX, LOBBY AND SACRISTY SHALL BE USED EACH SUNDAY. TOOLS, SCAFFOLDS, LADDERS, LIFTS, CONSTRUCTION DEBRIS, PROTECTIVE COVERINGS, MATERIALS, ETC. SHALL BE REMOVED FROM THESE AREAS NO LATER THAN FRIDAY NOON AND THOROUGHLY CLEAN (VACUUM, WIPED DOWN, ETC.). UNLESS OTHERWISE PERMITTED, PATCHING AND PAINTING ACTIVITIES WITHIN THESE SPACES SHALL BE COMPLETED NO LATER THAN THE PRIOR WEDNESDAY TO ALLOW ODORS ASSOCIATED WITH THESE ACTIVITIES TO SUBSIDE.
4. WORK PERFORMED WITHIN THE DAY CHAPEL, KITCHEN AND MULTIPURPOSE ROOM SHALL BE SCHEDULED IN ADVANCE WITH STAFF TO ENSURE THAT WORK ACTIVITIES DO NOT INTERFEAR WITH SCHEDULED EVENTS.
5. UNLESS OTHERWISE NOTED, CEILINGS HEIGHTS ARE LESS THAN 10FT.
6. UNLESS OTHERWISE NOTED, CEILINGS FEATURE ACOUSTICAL CEILING TILES SUPPORTED BY METAL GRIDDED FRAMES.
7. THROUGH AND MEMBRANE PENETRATIONS OF FIRE AND SMOKE RATED CONSTRUCTION SHALL BE PERFORMED IN A MANNER THAT MAINTAINS THE EXISTING RATINGS. LISTED FIRESTOPPING SYSTEMS AND MATERIALS SHALL BE PROVIDED AS REQUIRED. REFERENCE DIVISION 07 84 00.

SHEET KEY NOTES

1. DEMO EXISTING SILENT KNIGHT 5820XL FACU, MONACO ENTERPRISES TRANSCEIVER, OLD FIRELITE SENSISCAN 1000 ENCLOSURE CURRENTLY USED TO HOUSE ADDRESSABLE MODULES, CONDUIT AND WIRE IN IT'S ENTIRETY. THE NEW FMCU WILL NOT BE REINSTALLED AT THIS LOCATION.
2. DEMO EXISTING DEDICATED 120 VAC TO THE FACU. THE NEW FMCU WILL NOT BE REINSTALLED AT THIS LOCATION.
3. DEMO EXISTING SILENT KNIGHT 5208 SILENT KNIGHT 5496 POWER SUPPLY, CONDUIT AND WIRE IN ITS ENTIRETY. THE NEW FMCU WILL BE INSTALLED AT THIS LOCATION.
4. THE EXISTING FACU WITHIN THIS ROOM IS CURRENTLY POWERED BY PANEL D, CIRCUIT 21. DEMO EXISTING DEDICATED 120 VAC TO THE FACU. DEDICATED POWER WILL BE INSTALLED IN ACCORDANCE WITH UFC 3-520-01 §3-2.7 INTERIOR ELECTRICAL SYSTEMS.
5. DEMO EXISTING ADDRESSABLE INTERFACE MODULES FROM EXISTING VALVE TAMPER SWITCHES AND WATER FLOW DETECTION DEVICES. CONFIGURE FLEXIBLE CONDUIT AND BACK-BOXES FOR RE-USE WITH NEW FMCU.
6. REMOVE EXISTING FIRE ALARM INTERFACE FROM EXISTING FIRE SHUTTER. CONFIGURE FOR RE-USE WITH NEW FMCU.
7. REMOVE EXISTING FIRE ALARM INTERFACE FROM EXISTING ELECTROMAGNETIC DOOR HOLDERS. DOOR HOLDERS WILL REMAIN. CONFIGURE FOR RE-USE WITH NEW FMCU.
8. DEMO EXISTING DETECTION DEVICE, BACK-BOX, CONDUIT AND WIRE. REPLACE EXISTING CEILING TILE WITH NEW CEILING TILE. ALTERNATELY, THE EXISTING BACK-BOX MAY BE REUSED FOR THE NEW NOTIFICATION DEVICE, PROVIDED THAT THE BACK-BOX DIMENSIONS ARE COMPATIBLE WITH NEW NOTIFICATION DEVICE. EXISTING CONDUIT SERVING THE EXISTING BACK-BOX MAY BE USED IF THE CONDUIT IS NO LESS THAN 3/4 IN, IS INSTALLAED IN ACCORDANCE WITH THE NEC AND IS WARRANTED AS NEW. (TYPICAL)
9. DEMO EXISTING MANUAL PULL STATION, WIREMOLD, BACKBOX AND WIRE. PATCH AND PAINT MOUNTING HOLES AND TEXTURE TO MATCH SURROUNDING SURFACES.

WALL RATINGS

	SMOKE-RATED PARTITION
	1-HOUR FIRE-RATED BARRIER
	2-HOUR FIRE-RATED BARRIER

U.S. AIR FORCE

MARK	DESCRIPTION	DATE

U.S. AIR FORCE
SHEPPARD AIR FORCE BASE
MOUNTAIN HOME AIR FORCE BASE
MOUNTAIN HOME, IDAHO

DESIGNED BY: R. RICHTER
DRAWN BY: M. CLAUSEN
CHECKED BY: Z. SACHSENMAIER
SUBMITTED BY: R. TORRES
SIZE: ANSI D

ISSUE DATE: 8 AUGUST 2025
DELIVERY ORDER NO: FA4897-20-D-0001
CONTRACT NUMBER: FA4897-20-D-0001
PROJECT NUMBER: FD206261
SHEET NUMBER: 5 OF 12

FDR Engineering, Inc.
416 E. Pomeroy Ave, Ste. 101
Boise, ID
(208) 387-7000

MOUNTAIN HOME AIR FORCE BASE
B2606 FIRE ALARM REPAIR

LEVEL ONE DEMOLITION PLAN - FIRE ALARM

SHEET ID
B2606
FD101

65% DESIGN SUBMITTAL

C

Fire Alarm / Mass Notification Control Equipment Data Sheets

USER INTERFACE

LED INDICATORS

- General Alarm (Red)
- Supervisory (Yellow)
- System Trouble (Yellow)
- System Silenced (Yellow
- System Power (Green)

KEYPAD

- 12-key numeric pad
- Acknowledge
- Alarm Silence
- System Reset
- Drill
- F1-F4 Programmable Function Keys

PROGRAMMING

The 6820EVS system offers several options to simplify and expedite programming. JumpStart® auto programming minimizes programming required to start a new system. The built-in keypad, or the remote annunciators give on-site access to current system programming. System programming can also be accomplished using the Windows®-based Honeywell Fire Software Suite (HFSS).

ORDERING INFORMATION

6820EVS: Addressable fire alarm control panel with emergency voice system, red

COMPATIBLE EVS EQUIPMENT

EVS-50W: 50 Watt amplifier

EVS-125W: 125 Watt amplifier

EVS-100W: 50/100 Watt amplifier

EVS-100WBU: External backup amplifier

EVS-INT50W: 50 /Watt internal amplifier

EVS-CE4: Provides 4 additional audio circuits

EVS-RVM: Remote voice module

EVS-SW24: 24 switch expander

EVS-VCM: Network voice control module

EVS-LOC: Local operator console

COMPATIBLE SBUS DEVICES

6860: 4x40 LCD remote fire annunciator with four programmable buttons, red

5860: 4x20 LCD remote fire annunciator, gray

5860R: 4x20 LCD remote fire annunciator, red

6855: 4x20 LCD remote fire annunciator, red

5865-3: LED annunciators- display up to 30 LEDs (15 red/15 yellow)

5865-4: LED annunciators- display up to 30 LEDs (15 red/15 yellow). Key switches for silence and reset, and a system trouble LED

5880: LED I/O module with 40 programmable LED outputs and eight supervised dry contact inputs

5883: Relay interface. Provides 10 Form C relays

5824: Serial/Parallel printer interface module for printer connection

SK COMPATIBLE ADDRESSABLE DEVICES

Note: SKand SD devices cannot be mixed in the same fire alarm system.

SK-ACCLIMATE: Multi criteria photoelectric smoke detector with thermal 135°F fixed temperature

SK-BEAM: Reflected beam smoke detector without test feature

SK-BEAM-T: Reflected beam smoke detector with test feature

OSI-RI-SK: Reflected beam smoke detector, SK protocol

SK-CONTROL: Supervised control module

SK-CONTROL-6: Six circuit supervised control module

SK-DUCT: Photoelectric duct smoke detector with extended air speed range

SK-FIRE-CO: Four criteria fire and carbon monoxide detector

SK-FIRE-CO-W: Four criteria fire and carbon monoxide detector, white

SK-HEAT: Fixed thermal detector (135°F)

SK-HEAT-W: Fixed thermal detector (135°F), white

SK-HEAT-ROR: Fixed rate of rise detector

SK-HEAT-HT: Fixed high temperature heat detector (190°F)

SK-HEAT-HT-W: Fixed high temperature heat detector (190°F), white

SK-HEAT-ROR-W: Fixed rate of rise detector, white

SK-ISO: Fault isolator module

SK-MINIMON: Mini monitor module

SK-MONITOR: Monitor module

SK-MONITOR-2: Dual input monitor module

SK-MON-10: 10- input monitor module

SK-PHOTO: Photoelectric smoke detector

SK-PHOTO-W: Photoelectric smoke detector, white

SK-PHOTO-R: Photoelectric detector with remote test capability

SK-PHOTO-R-W: Photoelectric detector with remote test capability, white

SK-PHOTO-T: Photoelectric smoke detector with fixed heat (135°F)

SK-PHOTO-T-W: Photoelectric smoke detector with fixed thermal heat (135°F), white

SK-PTIR-W: Multi criteria photoelectric smoke detector with thermal 135°F fixed temperature, white

SK-PULL-SA Addressable single action pull station

SK-PULL-DA: Addressable dual action pull station

SK-RELAY: Addressable relay module

SK-RELAY-6: Addressable Six relay control module

SK-RELAYMON-2: Addressable Dual relay/monitor module

SK-ZONE: Addressable zone interface module

SK-ZONE-6: Six zone interface module

SK BASES

B210LP: 6" mounting base

B501: 4" Flangeless mounting base

B200S: Intelligent sounder base

B200S-LF: Low-frequency intelligent sounder base

B224RB: Relay base

B224BI: Isolator base

SD COMPATIBLE ADDRESSABLE DEVICES

Note: SK and SD devices cannot be mixed in the same fire alarm system.

