SECTION 010150
GENERAL REQUIREMENTS

PART 1 – SUMMARY OF WORK

1.1 DESCRIPTION

A. Work for this project requires the contractor to be responsible for supplying all labor, materials, equipment, utilities, miscellaneous items, freight and delivery and all necessary valid licenses for the work summarized as follows:
   1. Replace fire alarm systems including fire alarm control panels and initiation and notification devices in several buildings. Install additional initiation and notification devices on some existing systems. Correction of inadequately protected fire alarm wiring for one system, and troubleshooting and correction of trouble code on another existing system.

1.2 LOCATION

A. This project is located at the Trapper Creek Job Corps Civilian Conservation Center located ten miles from Darby, Montana in Ravalli County. The address is 5139 West Fork Rd, Darby, MT 59829. Driving instructions can be obtained from the Center by calling 406-821-3286.

1.3 WORK HOURS

A. Work hours for this project are between 8:00 AM-4:30 PM Monday through Friday.

1.4 USE OF PREMISES

A. Confine constructions operations to immediate area of work. Do not disturb portions of Project site beyond areas in which the Work is indicated.

B. Government will occupy site and buildings during entire construction period. Cooperate with Government during construction operations to minimize conflicts and facilitate Government usage. Perform the work so as not to interfere with Government's day-to-day operations.

C. Keep driveways, parking areas, loading areas and entrances to buildings clear and available to Government, Government's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Government.

1.5 DEFINITIONS

A. The following terms in any combination relating to the installation of products/materials: install, furnish, provide, or similar statements; mean that the contractor is responsible for the procurement and installation of the products unless it is specifically designated as either a government furnished item, supply only product, or spare.

1.6 INCIDENTAL CONSTRUCTION

A. Performance of the specific tasks indicated in the plans and specifications may require incidental construction including that is not specifically included in drawings and specification but not limited to: provision of temporary shoring or supports, installation and subsequent removal of temporary access points, removal and reinstallation or relocation of items not designated for replacement as required for work or equipment clearance or as a precautionary protective measure. Disconnection of supporting or interconnection equipment between different systems and reconnection to new equipment as applicable to specific project requirements; examples include but are not limited to: fire alarm components and interconnection/control for HVAC air handling equipment, cleaning chemical equipment for dishwashers, electric bonding for conductive water piping replacement, etc. In all cases the contractor shall be responsible for removal of temporary works, reinstallation of temporarily relocated items, or reconstruction of items selectively demolished for incidental construction purposes in a neat workman like manner, that matches existing finishes, quality standards, and code requirements unless the Contracting Officer specifically authorizes incidental construction to be incorporated into the finished work or items removed for coordination purposes to not be re-installed or reconstructed. The Contractor shall provide turn-key fully operational and finished installations unless the drawings and specifications specifically indicate otherwise.

1.7 FIELD VERIFICATION AND COORDINATION OF WORK

A. Drawings are schematic or typical in nature or intended to identify location of work. The Contractor shall be responsible for field verification of existing conditions and coordination of new work with those existing conditions. Examples below are intended to demonstrate the intent of this statement but are not inclusive of all field verification and coordination. Notify COR when specified requirements conflict with field verification.

1. General Field Verification: Verify existing construction finishes, locations of structural members that may obstruct work, and actual dimensions/distances for required work.
2. Electrical Field Verification: Inspect and test building voltage prior to ordering electrically operated equipment.
3. HVAC Field Verification: Verify space constraints of locations indicated for new equipment and equipment replacement and verify that submitted products will fit within space constraints with any code or manufacturer clearance requirements.
4. Installation Coordination: Install equipment and other components in accordance with referenced codes, standards, and manufacturer installation instructions. Do not obstruct electrical components or other equipment requiring routine service or their working clearances with new or replacement work; offset new work or

relocate items requiring clearance to avoid conflicts between new and existing work. Offset new work to avoid major structural element such as beams, posts, columns, unless specifications or drawings direct modifications to those structural elements. Coordinate repair of cutting, patching, sealing or other disturbances of finish systems with surrounding areas. Disturbances to exterior walls or roofs shall be sealed with compatible/matching products, weatherproofed, and include thermal insulation and weather resistive barriers as applicable to existing building system. Disturbances to interior finishes shall be matched in a clean workmanlike manner consistent with the space type; public or employee work areas shall be neatly finished with high level finish system, mechanical/electrical rooms and similar spaces accessed solely for maintenance purpose have a lower class of aesthetic expectation but must be repaired to maintain the existing level of fire and smoke performance.

1.8 STANDARDS AND CODES

A. All contract work shall adhere to the most recent version of:
   1. All the International Code Council Family of codes (ICC) e.g. International Building Code (IBC), International Fire Code (IFC), and International Mechanical Code (IMC).
   2. All National Fire Protection Association (NFPA) codes and Standards e.g. , NFPA 70: National Electrical Code (NEC), NFPA 1: Fire Code, and NFPA 101- Life Safety Code.
   3. Architectural Barriers Act Standards (ABA or ABAAS).
   4. Product Manufacturer's installation instructions.

