January 28, 2026

ADDENDUM NO. 1

Tallapoosa County E911
Addition to the Tallapoosa County Jail Facility
Dadeville, Alabama

This Addendum No. 1, to the plans and specifications, dated 8 January 2026, consists of Thirty-Six (36) Pages.

Item No. 1: Refer to Advertisement for Bids:

A. Sealed proposals will be received by Tallapoosa County Commission at Tallapoosa E911 Office, 240 West Columbus Street, Dadeville, AL 36853 until **3:00 PM**, Thursday February 5, 2026, and thereafter opened publicly.

B. A **PRE-BID CONFERENCE** was held at the Tallapoosa County Jail, 316 Industrial Park Drive on January 21, 2026, at 1:00 PM (local time prevailing) for the purpose of reviewing the project and answering Bidder's questions. See attached Minutes of the Meeting and Sign in Sheet of those in attendance.

Item No. 2: Refer to Specification, General / Scope

A. **CLARIFICATION:** Refer to Contract Documents. ALL civil work shown in the Contract Documents is part of this Contract. Tallapoosa County will provide personnel and trucks for hauling of cut and fill materials to a site designated. The General Contractor is responsible for cut / fill and loading the material.

Item No. 3: Refer to Specifications, General Scope / AV:

A. **CLARIFICATION**: ALL work associated with Audio Visual Systems is not included in this scope / contract. This work is the responsibility of a third-party contractor and Owner. It is the responsibility of the General Contractor to coordinate with the A/V Installer, Third Party provider and Owner.

Item No. 4: Refer to Specifications, General Testing / Inspections:

A. **CLARIFICATION:** Testing / Inspection is required. Refer to Specifications for procedures.

Item No. 5: Refer to Specifications, Division 3 Concrete:

A. Attached **Specification Section 03 41 01** Precast Prestressed Hollow Core Slabs is hereby a part of the Contract Documents.

Item No. 6: Refer to Specifications, Section 10 51 13, Metal Lockers:

A. Scranton DuraLife Lockers are afforded prior approval subject to strict conformance with the contract documents.

Item No. 7: Refer to Specifications, Division 28 Electronic Safety and Security:

A. Attached **Specification Section 28 05 13** Conductors and Cables for Electronic Safety and Security is hereby a part of the Contract Documents.

B. Attached **Specification Section 28 31 11** Digital Addressable Fire Alarm System is hereby a part of the Contract Documents.

Item No. 8: Refer to Plans, Sheet A/A5.1 Building Sections; 1/A5.1 Wall Detail; 1/A6.1 Wall Section; S2.0 Foundation Plan:

A. **CLARIFICATION:** The recessed slab is 1'-2" (14") below the finish floor as indicated on the Architectural Drawings referenced.

B. **CLARIFICATION:** Raised floor system shall implement the use of static dissipative vinyl.

Item No. 9: Refer to Plans, Sheet A/A2.1, Toilet / Locker 102 Interior Elevation, P1.1 Plumbing Schedules, Legends, and Notes:

A. **CLARIFICATION:** Shower is a pre-fab ADA unit as indicated on plumbing equipment schedule.

Item No. 10: Refer to Plans, Sheet A2.1, Finish Schedule:

A. **CLARIFICATION:** Tile indicated in Toilet / Locker 102 is to be 'thinset'.

END OF ADDENDUM NO. 1

TALLAPOOSA COUNTY E911
ADDITION TO THE TALLAPOOSA COUNTY JAIL FACILITY
Project No. 25-1465

PRE-BID CONFERENCE AGENDA
January 21, 2026, at 1:00 PM

GENERAL INFORMATION

1. Introduction of Attendees
   a. Tallapoosa County
      - Sheriff Abbett
      - Chief Deputy – Chad Jones
      - Jail Administrator – Al Wilson
      - Mike Eubanks -E911
      - Embirly Collum - Administrator
   b. Project Team
      - Architectural – JMR+H Architecture PC
        - Jeff Cahill
        - Mike Rutland
      - Structural – Harvest Engineering
        - Brad Johnson
      - Plumbing/Mechanical – Whorton Engineering, LLC
        - Heather Page
      - Electrical – Mills-Conoly Engineering, PC
        - Adam Mills