SD505-6AB: Addressable 6" base

SD505-6IB: Addressable 6" short circuit isolator base

SD505-6RB: Addressable 6" relay base

SD505-6SB: Addressable 6" sounder base

SD500-AIM: Addressable input module (switch input)

SD500-ANM: Addressable notification module

SD500-ARM: Addressable relay module

SD505-DTS-K: Remote test switch/LED indicator for the SD505-DUCTR

SD505-DUCT: Addressable Duct Smoke Detector

SD505-DUCTR: Addressable Duct Detector housing with relay base

SD505-HEAT: Absolute temperature heat detector. Trip point range from 135°F–150°F (0°C–37°C)

SD500-LIM: Addressable Line isolator module

SD500-MIM: Addressable Mini input monitor module (switch input)

SD505-PHOTO: Photoelectric smoke detector

SD500-PS/-PSDA: Addressable Single or dual action pull station

SD500-SDM: Addressable smoke detector module

SWIFT WIRELESS DEVICES

Note: SWIFT is only compatible with System Sensor (SK) devices. It is not compatible with Hochiki (SD) devices.

WSK-WGI: Wireless gateway

WSK-PHOTO: Wireless photoelectric smoke detector with B501W base

WSK-PHOTO-T: Wireless photoelectric smoke detector with fixed thermal detection (135°F) and B501W base

W-SYNC: Wireless sync module

WSK-HEAT: Wireless, fixed heat detector (135°F) with B501W base

WSK-HEAT-ROR: Wireless rate-of-rise heat detector and B501W base

WSK-MONITOR: Wireless monitor module

WSK-RELAY: Wireless relay module

WSK-PULL-DA: Wireless pull station

WAV-RL, WAV-WL, WAV-CRL, WAV-CWL: Wireless AV bases

W-USB: Wireless USB radio/antenna dongle that plugs into the USB port of a PC running SWIFT Tools

SWIFT Tools: Programming and diagnostic utility for the wireless gateway and devices. Available for download from www.farenhyt.com

SYSTEM EXPANDERS

6815: SLC Expander for IDP or SK devices

5815XL: SLC expander for SD devices

RPS-1000: 6A power supply with 6 Flexput circuits & 2 Form C relays

5496: 6 amp NAC power expander with 4 power-limited output ckts

OPTIONAL COMMUNICATORS

CELL-CAB-SK: Cellular communicator, metal enclosure w/lock & key

CELL-MOD: Cellular communicator, plastic enclosure

IPGSM-4G: Dual path fire alarm communicator, cellular and/or IP (primary or backup, selectable)

SK-IP -2: Remote reporting via the Internet. Requires a VisorALARM® receiver at the central station

MISCELLANEOUS ACCESSORIES

SK-NIC: Network Interface Card. Provides a common communications link for the IFP-300

SK-NIC-KIT: Installation Accessory Kit

SK-FML: Fiber-Optic Multi Mode, transmitter and receiver

SK-FSL: Fiber-Optic Single Mode

RBB: Remote battery box accessory cabinet

SK-SCK: Seismic compliance kit used to fasten batteries to the fire panel

SOFTWARE SOLUTIONS

SKST: Silent Knight Selection Tool provides the installer or design architect with a Windows®-based software system configuration tool to create a detailed bill of material (BOM) and battery calculations

HFSS: Honeywell Fire Software Suite provides remote and local panel programming, detector status, event history and additional data. Databases can be uploaded/downloaded via the panel's USB port using a flash drive. Requires a PC running Microsoft® Windows®.

6820EVS TECHNICAL SPECIFICATIONS

SYSTEM CAPACITY

Intelligent Signaling Line Circuits: 1 (expandable)

Addressable device capacity: 1110 (SK) or 635 (SD)

Programmable software zones: 999

Output circuits: 6 (expandable)

SBUS devices: 24 (16 annunciators, 8 LED modules)

LOC units: 4

Addressable amplifiers (total watts): 8 (1000)

ELECTRICAL

AC Power: 120VAC, 60Hz, 3.3A

Standby Current: 190 mA

Alarm Current: 250 mA

Flexput Circuits: Terminal block provides connections for (six Class B or three Class A) NACs or auxiliary power. Power-limited, supervised circuitry. Maximum current per circuit: 3 A. Cannot exceed 6A total for all circuits. End-of-line resistor: 4.7k ohm, ½ watt for Class B NACs

Communication Loop: Supervised and power-limited, Class A or Class B, 32VDC, 150mA

Two Programmable Relays and One Fixed Trouble Relay: Contact rating: 2.5 A @ 27.4 VDC (resistive), Form C

Battery: Cabinet holds maximum of two 18 AH batteries

Battery Charger Capacity: 7-35 AH

PHYSICAL

Dimensions: 21.6" W x 28.1" H x 5.1" D (54.9cm W x 71.4cm H x 13.0cm D)

Weight: 50 lbs. (22.7 kg.)

Color: Red

TEMPERATURE AND HUMIDITY RANGES

This system meets NFPA requirements for operation at 0 – 49°C (32– 120°F) and at a relative humidity 93% ± 2% RH (non-condensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15 – 27° C/60 – 80°F.

STANDARDS AND CODES

The 6820 complies with the following standards and codes:

NFPA 72

NFPA 13

NFPA 15

NFPA 16

NFPA 70

UL 864 10th Edition

UL2572 2nd Edition

Central station; remote Signaling; Local Protective Signaling Systems; Auxiliary Protected Premises Unit; Water Deluge releasing service. Suitable for automatic, manual, waterflow, sprinkler supervisory (DACT non-coded) signaling services

AGENCY LISTINGS AND APPROVALS

UL Listed: S2766

CSFM: 7165-0559:0500

FDNY: COA# 6249

FM: Approved

Seismic: (CA) VMA-45894-05C:

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Country of origin: USA

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12 Clintonville Road
Northford, CT 06472-1610
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www.silentknight.com

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SILENT KNIGHT by Honeywell

IntelliKnight® Model EVS-RCU

Supervised Remote Command Unit

The EVS-RCU is a combination supervised remote microphone and annunciator which is compatible with the EVS-Series Emergency Voice System. The EVS-RCU meets UL requirements for a LOC. (Local Operator's Console).

For more information about the EVS-RCU, or to locate your nearest source, please call 800-328-0103.

Description

The included Remote Voice Module provides an interface to the Emergency Voice System and a supervised microphone for live communications. The annunciator is capable of performing complete operation of the fire alarm system, including silencing and resetting.

Features

- On-board supervised microphone.
- Programmable trigger inputs from an external source, such as a Monaco system, to either the RVM or 5880. Up to eight inputs available on the 5880 module.
- After the main panel unit, up to four EVS-RCU's can be added to provide a total of five command units. The EVS-RCU meets the requirements for a LOC.
- Up to 32 mappable speaker circuits using a combination of EVS-50W or EVS-125W's and EVS-CE4's mappable to 32 buttons controlling selected output groups.
- All Call and Non-Active Call buttons to quickly select all active or all the non-active output groups.
- Six-wire connection to EVS system; Two-wires for the voice bus, and four-wires for the SBUS connections.

Listings

- UL 864 and UL 2572

Meets the requirements for NFPA 72 Local Protective Signaling Systems & Emergency Communication Systems.

Other Listings:
CSFM

Model EVS-RCU

Installation

The EVS-RCU can be surface or flush mounted.

Compatibility

The EVS-50W is compatible with the following panel:

- 5820XL-EVS Voice Integration Panel with Fire Alarm Control

PN 350604 Rev C
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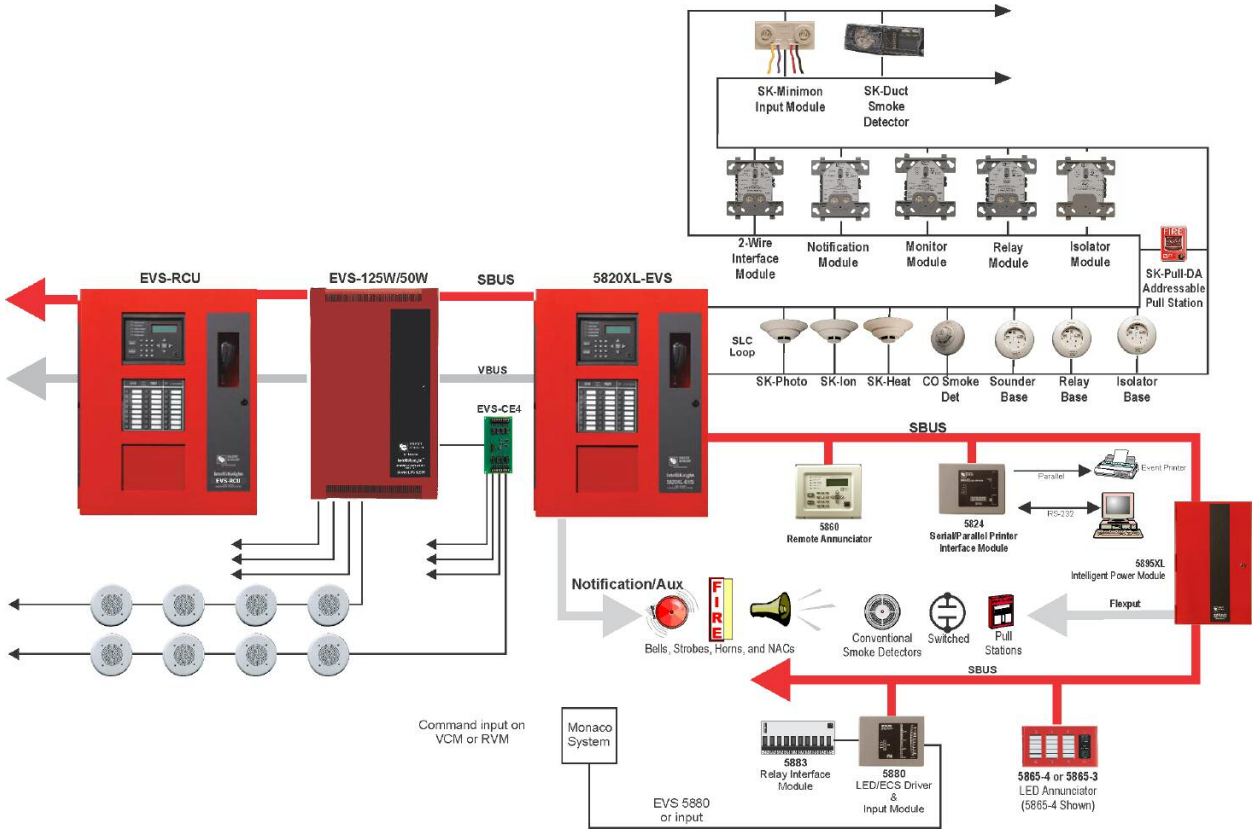