1.9 QUALIFICATIONS

A. When applicable to specific contract work items:
   1. Electrical work shall be performed by journey level electricians licensed in the State of contract performance or trainees/apprentices working under the direct supervision of State-licensed electrical supervisors (or State equivalent).
   2. Fire Alarm work shall be performed by NICET certified fire alarm technicians.

1.10 ELECTRICAL INSPECTIONS

A. This Federal contract is exempt from State permitting requirements. However, electrical work must be inspected by a third-party Inspector who is either State-licensed or ICC-certified. The Contractor will arrange for the inspection and pay any fees required for the inspection and associated report; arrangement may include completion and submission of load calculations, permit applications, and any other required coordination. The Inspector does not have any jurisdictional authority on Federal projects. The USFS is the jurisdiction having authority. The inspection will be based on the most recent version of the NFPA 70 National Electric Code (NEC) and currently adopted State codes. A list of deficiencies with corresponding code reference is to be provided in a report signed by the inspector. The addressee in the report is to be the Job Corps Center. The Inspector will

provide a copy of their current inspection credentials with the inspection report. The Contractor will submit the report to the COR. The CO will determine which deficiency/violations will be enforced for the Contractor to fix.

1.11 WORK RESTRICTIONS

A. Smoking is permitted on campus only in the designated smoking area.

1.12 SCHEDULE OF ITEMS

A. Schedule of Items:

1. Provide pricing for all items listed in the Schedule of Items.
2. Contract award will be made for all Base Items.
3. Optional Items may or may not be awarded, depending on funding availability.

B. Base Items (BI):

1. ***<u>Base Item No. 1 –B16 Administration Fire Alarm System Replacement</u>***

a. Measurement: This item is measured as a Lump Sum quantity.
b. Payment: The contract lump sum price as shown in the Schedule of Items includes all materials, equipment, labor and incidentals to replace existing fire alarm system control panel, initiation devices, and notification devices, re-use of wiring that is compliant with current codes, specifications, and drawings is acceptable; replace components that are not compliant.
c. Deficiencies: #166159.

2. ***<u>Base Item No. 2 –B67 Masonry Shop Fire Alarm System Replacement.</u>***

a. Measurement: This item is measured as a Lump Sum quantity.
b. Payment: The contract lump sum price as shown in the Schedule of Items includes all materials, equipment, labor and incidentals to replace existing fire alarm system control panel, initiation devices, and notification devices, re-use of wiring that is compliant with current codes, specifications, and drawings is acceptable; replace components that are not compliant.
c. Deficiencies: #166161, 166181.

3. ***<u>Base Item No. 3 –B70 Electrical Repair Shop Fire Alarm System Replacement and Wiring Protection.</u>***

a. Measurement: This item is measured as a Lump Sum quantity.
b. Payment: The contract lump sum price as shown in the Schedule of Items includes all materials, equipment, labor and incidentals to replace existing fire alarm system control panel, initiation devices, and notification devices, re-use of

wiring that is compliant with current codes, specifications, and drawings is acceptable; replace components that are not compliant.

c. Deficiencies: #166162, 166163.

4. ***Base Item No. 4 –B12 Mens Dorm Fire Pull Station Installation.***

a. Measurement: This item is measured as a Lump Sum quantity.

b. Payment: The contract lump sum price as shown in the Schedule of Items includes all materials, equipment, labor and incidentals to furnish and install a manual pull station in location indicated in plans at ADA mounting height and in accordance with NFPA standards, connect to existing fire alarm system, and test in accordance with NFPA standards.

c. Deficiencies: #150739.

5. ***Base Item No. 5 –B15 Food Service Smoke Detector Installations.***

a. Measurement: This item is measured as a Lump Sum quantity.

b. Payment: The contract lump sum price as shown in the Schedule of Items includes all materials, equipment, labor and incidentals to furnish and install smoke detectors in rooms indicated in the drawings, mount, connect to existing fire alarm system, and test in accordance with NFPA standards.

c. Deficiencies: #150745.

6. ***Base Item No. 6 –B60 Recreation Audio Visual Alarm Installation.***

a. Measurement: This item is measured as a Lump Sum quantity.

b. Payment: The contract lump sum price as shown in the Schedule of Items includes all materials, equipment, labor and incidentals to furnish and install AV notification device in room indicated in the drawings, mount, connect to existing fire alarm system, and test in accordance with NFPA standards

c. Deficiencies: #150757.

C. Optional Items (OI):

1. Optional Item No. 7- ***B62 Carpentry Shop Fire Alarm System Troubleshooting/Repair***

a. Measurement: This item is measured as a Lump Sum quantity.

b. Payment: The contract lump sum price as shown in the Schedule of Items includes all materials, equipment, labor and incidentals to troubleshoot trouble code(s) Fire Alarm Control Panel is indicating and repair/correct problems to return system to full functionality.

c. Deficiencies: #166160.