2. Bid Date / Time / Location

   Date: February 5, 2026
   Time: 2:00 PM
   Location: Tallapoosa E911 Office
   240 West Columbus Street
   Dadeville, AL 36853

3. Eligibility
   a. As per Contract documents
   b. Licensed General Contractor in the State of Alabama

4. Bids
   a. Preparation
      - It is the Contractor's responsibility to make sure bid is complete per the Contract documents (e.g., bid form, bid bond, sub/supplier list, etc.)
   b. Proposal Form
      - No alterations shall be made to bid proposal form
      - Be sure to use latest bid proposal form provided during bid process
   c. Guaranty
      - Bid Guaranty in the form of Bid Bond or Cashier's Check is required
      - 5% of bid amount, not to exceed $10,000
      - Use the provided form for Bid Bonds
      - Bid Bond must be executed by a Surety Company duly authorized and qualified to make such bonds in the State of Alabama.
   d. Sales and Use Tax Savings
      - Bidder is not to add or include Sales and Use taxes in their bids
      - Sales tax estimates should be listed on the space designated on the bid form – ASPD Form 5-H
      - Contractor will need to apply for a tax-exempt certificate with the Department of Revenue to purchase materials tax free. Any delay in obtaining the tax-exempt certificate due in whole or in part to the Contractor will not be cause for an extension of time for completion of the Project nor an increase in price.
   e. Subcontractors and Suppliers Submittal

- The low bidder shall submit a complete list of major subcontractors and suppliers within 48 hours of the bid opening. This list should include the license number for all subcontractors and should be on the bidder's letterhead.

f. Delivery
   - Bids to be delivered to the address above by the date and time stated in advertisement for bid or subsequent addenda
   - It is the Contractor's responsibility to make sure bid is received

5. Post-Award / Miscellaneous
   a. Contract Bonds as per General Conditions
      - Performance Bonds - 100% of contract amount
      - Payment Bonds - 100% of contract amount
   b. Bidder awarded the job must show evidence of being registered in the US Government's E-Verify Program
   c. Pay Application requirements as per General Conditions
   d. Contractor shall adhere to the Child Labor Law - No workers on the project under the age of 18

6. Insurance
   a. Builder's Risk Coverage
      - Contractor's responsibility per Article 37 of the General Conditions
        - Owner does not provide insurance coverage or other protection for any financial loss or project delay resulting from damage, theft, or any other loss to tools, equipment, or materials owned, leased, or rented by the Contractor, employees of the Contractor, or any Subcontractor
   b. General Liability
      - See the Contract Insurance Requirements section of the bid documents for a complete listing of insurance requirements

PROJECT INFORMATION

7. Basic Project Information
   The work involves the construction of an E911 Dispatch Center Addition at the site located at the Tallapoosa County Jail Dadeville, Alabama. The new facility is approximately 1,739 gross square feet, providing an expanded dispatch center utilizing state of the art systems and an administrative office systems. Also, included in this facility is a kitchen, toilet/shower facility. And locker room. A site includes excavation to sub grade elevations at undercut, erosion control, site drainage, and all associated utilities.