Specifications

Physical

Flush Mount Dimensions:
20.25”W x 26.75”H x 2.5”– 3”D
(51.4 W x 68 H x 6.4–7.6 D cm)

Overall Dimensions:
20”W x 26.5”H x 4.6”D
(50.75 W x 67.3 H x 11.8 D cm)

Color: Red

Environmental

Operating Temperature: 32ºF – 120ºF (0ºC – 49ºC)

Humidity: 10% – 93% non-condensing

Electrical

Standby Current: 100 mA (5860 + RVM + SW-24)

Alarm Current: 150 mA (5860 + RVM + SW-24)

Voice Integration Wiring:
- Six conductor
- Two voice bus
- Four SBUS

Ordering Information

EVS-RCU	Remote Command Unit

Accessories

EVS-SW24	24 Switch Expander
VIP-TR	Panel Trim Ring - For flush mounting

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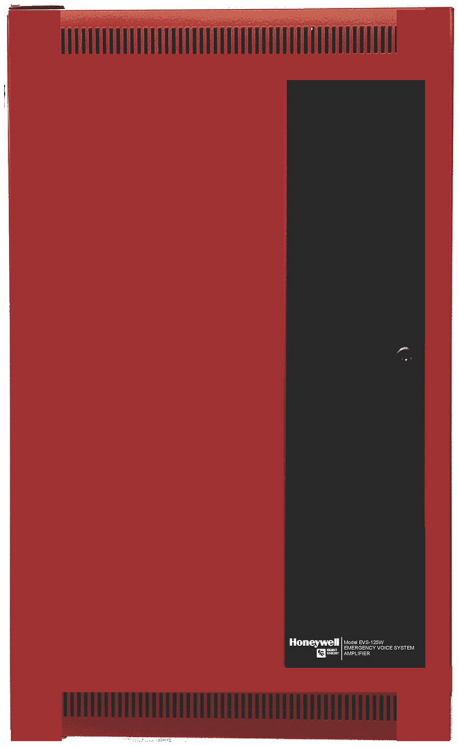
Assembled in USA

EVS-125W

Intelligent 125 Watt Amplifier

The EVS-125W is an amplifier compatible with the Silent Knight Emergency Voice System. The EVS-125W is used to amplify audio messages for distribution throughout entire facilities.



Since the EVS-125W is designed as a self-contained distributed amplifier, it can be conveniently located near the area of protection to reduce wiring demands. Each EVS-125W is capable of producing 125-watts of audio power. Up to four EVS-125W amplifiers can be used on the Emergency Voice System. The EVS-125W has its own power supply with battery backup and includes four speaker circuits which can be expanded to eight speaker circuits when used with the optional EVS-CE4. The EVS-125W is fully supervised by the main panel to identify any trouble conditions.

INSTALLATION

The EVS-125W can be surface- or flush-mounted.

COMPATIBILITY

The EVS-125W is compatible with the 6820EVS Addressable FACP with Emergency Voice System.

FEATURES AND BENEFITS

- Complies with UL 864 10th Edition and UL 2572 2nd Edition Standards
- Meets NFPA 72 standards
- SBUS addressable; supports up to four EVS-125W amplifiers per system for a total of 500 watts
- Supervised wiring with four onboard audio circuits, expandable to eight with the EVS-CE4 expander, for a system total of 32 audio circuits
- Uses an easy-to-install wire harness to connect the EVS-CE4 audio circuit expander
- Mountable up to 6,000 feet away from the EVS panel
- Includes power supply and backup battery
- Provides six-wire connection to the EVS system:
  - Two wires for voice bus connections
  - Four wires for SBUS connections
- Can be surface- or flush-mounted

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EVS-125W TECHNICAL SPECIFICATIONS

PHYSICAL

Flush Mount Dimensions:
14.05"W x 24.75"H x 3.04"D
(36.08 W x 62.09 H x 8.07 D cm)

Overall Dimensions:
16.0"W x 26.25"H x 4.01"D
(40.06 W x 66.07 H x 10.05 D cm)

Color: Red

ENVIRONMENTAL

Operating Temperature: 32°F to 120°F (0°C to 49°C)

Humidity: 10% to 93% relative humidity (non-condensing)

ELECTRICAL

Primary AC: 120 VAC @ 60Hz

Standby Current: 300mA

Alarm Current: 2200mA

Total Power: 125W @ 25VRMS

- Circuit 1: Rated at 100W each
- Circuit 2-4: Rated at 50W each

EVS-CE4 Circuits 5-8: Rated at 50W each

Main EVS Panel SBUS:

Standby Current: 10mA

Alarm Current: 10mA

Battery Charging Capacity: 7 – 35AH

Battery Size: 18AH max. allowed in the cabinet. Use the RBB accessory cabinet for larger batteries up to 35AH per system.

Voice Integration Wiring (Six Connectors):

- Two voice bus
- Four SBUS

ORDERING INFORMATION

EVS-125W: Intelligent 125W Amplifier, red

ACCESSORIES

EVS-CE4: Audio Circuit Expander

RBB: Remote Battery Box accessory cabinet. Use for backup batteries up to 35AH and batteries too large to fit into an EVS-125W cabinet.

SK-SCK: Seismic Compliance Kit

STANDARDS AND CODES

The EVS-125W Series complies with the following standards and codes.

- UL 864, 10th Edition: Standard for Control Units for Fire Alarm Systems
- UL 864, Local Protective Signaling Systems
- UL 2572, 2nd Edition: Standard for Mass Notification Systems
- UL 1711
- NFPA 13, NFPA 70, NFPA 72

AGENCY LISTINGS AND APPROVALS

- **UL Listed:** S2766
- **CSFM Approved:**7165-0559:0500
- **FDNY:** COA # 2023-TMCOAP-001920-RENL

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Country of origin: USA

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5895XL

Intelligent Distributed Power Module

The 5895XL is an intelligent distributed power module that adds 6.0 amps of power, six Flexput® I/O circuits, and two Form C relay circuits to a compatible Honeywell Silent Knight Series addressable system.

The 5895XL is available in a red cabinet for 120VAC operation and in a red cabinet for 240VAC operation (RPS-1000HV).

The 5895XL connects to the FACP via the RS-485 system bus allowing up to an additional 6,000 feet of wiring. Each 5895XL is optically isolated providing ground loop isolation and transient protection. The 5895XL supports its own backup battery and monitors the AC power.

The green LED on the 5895XL board indicates communication with a Honeywell Silent Knight Series FACP.

The Flexput circuits can be used as notification appliance circuits, continuous power, resettable power, door holder power, or as conventional initiation circuits that can support both 2- and 4-wire smoke detectors and contact devices (e.g. pull stations). All Flexput circuits and relay outputs are individually mappable from the Silent Knight FACP.

COMPATIBILITY

The 5895XLis compatible with the following Silent Knight FACPs:

- 6820/EVS (16 max. per panel)
- 6808 (8 max. per panel)
- 6700 (8 max. per panel)
- 5820XL/-EVS (8 max. per panel)
- 5808 (8 max. per panel)
- 5700 (8 max. per panel)

FEATURES AND BENEFITS

- Complies with UL 864 10th Edition and ULS 2572 2nd Edition Standards
- Provides 6.0 amps output power
- Uses Flexput I/O circuits, 3A each, programmable as notification circuits, auxiliary power, circuits, or initiation circuits
- Supports Class A and Class B configuration of the SBUS and Flexput circuits
- Includes Two Form C programmable relays rated at 2.5A @ 24 VDC
- Ground loop isolation and transient protection
- SBUS optical isolation and re-conditions the RS- 485 signal
- Built-in synchronization compatible with appliances from System Sensor®, AMSECO®, Gentex®, and Wheelock®
- Up to 6,000 foot wiring distance from the 5895XL
- Battery charging capacity is 35AH
- Offers a large cabinet size that can house the following:
  - two 18AH backup batteries
  - RBB accessory cabinet that can house battery sizes larger that 18AH
- Allows space to mount two 6815 or 5815XL SLC expander modules
- Provides transient protection
- SBUS repeater conditions the RS-485 signal 5895XL
- Six onboard Flexput circuits programmable for the following:
  - Notification appliance circuits (Class B/Class A)
  - Conventional initiation circuits (Class B/ Class A) both 2- and 4-wire
  - Auxiliary power (for door holders, continuous power, or resettable power

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5895XL TECHNICAL SPECIFICATIONS

PHYSICAL

Mounting Dimensions:
14.05"W x 24.75"H x 3.09"D
(36.08 cm W x 62.09 cm H x 9.08 cm D)

Overall Dimensions:
16.01"W x 26.04"H x 4.01"D
(40.6 cm W x 67.0 cm H x 11.8 cm D)

Color: Red

ENVIRONMENTAL

Operating Temperature: 32°F-120°F (0°C -49°C)

Humidity: 10%-93% non-condensing

ELECTRICAL

Primary AC: 120 VRMS, 50 or 60Hz, 2.5A

Total Accessory Load: 6A @ 24VDC

Currents:

Standby: 40mA

Alarm: 160mA

SBUS Standby & Alarm: 10mA

Flexput Circuits:

Notification: 3 amps per circuit (6A system total)

Initiation: 100mA power-limited @ 24VDC

ORDERING INFORMATION

5895XL: Intelligent Distributed Power Module, red, 120VAC operation

Specify 120 VAC operation when ordering.

ACCESSORIES

RBB: Remote Battery Box Accessory Cabinet. 16" W x 10" H x 6" D (406 mm W x 254 mm H x 152 mm D)

6815: SLC Expander Module for SK devices

5815XL: SLC Expander Module for SD devices

SK-SCK: Seismic Compliance Kit

STANDARDS AND CODES

The 5895XL complies with the following standards and codes.

- UL 864, 10th Edition: Standard for Control Units for Fire Alarm Systems
- UL 2572, 2nd Edition: Standard for Mass Notification Systems
- NFPA:
  - NFPA 13
  - NFPA 70
  - NFPA 72

AGENCY LISTING AND APPROVALS

- UL Listed: S35111
- FDNY Approved
- FM Approved

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Country of origin: U.S.A.