PART 2 – PROJECT SCHEDULE

2.1 PROJECT SCHEDULE

ITEM*	REQUIRED DUE DATE (calendar days)
Pre-Construction Conference	Within 10 days of Award (virtually)
Bonds	10 days after Award
Notice To Proceed (NTP)	Issued after Pre-Construction Conference (insurance and bonds acceptance required prior to NTP)
Action and Informational Submittals	12 days after NTP (CORs have 12 days to return)
Progress Reports	Every 7 days after NTP is issued.
Closeout Submittals	Prior to CO acceptance of project
Contract Release form and final pay request	10 days after CO acceptance of project

* All items above must be included in Contractor's construction schedule

PART 3 – SUBMITTAL PROCEDURES

3.1 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Government approval.

B. Informational Submittals: Written information that does not require Government approval. Submittals may be rejected for not complying with requirements.

3.2 PROCEDURES

A. Contractor Responsibilities
   1. Review each submittal and check for compliance with the Contract Documents.
   2. Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
   3. Include the following information on label or cover sheet for processing and recording action taken:
      a. Project name.
      b. Date.
      c. Name and address of Contractor.
      d. Name of manufacturer.
      e. Unique identifier, including revision number.
      f. Number and title of appropriate Specification Section.
      g. Drawing number and detail references, as appropriate.
      h. Date of Contractor's approval.
      i. Statement certifying that submittal has been reviewed, checked, and approved by the Contractor for compliance with the Contract Documents.
   4. The Government will not review submittals that do not bear Contractor's approval and will return them without action.
   5. Unless additional copies are required for final submittal, and unless the Contracting Officer (CO) observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
   6. Submittals must be submitted in electronic PDF format. Submit to CO via email or electronic file transfer site.
   7. Only final submittals with mark indicating action taken by Government are to be used for construction.
   8. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

B. Processing Time: Time for review shall commence on CO's receipt of submittal.
   1. Initial Review: Government will review initial submittal within 12 calendar days. Additional time may be needed if processing must be delayed to permit coordination with subsequent submittals. CO will advise Contractor when a submittal being processed must be delayed for coordination.
   2. Resubmittals: If resubmittal is necessary, it will be resubmitted within 3 calendar days, and reviewed by the Government within 3 calendar days.

3.3 ACTION SUBMITTALS

A. Prepare and submit Action Submittals required in the Technical Specifications in this contract, if applicable, and as indicated at the end of this subsection.

B. Collect information into a single submittal for each element of construction and type of product or equipment.

1. Mark up each submittal to show which products and options are applicable.
2. Include the following information, as applicable:
   a. Manufacturer's written recommendations.
   b. Manufacturer's product specifications.
   c. Manufacturer's installation instructions.
   d. Manufacturer's catalog cuts.
   e. Wiring diagrams showing factory-installed wiring.
   f. Compliance with recognized trade association standards.
   g. Compliance with recognized testing agency standards.

C. Required Action Submittals
   1. Product Data: See Technical Specification Sections

3.4 INFORMATIONAL SUBMITTALS

A. Prepare and submit Informational Submittals required in the Technical Specifications in this contract, if applicable, and as indicated below:

B. Required Informational Submittals:
   1. Accident Prevention Plan.
   2. Construction Schedule.
   3. Current licensure and/or certifications for individuals indicated in QUALIFICATIONS paragraph above or as required in individual technical sections.

3.5 PROGRESS REPORTS

A. The contractor shall prepare and submit weekly progress reports during the course of construction. The reports shall include a narrative description of work in progress and completed during the week with a note on any delays not accounted for in the approved progress schedule. Photos of the work in place shall also be included; photos should consist of both macro (close up detail –e.g. to demonstrate finish quality or equipment data plate) and overview photos that demonstrate the construction phase, larger areas of work in the context of the surrounding area. Photos shall document key construction areas e.g. primary structural member installation, utilities that will be covered by later construction, any damage discovered or caused by the construction and shall be annotated with location information. A substantial completion report shall also be submitted documenting fulfillment of contract requirements. If a punchlist is created; the Contractor shall provide a punchlist completion report prior to contract closeout.

3.6 CLOSEOUT SUBMITTALS

A. Prepare and submit Closeout Submittals, as follows:
   1. See Technical Specification Sections.

2. One-Year Warranty on Entire Project as required by FAR 52.246–21
3. Project Record Documents.

PART 4 – TEMPORARY FACILITIES AND CONTROLS

4.1 USE OF UTILITIES

A. Utilities: Use of Government existing facilities will be permitted without metering and without payment of use charges, as long as facilities are cleaned and maintained in an acceptable condition. At Substantial Completion, restore these facilities to condition existing before initial use. The following are available for use by the contractor: water, and electrical power services. The following are not available: telephone service. The contractor is expected to provide whatever phone service he deems necessary for the duration of the project.

4.2 SANITARY FACILITIES

A. Sanitary facilities are available for use by the Contractor. Facilities must be cleaned and maintained daily.

4.3 STAGING AND STORAGE

A. Coordinate on-site staging and storage requirements with the Center Point of Contact or the Contracting Officer Representative (COR).

4.4 CONSTRUCTION WASTE DISPOSAL FACILITIES

A. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Use of Government waste containers will not be permitted.