8. Anticipated Schedule, Progress and Completion
   a. Time for Completion
      - Base Bid Completion Date: **365 Days.**
   b. Liquidated Damages - Time is the essence of the Contract. If a daily liquidated damage amount is not otherwise provided for in the Contract Documents, a time charge equal to six percent interest per annum on the total Contract Sum may be made against the Contractor for the entire period after expiration of the Contract Time that the Contractor fails to achieve Substantial Completion of the Work.
   c. Contractor to submit a schedule of values with detailed breakdowns of material and labor within 10 days of the Notice to Proceed for progress tracking and management
   d. Contractor to generate and submit detailed construction progress schedule compliant with Article 12 of General Conditions
   e. Owner/Consultant/Contractor (OAC) progress meetings to be held per project requirements
   f. Warranty dates shall start at Date of Substantial Completion

8. Job Sign Requirement - Signage will need to be included.

9. Construction Staking
   a. Shall be the Contractor's responsibility and shall be performed under the supervision of a Licensed Professional Land Surveyor in the State of Alabama

10. Project Observation / Material Testing
    a. Materials testing and geotechnical recommendations for the Owner will be provided by GC
    b. Contractor's responsibility to coordinate all testing

11. Inspections
    a. As required by Tallapoosa County, Contractor shall coordinate and schedule all inspections

12. Safety
    a. The Contractor shall be responsible for all project safety. Neither the Consultant nor the Owner will be responsible for the Contractor's safety precautions, means, methods, techniques, sequences, or procedures.
    b. Contractor's personnel responsible for safety shall be OSHA certified
    c. The Contractor shall be responsible for submitting a safety program per the Special Provisions in the contract
    d. Fencing along the limits of construction, including equipment and storage areas, is the Contractor's responsibility unless otherwise directed by the Owner. The cost of any type fencing, barricades, etc. necessary shall be incidental to project. Fencing, barricades, etc., must be maintained according to the project specifications throughout the duration of the project.

13. Storm Water and Erosion Control
    a. As per Project Specifications Section 01 57 13
    b. Contractor responsible for implementing all BMP's, installation of all erosion and sedimentation control items, adhering to permit requirements and monthly inspection reports, etc.

14. Tree Protection
    a. During the course of the work, Contractor will take all necessary precautions to protect existing trees on and near the project site.

15. Parking for Contractors, Subcontractors, and all workers
    a. Parking to be confirmed prior to mobilization for construction.

16. Traffic Control
    a. As per Project Specifications
    b. Coordinate all activities which may impede automobile, bus, pedestrian, or bicycle traffic with the Project Manager and the Park Manager.

17. Existing Utilities
    a. As per Technical Specifications Section 01 71 23 and 02 41 00
    b. Verify location of utilities prior to construction

ADDENDA, ALLOWANCES, ALTERNATES & UNIT PRICES

18. Addenda
    a. Minutes of Pre-Bid and any other pertinent items discussed shall be issued by Addendum.
    b. Additional addenda will be issued throughout bid process as warranted
    c. All questions prior to bid should be directed to JMR+H Architecture at specs@jmrha.com; copy, jcahill@jmrha.com and nchance@jmrha.com.

    d. Deadline for questions from bidders: Tuesday February 3, 2026, at 2:00 PM.
    e. All questions should be directed to A/E in writing. Responses will be sent to all bidders. Any pertinent questions that may be asked during site walk-through or site visits should be followed up in writing. **Any verbal answers provided should be considered nonbinding.**

19. Alternates
    a. **Alternate No. 1.** – Furnish and install 1 ½" furring channels at 24" o.c. with 5/8" Gypsum Board on CMU where shown in documents. See Specs.
    b. **Alternate No. 2.** – Furbish and install acoustical panels where shown in Communications Center 101. See Specs.

20. Unit Prices
    a. UNIT PRICE NO.1 - Each bidder shall include with their proposal a unit cost including all labor, materials, overhead, profit, etc. to remove unsuitable soil and replace with suitable compacted engineered fill including all hauling on, to, and from the site. $_____/CY

21. Allowances
    a. Each bidder shall include in their proposal a $100,00.00 (one hundred thousand dollars) allowances contingency.

OWNER COMMENTS

QUESTIONS / COMMENTS

PROJECT TOUR (OPTIONAL)

DIVISION 3: CONCRETE
Section 03 41 01: Precast Prestressed Hollow Core Slabs

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and any general provisions of the Contract, including General and Supplementary Conditions and specific technical requirements apply to this Section.