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12 Clintonville Road
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www.silentknight.com

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7707 Fire Subscribers

IntelliNet 2.0

A Newer, Smarter Alarm Communications Platform

Feature Highlights

- Leverages state of the art technology
- Applies advanced security protection
- Offers flexible power and configuration options
- Engineered for backward compatibility with legacy systems
- Enables future ready capabilities
- Provides instant subscriber status through front panel with Power and Trouble LEDs, a backlit LCD display, and Menu/Silence button
- Includes dual communication/multiple communication technology (reporting over RF and IP.
- Improves functionality with an adaptive Graphic User Interface (GUI) for programming via smartphones, tablets and PCs
- Plus many more…

Key Benefits

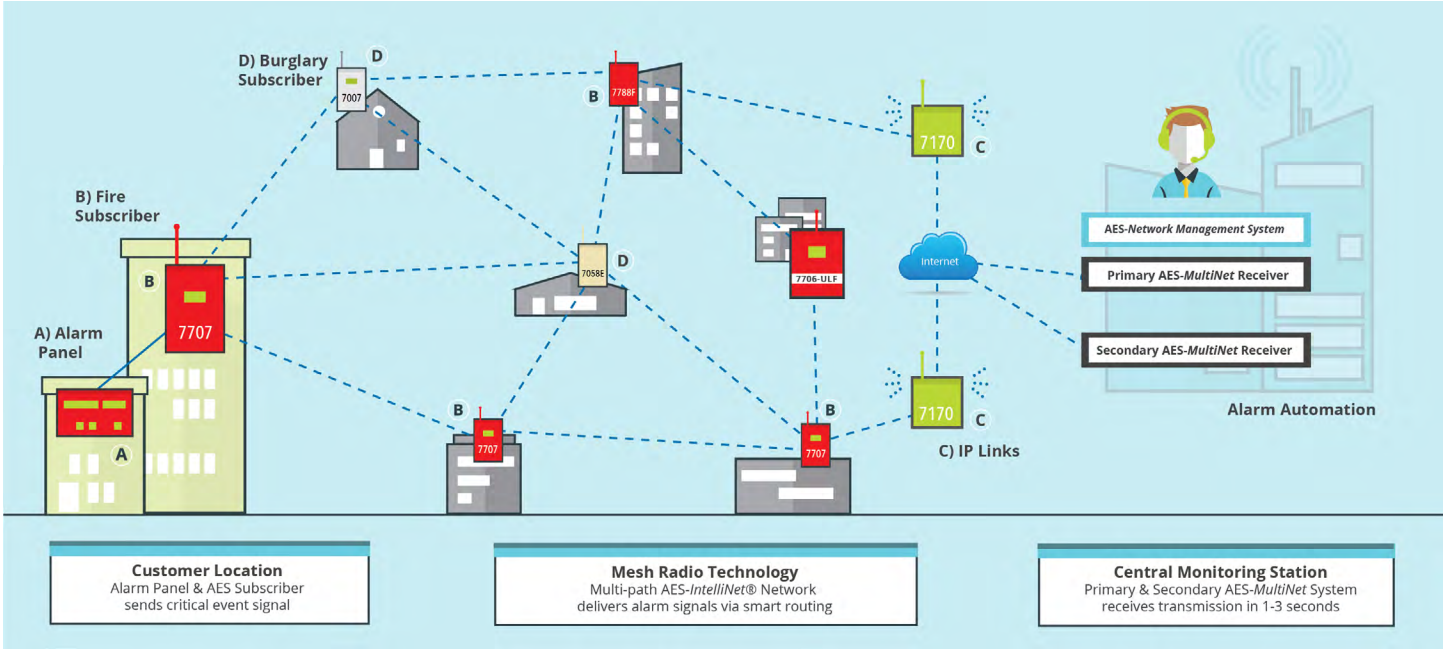
- Built upon the solid foundation of AES-*IntelliNet* patented mesh radio technology for use in private licensed wireless networks
- Protects subscriber units against unauthorized access and rogue activity with a password-protected Dealer Code
- Makes programming and streamlined troubleshooting easy with user friendly interface
- Adds integrated supervision of AES-*IntelliPro* full data module
- Provides versatile power options:
  (1) Direct from the Fire Alarm Control Panel (FACP) without requiring an electrician onsite and without Subscriber backup battery;
  (2) Directly from the FACP with Subscriber backup battery; or
  (3) Traditional installation with plug in Class 2 low power transformer
- Allows for enhancement upgrades and an expanded number of new features to be added easily with highly flexible and scalable alarm communications infrastructure
- Rigorously tested to the highest industry standards and future ready to meet emerging NFPA code and UL standards

Enhanced Wireless Fire Alarm Monitoring

Powered by AES enhanced mesh radio technology, *IntelliNet* 2.0 7707 Fire Subscribers are next generation universal wireless communicators that provide advanced security protection for any new or existing alarm monitoring network. The AES Model 7707 is ideal for commercial fire applications. With the AES-*IntelliPro* full data module option, they are the ideal drop-in replacement for Plain Old Telephone Service (POTS) lines.

The red metal enclosure comes with a key lock and front panel LCD backlit display with intuitive view that provides an instant visual of the subscriber status. The user friendly GUI makes it easy to program AES subscriber units via a smartphone, laptop, tablet, or integrated Universal Serial Bus (USB)—without the need for special cables or having to use a handheld programmer. Additional knockouts make it easier to mount for faster installation.

IntelliNet 2.0 Private Wireless Mesh Radio Network



The *IntelliNet* 2.0 Fire Subscriber has an 8 Zone modular design for expansion with normal and reverse polarity, POTS and DACT interfaces with an option for the 7794A AES-*IntelliPro* full data module add-on accessory board. AES subscribers' intelligent software automatically detects new hardware and devices to reduce installation time.

An AES certified WiFi accessory allows seamless wireless connectivity for configuration and programming. A laptop, Ethernet cable, or a Wi-Fi USB dongle is required for *IntelliNet* 2.0 programming, handheld programmers will not work with 2.0 units. A FACP Power Supply Adapter is required for certain configurations when using flexible power options. The forward compatible design allows for feature add-ons, engineered to adapt seamlessly with future software upgrades as technology advances. *IntelliNet* 2.0 allows configuration cloning for faster installation time.

The AES 7707 was designed with quick configuration and installation in mind to make it easier for field technicians to get in, out, and on to the next install.

Visit our Fire Marshal Resources web page for official NFPA and UL Listings:
aes-corp.com/products/fire/fire-marshal-resources

***IntelliNet* 2.0 Fire Subscribers**	
2.0 PREMIUM (UL & ULC Listed)	
7707P-88-M	*IntelliNet* 2.0 Fire Subscriber, 8 Zone with Multiple Communication Technologies (MCT), Red Enclosure
7707P-88-ULP-M	*IntelliNet* 2.0 Fire Subscriber, 8 Zone with 7794A AES-*IntelliPro*, and integrated onboard Local Annunciator plus MCT, Red Enclosure
7707P-44-M	*IntelliNet* 2.0 Fire Subscriber, 4x4 Zone (4 Reversing Polarity, 4 Supervised) with Multiple Communication Technologies (MCT), Red Enclosure
7707P-44-ULP-M	*IntelliNet* 2.0 Fire Subscriber, 4x4 Zone (4 Reversing Polarity, 4 Supervised) with 7794A AES-*IntelliPro*, and integrated onboard Local Annunciator plus MCT, Red Enclosure
2.0 ACCESSORIES	
7794A	Standalone AES-*IntelliPro* Fire full data module add-on accessory board with firmware for new *IntelliNet* 2.0 units only, cannot be used in legacy units
77-WiFi	AES certified WiFi adapter
77-FACPA	FACP Power Supply Adapter for internal mount
77-FACPA-KIT	External installation hardware for 2-way Junction Box
***Legacy* Fire Subscribers**	
7706-ULF	Integrated Fire Monitoring System, Red Enclosure
7788F-ULP-P	Legacy Fire Subscriber, 8 Zone with 7795 AES-*IntelliPro* (7794 full data module, 7762 hardware supervisory module, and 7740 Local Annunciator), Red Enclosure
7788F-ULP	Legacy Fire Subscriber, 8 Zone, 8 Supervised Zones with 7794 AES-*IntelliPro*, Red Enclosure
7788F	Legacy Fire Subscriber, 8 Zone, 8 Supervised Zones, Red Enclosure
7744F-ULP-P	Legacy Fire Subscriber, 4 Zone with 7795 AES-*IntelliPro* (7794 full data module, 7762 hardware supervisory module, and 7740 Local Annunciator), Red Enclosure
7744F-ULP	Legacy Fire Subscriber, 4x4 Zone, 4 Supervised Zones with 7794 AES-*IntelliPro*, Red Enclosure
7744F	Legacy Fire Subscriber, 4x4 Zone, 4 Reversing Polarity, 4 Supervised Zones, Red Enclosure
LEGACY ACCESSORIES	
7794	Standalone AES-*IntelliPro* Fire full data module add-on accessory board for legacy units only, please see 7794A above for *IntelliNet* 2.0 version

Technical Specifications

7707 Fire

DIMENSIONS
13”H x 8.5”W x 4.5”D
(33cmH x 21.5cmW x 11.4cmD)

WEIGHT
5.8 lbs (2.6 kilograms)
excluding battery
13 lbs (5.9 kilograms) with
10 Ah battery

RADIO FREQUENCY
Standard Frequency Range:
450-470 MHz
Contact AES for other UHF
and VHF frequencies

ANTENNA
2.5 dB tamper resistant antenna
included, mounts on enclosure
Optional remote mounting
antenna available

POWER INPUT
AC SOURCES
Transformer: Class 2
16.5V AC nominal output
1.9 A max current (40 VA MIN)
ELK ELK-TRG1640,
MG ELECTRONIC SALES MGT1640,
or AES 1640 (not included)
DC SOURCES (includes FACP)
24V DC Regulated Power Supply
with Subscriber
Rechargeable Battery
1.9 A max current

BACKUP BATTERY
10-12 Ah, UL recognized lead acid
gel cell, size based on subscriber
configuration

ALARM SIGNAL INPUTS/ZONES
- 8 individually programmable E.O.L. type zone inputs
- 4+4: 4 reverse polarity input and 4 individually programmable E.O.L. type zone inputs
- Optional 7794A AES-*IntelliPro* for full data via Contact ID, Pulse, Modem IIe and Modem IIIa2

UL LISTINGS
UL 864 10th Edition
Standard for Control Units and
Accessories for Fire Alarm Systems
ULC S559-04 1st Edition
Equipment for Fire Signal
Receiving Centres and Systems

TROUBLE OUTPUT—ACK DELAY/ANTENNA CUT
Form C relay, fail secure, rated 24V
DC 1A resistive, unsupervised

RESET BUTTON
Located on main circuit board

OPERATING TEMPERATURE
32 to 120°F (0 to 49°C)