4.5 SAFETY AND ENVIRONMENTAL PROTECTION

A. Environmental Protection: Contractor shall provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

B. Due to the age of most Job Corps structures, any painted surfaces should be considered potentially lead painted; these facilities are not considered child occupied facilities subject to the RRP but contractors disturbing painted surfaces via cutting, sanding, grinding, and similar dust generating activities shall adhere to the principals of lead safe work practices including as applicable wetting surfaces before disturbance to minimize dust generation, capture with HEPA vacuum when dust generation can't be avoided,

personal protective equipment use for employees, and prompt cleanup and disposal of waste generated by construction and demolitions activities.

C. Barricades, Warning Signs, and Lights: Comply with the national or state Manual on Uniform Traffic Control Devices (MUTCD) for erecting structurally adequate barricades, paint with appropriate colors, graphics, and warning signs/lights to inform personnel, students, and the public of possible hazards.

D. Fire Protection.
   1. Store combustible materials in containers in fire-safe locations.
   2. Maintain unobstructed access to fire extinguishers, fire hydrants, fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.
   3. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.

PART 5 – EXECUTION REQUIREMENTS

5.1 EXAMINATION

A. Before beginning work, examine areas and document existing conditions. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

B. Field verify all new and existing dimensions affecting the work of this contract before ordering products.

C. Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to CO. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

5.2 INSTALLATION

A. Locate the Work and components of the Work accurately, in correct alignment and elevation to fit with existing construction.

B. Make vertical work plumb and make horizontal work level.

C. Install per manufacturer's written instructions and recommendations.

5.3 PROGRESS CLEANING

A. Clean Project site and work areas daily, including common areas. Dispose of materials lawfully.

1. Comply with NFPA 241 requirements for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F (27 deg C).

B. Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

5.4 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide protection and maintain conditions that ensure installed Work does not get damaged or deteriorated prior to Substantial Completion.

5.5 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

PART 6 – CLOSEOUT PROCEDURES

6.1 SUBSTANTIAL COMPLETION

A. Definition of Substantial Completion: The Date certified by the CO when construction is sufficiently complete, in accordance with the Contract Documents, so the Government can occupy or utilize the Work or designated portion thereof for the use for which it is intended, as expressed in the Contract Documents.

B. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise the CO of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, final certifications, and similar documents.
4. Obtain and submit releases permitting Government unrestricted use of the Work and access to services and utilities.
5. Deliver tools, spare parts, extra materials, and similar items to location designated by Government. Label with manufacturer's name and model number where applicable.
6. Complete startup testing of systems.
7. Submit changeover information related to Government occupancy, use, operation, and maintenance.

8. Complete final cleaning requirements, including touchup painting.
9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

C. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, CO will either proceed with inspection or notify Contractor of unfulfilled requirements. CO will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by CO, that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
   2. Results of completed inspection will form the basis of requirements for Final Completion.

6.2 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
   1. Submit certified copy of CO's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by CO. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
   2. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
   3. Instruct Government personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspections: Submit a written request for final inspection for acceptance. On receipt of request, CO will either proceed with inspection or notify Contractor of unfulfilled requirements. CO will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

6.3 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit two copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

6.4 PROJECT RECORD DOCUMENTS

A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for CO's reference during normal working hours.

B. Provide Draft of Project Record Drawings at Substantial Completion. CO will return reviewed copy. Provide Final Project Record Drawings at Final Completion.

C. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.

1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

   a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
   b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
3. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
4. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

6.5 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

C. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
2. Remove tools, construction equipment, machinery, and surplus material from Project site.

3. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

D. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 010150

SECTION 017329 – CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RESPONSIBILITIES

A. If the Project involves a General Construction Contractor, the General Construction Contractor shall be responsible for the cutting of openings with area equal to or greater than thirty-six (36) square inches. The cutting of openings with area less than thirty-six (36) square inches shall be the responsibility of the Separate Prime Contractor whose work requires the cutting. The General Construction Contractor shall be responsible for all patching work, regardless of the size of the opening.

B. If the cutting of openings into newly constructed walls, partitions, floors, or ceilings is required due to lack of coordination between Separate Prime Contractors, or due to ill-timed or defective work by one or more Separate Prime Contractors, the Separate Prime Contractor primarily responsible for the lack of coordination or the ill-timed or defective work shall bear all costs involved in cutting and patching. The Government may direct the General Construction Contractor to actually perform the cutting and patching.

C. If the Project does not involve a General Construction Contractor, cutting and patching shall be the responsibility of the Separate Prime Contractor whose work requires the cutting. The Contractor shall employ competent individuals, approved by the Government, to do the cutting and patching.

1.2 SUBMITTALS

A. When cutting and patching procedures are required to be approved prior to the work, the Contractor shall submit a plan for cutting and patching well in advance of the work. The submittal shall describe the procedures and request approval to proceed. The submittal shall include the following, as applicable and be submitted per 010150 Submittal procedures.
   1. A description of the limits of cutting and patching required, how it is to be performed, and why it cannot be avoided.
   2. A description of the anticipated results in terms of changes to existing construction, including changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
   3. A listing of products to be used and firms or entities that will perform work.
   4. Identification of the dates when cutting and patching is to be performed.
   5. Identification of any utilities that will be distributed or affected, including those that will be relocated and those that will be temporarily out of service, and an indication of how long service will be disrupted.
   6. Where cutting and patching involves addition of reinforcement to structural elements, details and engineering calculations to show how reinforcement is integrated with the original structure.