STORAGE TEMPERATURE
14 to 140°F (-10 to 60°C)

RELATIVE HUMIDITY
0 to 93%, non-condensing

RECHARGE CAPABILITY
Will charge 12V battery size
from 10-12 Ah

PORTS
Ethernet for configuration
and message communication
USB access for software upgrade

REMOTE ANNUNCIATOR
AES Model 7740
Remote Annunciator, supervised

COMPATIBLE RECEIVERS
7705i AES-MultiNet Receiver

CONFIGURATION INTERFACE
Web browser capable device
accessible via smartphone, tablet,
laptop, or PC

CURRENT CONSUMPTION
Standby w/ charged backup battery:
200 mA (1.2 A Transmitting)
Standby + charging backup battery:
900 mA (1.9 A Transmitting - MAX)

POWER OUTPUT
2 or 5 Watts
Factory set

ENCLOSURE MATERIAL
Steel with paint finish

FINISH COLOR
Red

VISUAL INDICATORS
Front panel LCD
(2 x 20 alphanumeric character
backlit display)
Power and Trouble LEDs
(ALM, Trouble, Tx, Rx, WA)

Contact Us

For pricing and availability or to learn more about *IntelliNet* 2.0, please call your local AES Sales Representative at (800) 237-6387 or email sales@aes-corp.com.

aes-corp.com

AES Corporation | 285 Newbury Street | Peabody, MA 01960 United States

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D

Asbestos and lead inspection report

Report of Asbestos and Lead Inspection MHAFB Chapel (Facility 2606) Kitchen

Mountain Home Air Force Base
Mountain Home, Idaho

Prepared for:
Paul Derr,
Project Manager
HDR, Inc.

Prepared by:
Rebecca Ellis
AHERA Building Inspector
Anthony Bongiovano
EPA Lead Inspector

Assessment Date:
September 20, 2018

Report Date:
October 9, 2018

Project Number:
6068

8312 W Northview St. #100, Boise, ID, 83704 • 208-323-8287 • www.industrialhygieneresources.com

Executive Summary

Industrial Hygiene Resources (IHR: www.industrialhygieneresources.com) of Boise, Idaho was contracted by HDR, Inc. to conduct a limited hazardous materials inspection of the Chapel (Facility 2606) kitchen and fellowship hall #1 located on the Mountain Home Air Force Base in Mountain Home, Idaho. The inspection was focused on asbestos containing materials (ACM) and lead-based paints (LBP). This evaluation was the first action to support renovation activities.

Rebecca Ellis and Anthony Bongiovano of IHR, conducted the inspection on September 20, 2018. Rebecca is an accredited (AHERA)[1] Asbestos Building Inspector and Anthony is an EPA Lead Based Paint Inspector. Matthew Call, CIH, CSP, Vice President of IHR reviewed and approved this survey report.

Conclusions

- The following building materials contained greater than 1% asbestos and were characterized as asbestos containing material (ACM):

  Miscellaneous:
  - Black mastic under vinyl floor tile in the fellowship hall #1: ~2,300 ft^2

- No lead-based paint was found on surfaces in the chapel kitchen and fellowship hall #1.

Recommendations

- ✓ Contractors should be apprised of the presence of asbestos in these buildings.

- ✓ Prior to any renovation requiring the removal of asbestos above the threshold of 160 square feet, or 260 linear feet, a 10-day notification must be filed with Environmental Protection Agency (EPA). All asbestos containing materials (ACM) should be abated by a qualified contractor utilizing AHERA trained workers. Upon removal, all ACM must be disposed of at a landfill qualified to accept asbestos containing waste material. All demolition projects must submit a 10-day notification to EPA even if no asbestos is present.

[1] AHERA: Asbestos Hazard Emergency Response Act - 1985 ("Asbestos in Schools").

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Background

The Chapel is located on the Mountain Home Air Force Base. This single-story building consisted of offices, restrooms, fellowship halls, a chapel, and a kitchen.

Asbestos is also regulated by the US Environmental Protection Agency (EPA) via three regulations. All regulations apply when building materials contain greater than 1% asbestos (>1%):

1) National Emission Standards for Hazardous Air Pollutants (NESHAP-Asbestos)
2) Asbestos Hazard Emergency Response Act (AHERA-schools-1983). This Act provided officials in schools, K-12, with rules and guidance for the management of asbestos containing materials. The majority of asbestos related procedures and regulations are based on this act. EPA produced regulations (40CFR763) mandating eight topics, with the first one being inspections (as produced here in this report). This section also includes EPA Worker Protection Rule (subpart G of AHERA).
3) Asbestos School Hazard Abatement Reauthorization Act (ASHARA-1992). This regulation extended AHERA regulations to cover public and commercial buildings.

The US Occupational Safety and Health Administration is charged with protecting the health of workers (OSHA: https://www.osha.gov/SLTC/asbestos/index.html). OSHA considers building materials that contain any amount of asbestos to have the potential to cause excessive asbestos fiber exposures to employees (including contractors), and regulates operations and restoration work via its asbestos general industry and construction standards. The full standard applies when building materials contain greater than 1% asbestos (>1%).

OSHA also regulates worker exposures to lead. OSHA considers any amount of lead in paint to have the potential to cause excessive lead exposures to workers (and to their children). Where lead is present in building materials, OSHA requires employers to perform exposure assessments that consider the type of work that may disturb the lead.

Table I: Potential hazards evaluated during this assessment, September 20, 2018.

Potential Hazard	Source / Product	Physical State	Defining Threshold	Source	Limit Type
Asbestos	Building Materials	Solid	>1.0 % Asbestos	EPA	Regulatory
Lead-Based Paint	Paint	Solid	Any amount	OSHA	Regulatory

Objectives

The purpose of this work was to identify Asbestos Containing Material (ACM) and Lead Based Paint (LBP) to support the planned renovation of this building. Ultimately, the purpose of this work was to protect building occupants and workers from asbestos and lead hazards.

Methods

Asbestos Inspection:

Rebecca Ellis, an accredited (AHERA)[2] Asbestos Building Inspector, performed the survey work on September 20, 2018. Rebecca collected thirteen bulk samples of building materials suspected of containing asbestos during the inspection. The asbestos sampling scheme was developed to comply with ASHARA and NESHAP requirements

Asbestos containing materials (ACM) are defined as materials with an asbestos content greater than 1% by volume (>1%). If a sample is found to have a trace of asbestos, but less than 10% by PLM, it should be assumed to be asbestos. In order for a material to not be considered ACM, the sample must be re-analyzed by the point-count method, and documented to be 1% or less (≤1%). Two samples were point counted for this inspection.

Asbestos bulk samples were analyzed by DCM Science Lab, Inc. (www.dcmsciencelab.com) located at 12421 West 49th Ave, #6, Wheat Ridge, Colorado. DCM is accredited by the NVLAP/NIST[3] program for asbestos in bulk materials. DCM Science Laboratory is also accredited by the AIHA[4] for the analysis of asbestos air samples (www.aihaaccreditedlabs.org). The laboratory results are presented in the Appendix.

[2] AHERA: Asbestos Hazard Emergency Response Act - 1985 ("Asbestos in Schools").
[3] NVLAP/NIST: National Voluntary Laboratory Accreditation Program/National Institute of Standards and Technology (asbestos in bulk materials).
[4] AIHA: American Industrial Hygiene Association.

Lead-Based Paint:

Anthony Bongiovano, an accredited EPA Certified Lead Paint Inspector, performed the survey work on the same day September 20, 2018. Anthony used a direct reading, Thermo-Scientific, Niton®, XLp 300 Lead Paint Analyzer (Serial Number 23516) to quantify concentrations of lead in paint on surfaces. These included interior walls, doors, and door jambs. Anthony sampled nine locations for lead and included periodic calibration checks for accuracy verification.

Table II: Sampling and Analytical Methods for Bulk Asbestos and Direct Reading XRF Samples

Air Contaminant	Sample Type	Analytical Method	Detection limit
Asbestos	*Bulk Material*	*PLM Method 600*	0.25%
Lead	*Direct reading*	*XRF*	0.01 mg/cm^2

Results and Discussion:

Asbestos Containing Materials (Table III):

The Figures and Table IV document the presence and concentrations of asbestos found in building materials from this inspection. The building materials found to have regulated amounts of asbestos are as follows:

Thermal System Insulation:

- None.

Surfacing:

- None.

Miscellaneous:

- Black mastic under vinyl floor tile in the fellowship hall #1: ~2,300 ft^2

Non-Regulated Materials (no regulated amounts of asbestos):

- The following building material samples scheduled to be impacted for renovation were found to have no regulated amounts of asbestos (<1% asbestos by volume). Any of these types of building materials generated from remodeling or demolition activities can be discarded as general construction debris at the local landfill.

  - ✓ Ceiling tiles
  - ✓ Sheet vinyl
  - ✓ Cove base
  - ✓ Mudded elbow
  - ✓ Drywall

Mountain Home Air Force Base
Chapel and Fellowship Hall #1
Sample Locations

Mountain Home, Idaho
October 2018

Legend:
12"x12" VFT with black mastic underneath

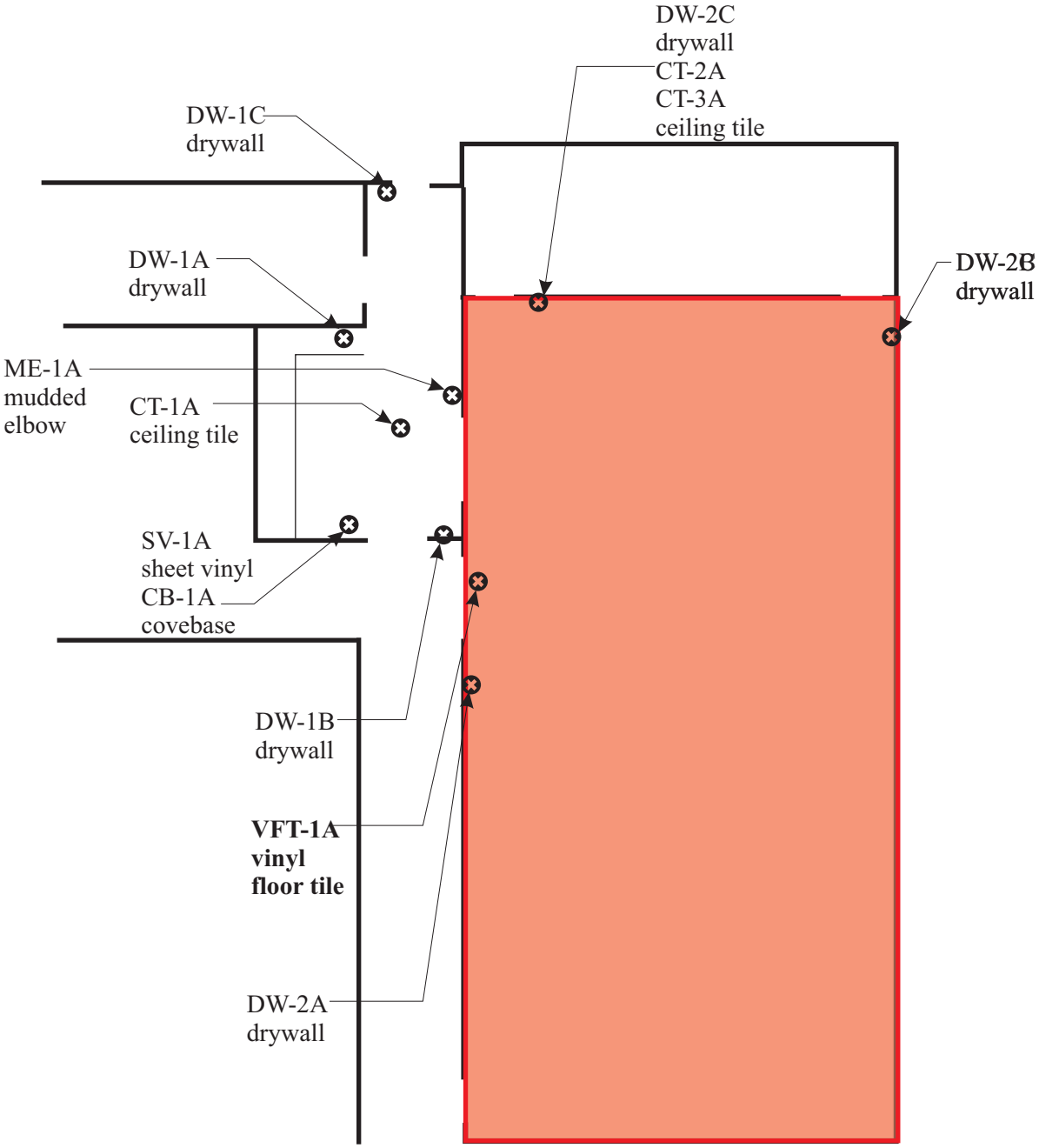

Table III: Asbestos Content in Building Materials: MHAFB Chapel Kitchen

Sample Number	Description/Location	Results % Asbestos*	Material Condition**
SV-1A	Sheet vinyl flooring/kitchen		N/A
	A. Yellow mastic	ND	
	B. Grey fibrous resin	ND	
	C. Multicolored resinous tile	ND	
CB-1A	Covebase-blue 4in/kitchen		N/A
	A. White mastic	ND	
	B. Blue basecove	ND	
DW-1A	Drywall-blue wall/kitchen		N/A
	A. Blue/white paint	ND	
	B. White texture	ND	
DW-1B	Drywall/ kitchen east side		N/A
	A. Tan/white paint	ND	
	B. Tan fibrous	ND	
	C. White texture	ND	
	D. White drywall	ND	
DW-1C	Drywall/kitchen west entrance		N/A
	A. Tan paint	ND	
	B. Tan fibrous	ND	
	C. White texture	ND	
	D. White drywall	ND	

*Asbestos containing materials (ACM), under current EPA regulation are defined as material with an asbestos content greater than 1% by volume. OSHA regulation defines ACM as material with any amounts of asbestos content, including trace amounts.
Bolded numbers are above the regulatory threshold for regulated asbestos.
** Good condition: no visible damage or deterioration
Fair condition: damaged
Poor condition: significantly damaged
† Sample was point counted

Table III (continued): Asbestos Content in Building Materials: MHAFB Chapel Kitchen

Sample Number	Description/Location	Results % Asbestos*	Material Condition**
CT-1A	Ceiling tile 2x4 bird's feet/kitchen		N/A
	A. White texture	ND	
	B. Tan perlitic ceiling tile	ND	
ME-1A	Mudded elbow/Above ceiling north kitchen side		N/A
	A. White paint	ND	
	B. White fibrous woven	ND	
	C. Grey fibrous plaster		
DW-2A	Drywall/fellowship hall #1 south wall		N/A
	A. White texture	ND	
	B. White drywall	ND	
	C. Tan/white fibrous	ND	
	D. Multicolored paint	ND	
	E. Grey drywall mud	0.75% Chrysotile †	
DW-2B	Drywall/fellowship hall #1 north wall		N/A
	A. White texture	ND	
	B. Multicolored paint	ND	
	C. Tan fibrous	ND	
	D. White drywall	ND	
DW-2C	Drywall/fellowship hall #1 west wall		N/A
	A. White texture	ND	
	B. White paint	ND	
	C. Grey drywall mud	0.50% Chrysotile †	
CT-2A	Ceiling tile 2x2 birds feet/fellowship hall #1		N/A
	A. White paint	ND	
	B. Tan perlitic ceiling tile	ND	

*Asbestos containing materials (ACM), under current EPA regulation are defined as material with an asbestos content greater than 1% by volume. OSHA regulation defines ACM as material with any amounts of asbestos content, including trace amounts.
Bolded numbers are above the regulatory threshold for regulated asbestos.
** Good condition: no visible damage or deterioration
Fair condition: damaged
Poor condition: significantly damaged
† Sample was point counted

Table III (continued): Asbestos Content in Building Materials: MHAFB Chapel Kitchen

Sample Number	Description/Location	Results % Asbestos*	Material Condition**
CT-3A	Ceiling tile 1x1 stapled/above fellowship hall ceiling		N/A
	A. White plaster	ND	
	B. White paint	ND	
	C. Yellow ceiling tile	ND	
VFT-1A	**Vinyl floor tile 12''x12'' tan/fellowship hall #1**		Good
	A. Black tar	**9.0% Chrysotile**	
	B. Grey concrete	ND	
	C. White plaster	ND	
	D. Yellow mastic	ND	
	E. White tile	ND	

*Asbestos containing materials (ACM), under current EPA regulation are defined as material with an asbestos content greater than 1% by volume. OSHA regulation defines ACM as material with any amounts of asbestos content, including trace amounts.
Bolded numbers are above the regulatory threshold for regulated asbestos.
** Good condition: no visible damage or deterioration
Fair condition: damaged
Poor condition: significantly damaged
† Sample was point counted

Lead-Based Paint (Table IV):
Table V documents the concentrations of lead-based paint on the painted surfaces. In Table IV, the column labeled Total Pb (PbC) is the concentration of lead in the paint in milligrams of lead per square centimeter of surface area (mg/cm^2). Painted surfaces containing lead are marked with bold print.

Materials regulated under the OSHA Lead in Construction Standard:

- None

Lead in Surface Coatings (Table IV):

Table V documents the amount of lead present in paint on building surfaces from this inspection.

Table IV: Concentrations of Lead in in Surface Materials: MHAFB Chapel Kitchen

Reading No.	Color	Component	Substrate	Area	Side	Total Pb (PbC)
1	RED	Calibration		Chapel		1.4
2	BLUE	Wall	Drywall	Chapel	S	<LOD
3	BEIGE	Wall	Drywall	Chapel	S	<LOD
4	TAN	Wall	Drywall	Chapel	N	<LOD
5	TAN	Wall	Drywall	Chapel	W	<LOD
6	RED	Calibration		Chapel		0.9

Conclusions

- The following building materials contained greater than 1% asbestos and were characterized as asbestos containing material (ACM):

  Miscellaneous:
  - Black mastic under vinyl floor tile in the fellowship hall #1: ~2,300 ft^2

- No lead-based paint was found on surfaces in the chapel kitchen and fellowship hall #1.

Recommendations

- ✓ Contractors should be apprised of the presence of asbestos in these buildings.

- ✓ Prior to any renovation requiring the removal of asbestos above the threshold of 160 square feet, or 260 linear feet, a 10-day notification must be filed with Environmental Protection Agency (EPA). All asbestos containing materials (ACM) should be abated by a qualified contractor utilizing AHERA trained workers. Upon removal, all ACM must be disposed of at a landfill qualified to accept asbestos containing waste material. All demolition projects must submit a 10-day notification to EPA even if no asbestos is present.

Report by:

Rebecca Ellis
Occupational Safety and Health
AHERA Building Inspector
Certification #5892-11

Anthony S Bongiovano
Industrial Hygiene Technician
EPA Lead Inspector Certificate: LBP-I-I176053-1

Reviewed By:

Matthew Call, MS, CIH, CSP
Vice President
Industrial Hygiene Resources (IHR)

Appendix A-Photolog

Photo 1: View of the sample location for the vinyl floor tile located in the fellowship hall #1. The black mastic on the underside of the tile contains 9.0% chrysotile asbestos.

Appendix B- Laboratory Reports

DCM SCIENCE LABORATORY, INC
12421 W. 49TH AVENUE, UNIT #6
WHEAT RIDGE, CO 80033 (303) 463-8270

BULK ASBESTOS TEST REPORT

CLIENT:
INDUSTRIAL HYGIENE RESOURCES
8312 NORTHVIEW, SUITE #100
BOISE, ID 83704

ANALYSIS DATE: 9-25-18
REPORTING DATE: 9-26-18
RECEIPT DATE: 9-21-18
CLIENT JOB NO.: 6068
PROJECT TITLE: MHAFB CHAPEL KITCHEN
DCMSL PROJECT: IHR5364

PERCENTAGE COMPOSITION BY VISUAL ESTIMATE

DCMSL SAMPLE NUMBER	CLIENT SAMPLE NUMBER	SAMPLE DATE	DESCRIPTION	PERCENT OF SAMPLE	ASBESTOS TYPE	RANGE	%	TOTAL ASBESTOS IN SAMPLE	OTHER FIBROUS CONSTITUENTS	NON-FIBROUS CONSTITUENTS	TOTAL PERCENTAGE IDENTIFIED MATERIALS
-1	SV-1A	9-20-18	A. YELLOW MASTIC	4.0%			ND		0.0	100.0	100.0
			B. GREY FIBROUS RESIN	25.0%			ND		60.0	40.0	100.0
			C. MULTICOLORED RESINOUS TILE	71.0%			ND		0.0	100.0	100.0
								ND			
-2	CB-1A	9-20-18	A. WHITE MASTIC	2.0%			ND		0.0	100.0	100.0
			B. BLUE BASECOVE	98.0%			ND		0.0	100.0	100.0
								ND			
-3	DW-1A	9-20-18	A. BLUE/WHITE PAINT	7.0%			ND		0.0	100.0	100.0
			B. WHITE TEXTURE	93.0%			ND		0.0	100.0	100.0
								ND			
-4	DW-1B	9-20-18	A. TAN/WHITE PAINT	4.0%			ND		0.0	100.0	100.0
			B. TAN FIBROUS	5.0%			ND		100.0	0.0	100.0
			C. WHITE TEXTURE	37.0%			ND		0.0	100.0	100.0
			D. WHITE DRYWALL	54.0%			ND		1.0	99.0	100.0
								ND			
-5	DW-1C	9-20-18	A. TAN PAINT	2.0%			ND		0.0	100.0	100.0
			B. TAN FIBROUS	4.0%			ND		100.0	0.0	100.0
			C. WHITE TEXTURE	5.0%			ND		0.0	100.0	100.0
			D. WHITE DRYWALL	89.0%			ND		1.0	99.0	100.0
								ND			
-6	CT-1A	9-20-18	A. WHITE PAINT	5.0%			ND		0.0	100.0	100.0
			B. TAN PERLITIC CEILING TILE	95.0%			ND		73.0	27.0	100.0
								ND			