B. Approval by the Government to proceed with cutting and patching does not waive the right of the Government to later require complete removal and replacement of any part of the work found to be unsatisfactory.

1.3 MATERIALS

A. Materials used shall be identical to existing materials.

B. If identical materials are not available or cannot be used where exposed surfaces are involved, materials used shall match existing adjacent surfaces to the fullest extent possible with regard to visual effect.

C. All materials used shall have installed performance equal or greater than that of existing materials.

D. All materials used shall be compatible with adjacent existing materials and shall have no deleterious effect on the existing construction.

1.4 INSPECTION

A. Before cutting existing surfaces, the Contractor shall examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

B. The Contractor shall avoid any unsafe or unsatisfactory conditions, and if unsafe or unsatisfactory conditions are encountered, corrective action shall be taken before proceeding.

1.5 PREPARATION

A. Work to be cut shall be provided with temporary support.

B. Existing construction shall be protected during cutting and patching to prevent damage by cutting and patching operations.

C. Protection from adverse weather conditions shall be provided for portions of the project that might be exposed during cutting and patching operations.

D. Cutting and patching operations shall be conducted so as to avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

E. The Contractor shall take all precautions necessary to avoid cutting existing pipe, conduit, or ductwork that serve the facility and are scheduled to be removed or relocated, until provisions have been made for bypass installations.

1.6 PERFORMANCE, GENERAL

A. Skilled workmen shall be employed to perform cutting and patching.

B. Cutting and patching shall be undertaken at the earliest feasible time and completed without delay.

C. Cutting, fitting, and patching for installation of components or the performance of other construction activities shall be performed so as to restore surfaces to their original condition.

D. Openings shall be temporarily covered when not in use.

E. Where excavating and backfilling are required, the Contractor shall comply with requirements of applicable sections of the Technical Specifications.

F. For utility services shown or required to be removed, relocated, or abandoned, the Contractor shall ensure the utility service is shut off or not active prior to performing any work on the system. If the utility service requires continued operation during the Work, the Contractor shall by-pass the service before cutting service pipe or conduit. Any pipe or conduit that is to remain shall be sealed with a cap, valve, or plug to prevent entrance of moisture or other foreign matter.

1.7 PERFORMANCE, CUTTING

A. Cutting of existing construction shall be performed using methods least likely to damage elements to be retained or adjoining construction. Where possible, proposed procedures shall be reviewed with the original installer and shall comply with the original installer's recommendations.

B. Where cutting is required, hand or small power tools designed for sawing or grinding shall be used. Hammering and chopping shall not be done. Holes and slots shall be cut neatly to the size required with minimum disturbance of adjacent surfaces.

C. To avoid marring existing finished surfaces, cutting or drilling shall be done from the exposed or finished side into concealed surfaces.

D. A cutting machine such as a carborundum saw, or diamond core drill shall be used to cut through concrete and masonry.

1.8 PERFORMANCE, PATCHING

A. Patching shall be performed with durable seams that are as invisible as possible. Patching shall meet specified tolerances.

B. Where feasible, patched areas shall be inspected and tested to demonstrate integrity of the installation.

C. Exposed finishes of patched areas shall be restored, and finished restoration shall be extended into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

D. Where patching occurs in a smooth painted surface, the final paint coat shall be extended over entire wall plane (wall corner to corner) containing the patch. The patched area itself shall receive a primer and second coat.

E. Where the removal of walls or partitions extends from the new space into another existing space, the floor and wall surfaces in the new space shall be patched and repaired to provide an even surface of uniform color and appearance. If uniform color and appearance cannot be achieved, the existing floor and wall coverings in the existing space shall be removed and replaced with new materials.

F. Existing ceilings shall be patched, repaired, or re-hung as necessary to provide an even plane surface of uniform appearance.

1.9 COORDINATION

A. Structural elements shall not receive any cutting and patching that would reduce their load-carrying capacity or load-deflection ratio. Structural elements include:
1. Foundation construction
2. Bearing and retaining walls
3. Structural concrete
4. Structural steel
5. Lintels
6. Structural decking
7. Stair systems
8. Miscellaneous structural metals
9. Exterior curtain wall construction
10. Equipment supports.
11. Piping, ductwork, vessels, and equipment
12. Structural systems of Special Construction in the Technical Specifications

B. Safety-related components and operating elements shall not receive cutting and patching in a manner that would result in reducing their capacity to perform as intended, result in increased maintenance, or result in decreased operational life or safety. For those components and elements covered by a warranty, the Contractor shall coordinate cutting and patching with the warranting party, and the cutting and patching shall not void the warranty. Safety-related components and operating elements include:
1. Shoring, bracing, and sheeting.
2. Primary operational systems and equipment
3. Air or smoke barriers
4. Water, moisture, or vapor barriers
5. Membranes and flashings
6. Roofing systems and membranes
7. Fire protection systems
8. Noise and vibration control elements and systems
9. Control systems
10. Communication systems
11. Conveying systems
12. Electrical wiring systems
13. Special Construction specified in the Technical Specifications