DCM SCIENCE LABORATORY, INC
12421 W. 49TH AVENUE, UNIT #6
WHEAT RIDGE, CO 80033 (303) 463-8270

BULK ASBESTOS TEST REPORT

CLIENT:
INDUSTRIAL HYGIENE RESOURCES
8312 NORTHVIEW, SUITE #100
BOISE, ID 83704

ANALYSIS DATE: 9-25-18
REPORTING DATE: 9-26-18
RECEIPT DATE: 9-21-18
CLIENT JOB NO.: 6068
PROJECT TITLE: MHAFB CHAPEL KITCHEN
DCMSL PROJECT: IHR5364

PERCENTAGE COMPOSITION BY VISUAL ESTIMATE

DCMSL SAMPLE NUMBER	CLIENT SAMPLE NUMBER	SAMPLE DATE	DESCRIPTION	PERCENT OF SAMPLE	ASBESTOS TYPE	RANGE	%	TOTAL ASBESTOS IN SAMPLE	OTHER FIBROUS CONSTITUENTS	NON-FIBROUS CONSTITUENTS	TOTAL PERCENTAGE IDENTIFIED MATERIALS
-7	ME-1A	9-20-18	A. WHITE PAINT	2.0%			ND		0.0	100.0	100.0
			B. WHITE FIBROUS WOVEN	40.0%			ND		100.0	0.0	100.0
			C. GREY FIBROUS PLASTER	58.0%			ND		24.0	76.0	100.0
								ND			
-8	DW-2A	9-20-18	A. WHITE TEXTURE	0.5%			ND		0.0	100.0	100.0
			B. WHITE DRYWALL	5.0%			ND		0.0	100.0	100.0
			C. TAN/WHITE FIBROUS	10.0%			ND		100.0	0.0	100.0
			D. MULTICOLORED PAINT	15.0%			ND		0.0	100.0	100.0
			E. GREY DRYWALL MUD	69.5%	CHRYSOTILE	[TR-1]	1.0		0.0	99.0	100.0
								0.7			
-9	DW-2B	9-20-18	A. WHITE TEXTURE	0.5%			ND		0.0	100.0	100.0
			B. MULTICOLORED PAINT	3.0%			ND		0.0	100.0	100.0
			C. TAN FIBROUS	5.0%			ND		100.0	0.0	100.0
			D. WHITE DRYWALL	91.5%			ND		1.0	99.0	100.0
								ND			
-10	DW-2C	9-20-18	A. WHITE TEXTURE	0.5%			ND		0.0	100.0	100.0
			B. MULTICOLORED PAINT	3.0%			ND		0.0	100.0	100.0
			C. GREY DRYWALL MUD	96.5%	CHRYSOTILE	[TR-1]	1.0		0.0	99.0	100.0
								1.0			
-11	CT-2A	9-20-18	A. WHITE PAINT	6.0%			ND		0.0	100.0	100.0
			B. TAN PERLITIC CEILING TILE	94.0%			ND		73.0	27.0	100.0
								ND			
-12	CT-3A	9-20-18	A. WHITE PLASTER	3.0%			ND		0.0	100.0	100.0
			B. WHITE PAINT	5.0%			ND		0.0	100.0	100.0
			C. YELLOW CEILING TILE	92.0%			ND		100.0	0.0	100.0
								ND			

DCM SCIENCE LABORATORY, INC
12421 W. 49TH AVENUE, UNIT #6
WHEAT RIDGE, CO 80033 (303) 463-8270

BULK ASBESTOS TEST REPORT

CLIENT:
INDUSTRIAL HYGIENE RESOURCES
8312 NORTHVIEW, SUITE #100
BOISE, ID 83704

ANALYSIS DATE: 9-25-18
REPORTING DATE: 9-26-18
RECEIPT DATE: 9-21-18
CLIENT JOB NO.: 6068
PROJECT TITLE: MHAFB CHAPEL KITCHEN
DCMSL PROJECT: IHR5364

PERCENTAGE COMPOSITION BY VISUAL ESTIMATE

DCMSL SAMPLE NUMBER	CLIENT SAMPLE NUMBER	SAMPLE DATE	DESCRIPTION	PERCENT OF SAMPLE	ASBESTOS TYPE	RANGE	%	TOTAL ASBESTOS IN SAMPLE	OTHER FIBROUS CONSTITUENTS	NON-FIBROUS CONSTITUENTS	TOTAL PERCENTAGE IDENTIFIED MATERIALS
-13	VFT-1A	9-20-18	A. BLACK TAR	0.5%	CHRYSOTILE	[5-15]	9.0		0.0	91.0	100.0
			B. GREY CONCRETE	0.5%			ND		0.0	100.0	100.0
			C. WHITE PLASTER	1.0%			ND		0.0	100.0	100.0
			D. YELLOW MASTIC	4.0%			ND		0.0	100.0	100.0
			E. WHITE TILE	94.0%			ND		0.0	100.0	100.0
								<0.1			

FOR CALCULATION PURPOSES, TRACE (TR) IS ASSUMED TO BE 0.5%.

(I) INSEPARABLE LAYERS ND - NONE DETECTED

THE SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION. THIS TEST REPORT RELATES ONLY TO THE ITEMS TESTED. THIS REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE LABORATORY.

DCM SCIENCE LABORATORY, INC.

12421 W. 49th Avenue, Unit #6
Wheat Ridge, CO 80033

DCM Project No.: IHR 5364

Client Job No.: 6068

Bulk Sample Analysis

BULK SAMPLE ANALYSIS PROCEDURES:

DCM Science Laboratory, Inc. analyzes bulk asbestos samples following procedures developed by the McCrone Research Institute and in compliance with guidelines established by the Environmental Protection Agency (EPA-600/M4-82-020, 1982 and EPA-600/R-93/116, July, 1993).

Bulk samples are prepared for analysis using a 10X-80X stereo microscope in a hepa filter hood which provides a contamination-free environment. The sample is then analyzed by polarized light microscopy (PLM) at 100X. When the sample consists of more than one layer, each layer is prepared and analyzed separately. Fiber and matrix materials are identified by the characterization of optical properties including color and pleochroism, form, cleavage, relief, birefringence, extinction, orientation, twinning, interference figure and other distinguishing features. Dispersion staining is also used to further aid in mineral identification. All percentages of asbestos, other fibers and non-fibrous constituents are calculated from the values obtained from analyses using the stereo and PLM microscopes. In-house and NIST standards as well as a chart prepared by R.D. Terry and G.V. Chilinger for "The Journal of Sedimentary Petrology", (Volume 24, pp. 229-234, 1955) provide a guide for estimating percentages. All samples are archived for six months unless other arrangements are made by the client.

ACCREDITATION:

DCMSL is accredited by NVLAP (since April 1, 1989). Our NVLAP Lab Code is 101258-0. DCMSL complies with NVLAP requirements unless otherwise noted.

ENDORSEMENT:

The results of this analysis must not be used by the client to claim endorsement by NVLAP or any agency of the U.S. Government.

The analysis was performed by :

John Silverman, Analyst

Jason Barnes, Analyst

NVLAP TESTING

NVLAP Lab Code 101258-0

Ron Schott, Analyst

9-25-18

Date

Ron Schott

Laboratory Director

DCM SCIENCE LABORATORY INC.
12421 W. 49th Avenue, Unit #6
Wheat Ridge, CO 80033

(303) 463-8270/(800) 852-7340
(303) 463-8267 - fax

Date/Time Received _____ DCMSL Group No. 3875 DCMSL Log No. IHR5364

Field Data Sheet/Chain of Custody

Samples Submitted By:

Company: Industrial Hygiene Resources
Address: 8312 W. Northview Street, Suite 100
Boise, ID 83704

Job/P.O. # 6068

Project Title MHAFB Chapel kitchen

Contact: Rebecca Ellis
Phone: (208) 323-8287
Fax: (208) 323-0783
Cell/Pager: (562) 335-7432

Archive: All Samples are archived for 6 months unless other arrangements are made.