C. Visually-exposed components and construction that is exposed on the exterior or exposed in occupied spaces shall not receive cutting and patching in a manner that will reduce the building's aesthetic qualities or result in visual evidence of cutting and patching. If possible, the original installer or fabricator shall be retained to cut and patch the following categories of exposed work:
   1. Processed concrete finishes.
   2. Ornamental metal
   3. Matched-veneer woodwork.
   4. Window wall system
   5. Stucco and ornamental plaster
   6. Acoustical ceilings
   7. Carpeting
   8. HVAC enclosures, cabinets, or covers.
   9. If it is not possible to engage the original installer or fabricator, another recognized, experienced, and specialized firm shall be engaged.
   10. For those components and construction covered by a warranty, the Contractor shall coordinate cutting and patching with the warranting party, and the cutting and patching shall not void the warranty.

D. The General Construction Contractor shall be responsible for removing, storing, and replacing removable ceilings where work is to be provided above an existing removable ceiling not indicated for replacement.

1.10 CLEANING AND RESTORATION

A. Thorough cleaning shall be performed for areas and spaces where cutting and patching is performed or used as access.

B. Paint, mortar, oils, putty, and items of similar nature shall be completely removed.

C. Piping, conduit, and similar features shall be thoroughly cleaned before painting or other finishing is applied.

D. Pipe covering and insulation damaged incidental to cutting and patching shall be restored to its original condition.

PART 2 - PRODUCTS

2.1 (NOT USED)

PART 3 - EXECUTION

3.1 (NOT USED)

END OF SECTION 017329

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of this Section Includes:

1. Demolition and removal of selected portions of exterior or interior of building or structure and site elements.
2. Removal of existing items for reinstallation.

B. Related Requirements:

1. Section 010150 "General Requirements" for restrictions on use of the premises, Government-occupancy requirements, and phasing requirements.
2. Section 017329 "Cutting and Patching" for cutting and patching procedures.

1.2 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.3 INFORMATIONAL SUBMITTALS

A. Survey of Existing Conditions: Submit survey.

B. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

C. Schedule of selective demolition activities with starting and ending dates for each activity.

1.4 FIELD CONDITIONS

A. Government will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Government's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Government as far as practical.

C. Notify Contracting Officer of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials:

1. It is not expected that hazardous materials will be encountered in the Work.

a. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Contracting Officer.

E. On-site sale of removed items or materials is not permitted.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video.

1. Inventory and record the condition of items to be removed for salvage or reinstallation. Photograph or video conditions that might be misconstrued as damage caused by removal.
2. Photograph or video existing conditions of adjoining construction including finish surfaces, that might be misconstrued as damage caused by selective demolition operations or removal of items for salvage or reinstallation.

3.2 PREPARATION

A. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

B. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Contracting Officer, items may be removed to a suitable, protected storage location and reinstalled in their original locations after selective demolition operations are complete.

3.3 UTILITY SERVICES AND BUILDING SYSTEMS

A. Existing Services/Systems to Remain: Maintain utilities and building systems and equipment to remain and protect against damage during selective demolition operations.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utilities and building systems serving areas to be selectively demolished.

1. Arrange to shut off utilities with utility companies.
2. If disconnection of utilities and building systems will affect adjacent occupied parts of the building, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to those parts of the building.
3. Demolish and remove existing building systems, equipment, and components indicated on Drawings to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment and components.

4. Abandon existing building systems, equipment, and components indicated on Drawings to be abandoned in place.

    a. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    b. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

5. Remove and reinstall/salvage existing building systems, equipment, and components indicated on drawings to be removed and reinstalled or removed and salvaged:

    a. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment and components; when appropriate, reinstall, reconnect, and make equipment operational.
    b. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and components and deliver to Government's designated representative.

3.4 SALVAGE/REINSTALL

A. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

3.5 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
4. Maintain fire watch during and for at least 1 hours after flame-cutting operations.
5. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn demolished materials.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 283111
ADDRESSABLE FIRE ALARM SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes addressable fire alarm and carbon monoxide devices; including detectors, manual stations, notification devices, fire alarm panels, annunciators, wiring, conduits, and other related items.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to this Section.

1.3 SUBMITTALS

A. As specified in Specification 010150 “Submittal Procedures.”

1. Product Data: Submit manufacturer's literature for detectors, annunciators, manual stations, and control panels including all required modules, alarm bells, horns, wire and raceway, detector removal tool, detector tester, batteries, and telephone dialer.

2. Code Analysis of the building, code and design.
3. Shop Drawings: Comply with NFPA 72 and 720 requirements.
   a. Drawings should be done in a 60% submittal and 100% submittal to the CO.
   b. Provide existing floor plans showing existing devices, type, and ratings. Clearly identify areas where detector or audible and visible alarm spacing does not comply with NFPA 72. Provide revised floor plans showing proposed devices, types, and address of each addressable device. Show size and route of cable and conduits.
   c. System riser diagram with device addresses, conduit sizes, and cable and wire types and sizes.
   d. Batteries: Size calculations.
   e. Wire Voltage Drop: Submit calculations showing voltage drop through each circuit.
   f. Wiring method (Class A or Class B) shall be as indicated in the drawings.
   g. All wire shall be protected within raceways an electrical enclosures.

B. Closeout Submittals: As specified in Specification 01-0150 “Closeout Procedures.”

1. Field quality-control test reports.
2. Final Documentation including the following:

a. Approval and Acceptance: Provide the "Record of Completion" form according to NFPA 72 and NFPA 720.
b. Record Drawings: Provide the "Permanent Records" according to NFPA 72 and 720. Drawings shall include:

1) Plan views showing the actual location, designation, and interconnection of all system devices, including junction boxes.
2) Detailed single-line wiring schematics showing wiring terminations at panels and devices remote from the panel for each loop or zone.

3. Manufacturer's operation and maintenance data for all initiation, annunciation, and control devices.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Personnel trained and certified by manufacturer for installation of equipment. All work has to be done or supervised by a NICET Level 3 or 4.

B. Designer Qualifications: All work to be done by a Professional Engineer or a NICET Level 3 or 4 Technician.

C. Source Limitations for Fire Alarm Systems and Components:

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70.

E. Performance: Comply with NFPA 72 and NFPA 720.

PART 2 – PRODUCTS

2.1 MANUFACTURER

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified. Matching the current systems of the center is preferred.

1. Edwards Signaling.
2. Silent Knight, a Honeywell company.
3. Fire Lite Alarms, a Honeywell company.
4. NOTIFIER, a Honeywell company.
5. Siemens Building Technologies, Inc., Fire Safety Division.

2.2 DETECTORS

A. General: Comply with UL 268, operating at 24-V dc, nominal two or four wire type.

1. Integral Addressable Module: Communicates detector status (normal, alarm, or trouble) to fire alarm panel.
2. Base: Twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
3. Self-Restoring detectors that do not require resetting or readjustment after actuation to restore them to normal operation.
4. Integral Visual Indicating Light: LED or similar type light indicating detector has operated and power-on status.

B. Photoelectric/Thermal: Actuated by either photoelectric or thermal inputs with remote sensitivity adjustment.

C. Heat Detectors: Comply with UL 521, operating at 24-V dc, nominal.

1. Combination Type: Actuated by either a fixed temperature or a rate of rise.
2. Fixed-Temperature Type: Actuated by a fixed temperature.

2.3 CARBON MONOXIDE DETECTORS

A. General: Comply with UL 2075, operating at 24-V dc, nominal.

1. Internal electro-chemical sensor with on-board microprocessor and automatic drift compensation to track CO levels over time.
2. 150mA output relay: Normally open or normally closed relay allows interface with intrusion or fire alarm systems.
3. CO Alarm Level: 70 ppm/60-240 minutes.
4. Sounder: 85 dBa temporal 4-sounder for local notification.
5. Sensor Service Life: 10 years with end-of-life timer to indicate the device requires service. End-of-life timer to provide indication at the detector and control panel.

2.4 PULL STATION

A. Manual Fire Alarm Station: Comply with UL 38.

1. General: Single action, pull lever type, finished in red with molded, raised-letter operating instructions. Provide with integral addressable module to communicate pull station status (normal, alarm, trouble) to fire alarm panel.
2. Outlet box: Manufacturer's recessed or surface mounted back box.
3. Station Reset: Key-or wrench operated switch. Provide reset tool with pull station.
4. Indoor Protective Shield: Where indicated, provide factory-fabricated wire guard or clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm.

2.5 INITIATING AND INTERFACE DEVICES

A. Intelligent, microprocessor based, interface module, single input to monitor normally open or closed dry contact and reports the contact's status to the control panel.

2.6 NOTIFICATION APPLIANCES

A. Horns: Comply with UL 464. Electric vibrating-polarized type, 24-V dc producing a sound pressure level of 90 dBA, measured 10 feet from the horn, using the coded signal prescribed in UL 464 test protocol.

B. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch high letters on the lens. Field selectable 15/30/75/110cd, rated light output

C. Combination Device: Factory-integrated audible and visible devices in a single assembly.

D. Indoor Protective Shield: Where indicated provide factory-fabricated wire guard or clear plastic enclosure. Light output ratings of visible notification appliances shall be determined with shield in place.

2.7 ADDRESSABLE, FIRE ALARM CONTROL PANEL

A. General: Microprocessor based, UL listed, complying with UL 864 and meeting the requirements of NFPA 72 for local fire alarm control for automatic or manual service.

B. Alphanumeric Display and Systems Controls: LCD display for display of alarm, supervisory, and component status messages and the programming control menu.

C. Primary Power: 24-V dc obtained from 120-V AC service and a power supply module. Alarm current draw of entire fire alarm system shall not exceed 80 percent of the power supply module rating.

D. Secondary Power: 24 V dc supply system with batteries, automatic battery charger, and automatic transfer switch.

E. Provide with semi-flush trim kit.

F. Expansion card cage to hold network interface module.

G. Local and wide area network interface module for telephone transmission.

H. Alarm transmitter: Upon receiving an alarm, supervisory, or trouble signal from fire alarm panel the transmitter captures two telephone lines, dials a preset number and transmits signals when contact is made.