E-Mail rebeccaellis@industrialhygieneresources.com

Turnaround Time Requested:

[X] Standard (3 to 5 Business Days)
[ ] 24 Hour Rush
[ ] 2 Hour Rush (Asbestos Only)
[ ] Other _____

Procedure Requested:

ASBESTOS			XRD			OTHER	
Bulk	[X]	Standard EPA	[ ]	Respirable Silica		[ ]	Optical Microscopy
	[ ]	Progressive	[ ]	Bulk Silica		[ ]	Gravimetric
	[ ]	Point Count	[ ]	Scan & Search		[ ]	SEM
	[ ]	Other	[ ]	Other		[ ]	Other

Air [ ] NIOSH 7400
[ ] OHSA ID-160
[ ] Other

ADDITIONAL INFORMATION Please send report in both .pdf and MS excel

Client Sample No.:	Sample Date	Air Volume	Other Information
1 SV-1A	9/20/18		
2 CB-1A			
3 DW-1A			
4 DW-1B			
5 DW-1C			
6 CT-1A			
7 ME-1A			
8 DW-2A			
9 DW-2B			
10 DW-2C			

Relinquished By: Rebecca Ellis Date/Time 9/20/18

Received By: D Harney Date/Time 9/21/18 9:20

Field Data Sheet/Chain of Custody - Page 2

Client Sample No.:	Sample Date	Air Volume	Other Information
11 CT-2A	↓		
12 CT-3A			
13 VFT-1A			
14			
15			
16			
17			
18			
19			
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36			
37			
38			
39			

Relinquished By:	Date/Time	Received By:	Date/Time
Rebecca Ellis		D Haney	9/21/18 9:20

12421 W. 49TH AVENUE, UNIT #6
WHEAT RIDGE, CO 80033 (303) 463-8270

BULK ASBESTOS ANALYSIS - POINT COUNT METHOD

CLIENT:
INDUSTRIAL HYGIENE RESOURCES
8312 NORTHVIEW, SUITE #100
BOISE, ID 83704

ANALYSIS DATE:	10-4-18
REPORTING DATE:	10-4-18
REQUEST DATE:	10-1-18
CLIENT JOB NO.:	6068
PROJECT TITLE:	MHAFB CHAPEL KITCHEN
DCMSL PROJECT:	IHR5366
CROSS REFERENCE:	IHR5364

PERCENTAGE COMPOSITION BY AREA/VOLUME

DCM LAB NO.:	-1	-2
SAMPLE DATE:	9-20-18	9-20-18
% OF TOTAL SAMPLE:	69.5%	96.5%
CLIENT NO.:	DW-2A PART E	DW-2C PART C
ASBESTIFORM MINERAL FIBERS:		
CHRYSOTILE	0.75%	0.50%
AMOSITE	ND	ND
CROCIDOLITE	ND	ND
TREMOLITE-ACTINOLITE	ND	ND
ANTHOPHYLLITE	ND	ND
TOTAL ASBESTOS COUNTED	0.75%	0.50%
TOTAL ASBESTOS IN LAYER	0.75%	0.50%
TOTAL ASBESTOS IN SAMPLE	0.52%	0.48%

NOTES: SAMPLES NO. 1 AND 2 ARE GREY DRYWALL MUD.

ND - NONE DETECTED

DEFINITIONS

TOTAL ASBESTOS COUNTED = THE AMOUNT OF ASBESTOS PRESENT IN THE SAMPLE EXPRESSED AS A PERCENT.

TOTAL ASBESTOS IN LAYER = THE PERCENT OF SAMPLE REMAINING TIMES ASBESTOS COUNTED EXPRESSED AS A PERCENT.

TOTAL ASBESTOS IN SAMPLE = THE PERCENT OF TOTAL SAMPLE (FROM PLM/SM ANALYSIS) TIMES THE TOTAL ASBESTOS IN LAYER (IF NO ASBESTOS IN OTHER LAYERS).

DCM SCIENCE LABORATORY, INC.

12421 W. 49th Avenue, Unit #6
Wheat Ridge, CO 80033

DCM Project No.: IHR 5366

Client Job No.: 6068

Quantitative Bulk Sample Analysis (Point Count)

QUANTITATIVE BULK SAMPLE ANALYSIS PROCEDURES:

DCM Science Laboratory, Inc. analyzes bulk samples in accordance with the National Emission Standard for Hazardous Air Pollutants (NESHAP) for asbestos (Federal Register, Vol. 55, No. 224, pp. 48406-48433, 11/20/90). The analytical procedures followed are described in "Interim Method for the Determination of Asbestos in Bulk Insulation Samples", (USEPA 600/M4-83-020, 1982), with minor modifications recommended by the Atmospheric Research and Exposure Assessment Laboratory, USEPA, Research Triangle Park, N.C.

Samples analyzed by the point count method are milled to homogenize the sample, prepared on microscope slides and point counted using polarized light microscopy (PLM) in conjunction with a point counting stage and counter. One hundred counts are performed on four separate preparations of each sample for a total of 400 points.. If asbestos is identified but not counted during the point counting procedure, total asbestos is reported as zero and presence is noted on the report. Other preparation procedures including ashing and acid washing may be performed with client permission to improve accuracy in determining asbestos concentration. All samples are archived for six months unless other arrangements are made by the client.

ACCREDITATION:

DCMSL is accredited by NVLAP (since April 1, 1989). DCMSL complies with NVLAP requirements unless otherwise noted.

ENDORSEMENT:

The results of this analysis must not be used by the client to claim endorsement by NVLAP or any agency of the U.S. Government.

This test report relates only to the items tested. This report may not be reproduced except in full, without the written approval of the laboratory. The analysis was performed by :

John Silverman, Analyst

Ron Schott, Analyst

Ron Schott
Laboratory Director

10-4-18
Date

NVLAP TESTING

NVLAP Code 101258-0

Appendix C- Consultant's Certifications

Protecting Your Workers

Certificate of Completion

Rebecca Ellis

Has attended and successfully completed the
Asbestos Building Inspector
AHERA 4 Hours Refresher Training Course
In accordance with Title II of TSCA
40 CFR Part 763, Appendix C to Subpart E
Consistent with Utah Administrative Rule R307-801: Asbestos

Course Date: 4/13/2018
Certificate Number: 5892-11
Expiration Date: 4/13/2019

Instructor: Harry Beaulieu

Industrial Hygiene Resources – 8312 W. Northview, Suite 100 – Boise, Idaho 83704
Tel: (208) 323-8287 Fax: (208) 323-0783

United States Environmental Protection Agency

This is to certify that

Anthony S Bongiovano

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as:

Inspector

In the Jurisdiction of:

All EPA Administered Lead-based Paint Activities Program States, Tribes and Territories

This certification is valid from the date of issuance and expires May 12, 2020

LBP-I-I176053-1

Certification #

April 28, 2017

Issued On

Adrienne Priselac, Manager, Toxics Office

Land Division

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

April 28, 2017

Anthony Bongiovano

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Anthony Bongiovano, 2415 W Ona Street
Boise, ID 83705

Dear Anthony Bongiovano:

Thank you for applying to the U.S. Environmental Protection Agency (EPA) for certification to conduct Lead-based Paint Activities in target housing and child-occupied facilities. I am pleased to inform you that, pursuant to 40 CFR Part 745, Subpart L, you are certified as an EPA **Inspector in All EPA Administered States, Tribes, and Territories.** Your certificate is enclosed and serves as your proof of certification (Please note: EPA no longer issues individual identification cards for certified individuals).

This certification **expires on May 12, 2020 and is valid in All EPA Administered States, Tribes, and Territories.** However, if any State, Territory, or Indian Tribe obtains program authorization at any time during the term of your accreditation, your accreditation will no longer be valid in the newly authorized jurisdiction.

Your EPA individual certification is subject to the following:

1) Certification pertains only to the specific discipline, jurisdiction, and individual listed above that performs or offers to perform the associated lead-based paint activities within the scope of the discipline described in 40 CFR §745.223 and 40 CFR §745.227 pursuant to Section 402 of the Toxic Substances Control Act (TSCA)(15 U.S.C. 2682).

2) EPA certification does not mean that a State, Territory or Indian Tribe with its own certification program must accept or recognize an EPA certification. Individual States, Territories, and Indian Tribes, whether authorized or not, have the right to accept or reject any certification under their own authority. Please be aware that your EPA certification does not relieve you of any obligations that you may otherwise have to any authorized or unauthorized State, Territory, or Indian Tribe to obtain licensure or certification from that State or Indian Tribe under its statutory or regulatory requirements relating to lead-based paint activities.

3) The EPA may conduct audits and/or inspections to ensure continued compliance with its regulatory standards.

If you have questions or need assistance, please contact the Regional Lead Coordinator, Nancy Kain, of the EPA Region 9 staff at 415-947-4280 and refer to **Application ID number I526868**. Congratulations, and thank you for your interest in being certified to conduct lead-based paint services.

Sincerely,

Adrienne Priselac, Manager, Toxics Office
Land Division

Enclosures

Limitations/Disclaimer

The scope of the investigation described in this report has been limited by agreement of the parties based upon financial and other considerations. Further, the scope of this report is limited to the matters expressly covered herein. The investigation, testing and analysis of compounds and materials at the site have been limited to those compounds and materials set out in the parties' agreement. Other compounds or materials not tested for could be present at the site.

The investigation, testing and analysis described in this report has been undertaken and performed in a professional manner in accordance with generally accepted practices, using the degree of skill and care ordinarily exercised by a Diplomat of the American Board of Industrial Hygiene (ABIH); a "Certified Industrial Hygienist (CIH)".

During the investigation and in preparing this report we have relied upon information provided by third parties, including independent laboratories and testing services (with appropriate accreditations). It is believed that the information obtained from others during the investigation is reasonable. However, it is not warranted or guaranteed that the information provided by others is complete or accurate.

The investigation and this report are limited to the conditions present at the time of the site visits and inspections, and to the information available at the time this report was prepared. However, there is a distinct possibility that conditions, compounds or materials may exist which could not be identified within the agreed scope of this investigation or which were not apparent during site inspections or testing. Should any additional information become available, or should additional site work be undertaken, consultant should be notified so that we can determine if modification should be made to this report.

Where indicated or implied in this report, or where mandated by the condition of the site including its structure/improvements, the conclusions of this report are based on visual observations of the site. The conclusions of this report do not apply to any areas of the site not available for inspection or testing.

It should be recognized that the investigation and evaluation of environmental conditions is a science and an art. Judgments leading to conclusions and recommendations are at times made with an incomplete knowledge of all conditions applicable to the site. More detailed, focused and/or extensive studies can tend to reduce the inherent uncertainties associated with the evaluation of environmental conditions. No warranty, express or implied, is given.

This report is prepared for and intended for the exclusive use of the company, organization or individual to whom it is addressed. It may not be used or relied upon in any manner or for any purpose whatsoever by any other party without written authorization by IHR.

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QFPE Design Compliance Document

9311 San Pedro Ave, Suite 1100
San Antonio, TX 78216-5507
(210) 841-2800

Date: 12/19/2025

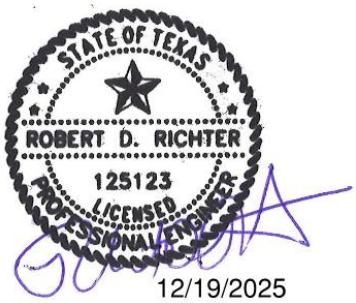
Re: Building 2606 Fire Alarm Repair
Mountain Home AFB
Contract Number: FA4897-20-D-0001
Delivery Order: FA4897-25-F-0020

To whom this may concern:

Please accept this letter as confirmation that the 100% design drawings and specifications are in compliance with UFC 3-600-01, 8 August 2016 with Change 6, 6 May 2021 and other applicable fire protection and life safety criteria.

All items listed in the design analysis are correctly identified within drawings and specifications, with no approved equivalencies or deviations from the UFC indicated above.

Please contact us with any questions or concerns.

Best regards,

Robert Richter QFPE, PE (TX, OK, NM and TN)
Sr. Fire Protection Engineer
HDR