I. Transient Voltage Surge Suppression to be provide for the panel.

2.8 REMOTE ANNUNCIATOR

A. Description: Functions matching fire-alarm control unit for alarm, supervisory, and trouble indications. Manual switching functions matching fire-alarm control unit, including acknowledging, silencing, resetting, and testing. Flush mount annunciator where possible.

B. Display Type and Functional Performance: Alphanumeric display and LED indicating lights shall match those of fire-alarm control unit. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.

2.9 RACEWAYS

A. EMT: UL 797 electrical metallic tubing; ANSI C80.3, zinc-coated steel.

1. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel compression or set screw type.

2.10 WIRE:

A. General: UL listed and labeled.

B. Signaling Line Circuits: Twisted, shielded pair, No. 18 AWG unless other size recommended by system manufacturer. Red insulation jacket.

C. Non-Power-Limited Circuits: Solid-copper conductors with 600-V rated, 75ºC, color-coded insulation. Red insulation jacket.

1. Low-Voltage Circuits: No. 16 AWG, minimum.
2. Line-Voltage Circuits: No. 12 AWG, minimum.

PART 3 – EXECUTION

3.1 FIRE DETECTION REMOVAL AND EXTENSION OF EXISTING FIRE DETECTION WORK

A. Disconnect, demolish, and remove fire detection systems, equipment, and components indicated to be removed.

1. Circuits to Be Removed: Remove portion of circuits, including conductors and conduit, indicated to be removed to source of supply. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned devices which are not removed.
2. Equipment to Be Removed: Disconnect equipment. Remove circuit to source of supply where circuit is indicated to be removed. Temporarily terminate conductors in a safe manner where circuit will be reattached to new equipment or devices. Remove equipment.

B. Verify that abandoned wiring and equipment serve only abandoned facilities. Maintain electrical continuity to remaining wiring and equipment.

C. If during construction electrical conductors, conduits, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

D. Where the reuse of existing conduits, outlets, junction boxes, etc. is permissible, make certain that the wiring for them is continuous from device to device.

E. Provide temporary wiring and connections to maintain existing systems in service during construction.

F. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.

G. Repair adjacent construction and finishes damaged during demolition and extension work. Provide modifications to assure that circuits or systems wiring shall not pass through outlet or junction boxes that may be rendered inaccessible by changes made to the building.

H. Connect new work to existing work in a manner that will assure proper raceway grounding throughout in conformance with the National Electrical Code.

I. Removed conduits, wire, devices, fixtures, etc. become the property of the Contractor unless otherwise noted.

3.2 EQUIPMENT INSTALLATION

A. Comply with NFPA 72 for installation of fire alarm equipment.

B. Detectors, Panels, and Related Equipment: Install in accordance with manufacturer's recommendations.

C. Equipment Mounting: Install fire alarm panels and annunciators with top of cabinet not more than 72 inches above the finished floor.

D. Connecting to Existing Equipment: Verify that existing fire alarm system is operational prior to purchasing any equipment or making any modifications. Demonstrate to the Contracting Officer that the existing fire alarm system operates correctly in trouble and alarm modes and that all existing devices operate correctly.

1. Provide expansion and module cards to enable new equipment to connect to existing devices.
2. Verify the manufacture and type of devices connected to each fire alarm system undergoing modifications. Ensure that new devices and fire alarm panels integrate and operate with the existing systems.

3.3 CARBON MONOXIDE DETECTOR INSTALLATION

A. Comply with NFPA 720 for location and installation of carbon monoxide detection in commercial occupancies. Connect CO detectors to a zone dedicated exclusively for CO detection.

3.4 WIRING

A. Raceways: Shall be installed in EMT. Exposed wiring in finish spaces shall be in wire molds, color chosen by CO.

A. Grounding: Ground fire alarm panel and associated circuits; comply with IEEE 1100. Install a ground wire from main electrical service ground to the Fire Alarm Panel.

3.5 IDENTIFICATION

A. Install framed instructions and system layout in a location visible from fire alarm panel.

3.6 FIELD QUALITY CONTROL

A. Notify Contracting Officer at least 48 hours before inspection or testing. Perform tests in the presence of the Contracting Officer.

B. Prepare test and inspection reports according to NFPA 72, including demonstration of sequences of operations.

C. Tests and Inspections:

1. Visual Inspection: Conduct visual inspection prior to testing.

a. Base inspection on completed Record Drawings and system documentation required by NFPA 72 and NFPA 720 in its "Completion Documents, Preparation" Table.

2. System Testing: Comply with "Test Methods" Table in the "Testing" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.

a. Prepare the "Fire Alarm System Record of Completion" in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.

3. Carbon Monoxide Detector Testing: Test in accordance with NFPA 720.

D. Submit final test and inspection reports.

3.7 DEMONSTRATION

A. Provide one hour of operating instructions to Government personnel for each fire alarm control panel installed, and all new devices installed throughout the contract. Demonstrate how to adjust, set, operate, and maintain the fire alarm system.

END OF SECTION 283111