1.2 SUMMARY

A. This section includes 4'-0" wide only precast prestressed hollow core slabs as indicated on drawings and as specified herein. No other panel width will be allowed except for partial panel width requirements.

B. Prestressed structural framing members are specified in other sections of this Division.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract.

B. Product data and instructions for manufactured materials and products. Include manufacturer's certifications and laboratory test reports as required.

C. Shop drawings and coordination with Jail project final coordination drawings showing complete information for fabrication and installation of precast concrete units. Indicate member dimensions and cross-section as well as location, size, and type of reinforcement hole locations by others etc., including special reinforcement and lifting devices necessary for handling and erection.

1. This contractor shall participate in the project final coordination drawings required of The General Contractor and all trades as specified herein! This coordination will include hole layout in hollow core and all coordination with fire protection, plumbing, mechanical, electrical, and electronica security elements.

D. Provide layout, dimensions, and identification of each precast unit corresponding to sequence and procedure of installation. Indicate welded connections by AWS standard symbols. Detail inserts, connections, and joints, including accessories and construction at openings in precast units.

E. Indicate location and details of anchorage devices that are to be embedded in other construction. Furnish templates if required for accurate placement.

F. Provide complete design calculations and any design deviation (to include thickness) prepared by a registered engineer licensed in state where project is erected.

1.4 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except as otherwise indicated:

1. ACI 301 "Specifications for Structural Concrete for Buildings."
2. ACI 318 "Building Code Requirements for Reinforced Concrete."
3. Prestressed Concrete Institute MNL 116, "Manual for Quality Control for Plants and Production of Precast Concrete Products."

B. Fabricator Qualifications: Firms with at least two years successful experience in fabrication of precast concrete units similar to units required for this project will be acceptable.

1. Fabricator must be producer member of the Prestressed Concrete Institute (PCI) and/or participate in its Plant Certification Program.

C. Fabrication Qualifications: Produce precast concrete units at fabricating plant engaged primarily in manufacturing of similar units unless plant fabrication or delivery to project site is impractical.

D. If units are not produced at precast concrete fabricating plant, maintain procedures and conditions for quality control that are equivalent to plant production.

1. Comply with PCI MNL - 116 for production of precast concrete units.

E. Fire-resistance-Rated Precast Units: Where precast concrete units are shown or scheduled as requiring a fire-resistance classification, provide units tested and listed by UL in "Fire Resistance Directory" or with each unit bearing UL label and marking.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver precast concrete units to project site in such quantities and at such times to assure continuity of installation. Store units at project site to prevent cracking, distortion, staining, or other physical damage and so that markings are visible. Lift and support units at designated lift points.

1.6 FIELD CONDITIONS

A. Design modifications may be made as necessary to meet field conditions, to ensure proper fitting of work, and as acceptable to Architect. Changes to general design concept as shown identified to Architect and must be acceptable to Architect.

B. Deliver anchorage items that are to be embedded in other construction before start of such work. Provide setting diagrams, templates, and directions as required for installation.

PART 2 - PRODUCTS

2.1 PRESTRESSING TENDONS

A. Uncoated, 7-wire stress-relieved strand complying with ASTM A 416. Use Grade 250 unless Grade 270 indicated.

B. Strand similar to above but having size and ultimate strength of wires increased so that ultimate strength of the strand is increased approximately 15 percent, or strand with increased strength but with fewer wires per strand, may be used at manufacturer's option.

2.2 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I or Type III.

1. Use only one brand and type of cement throughout project unless otherwise acceptable to Architect.

B. Aggregates: ASTM C 33.

1. Local aggregates not complying with ASTM C 33, but that have been shown by special test or actual service to produce concrete of adequate strength and durability, may be used when acceptable to Architect.

C. Lightweight Aggregate: ASTM C 330.

D. Water: Drinkable and free from foreign materials in amounts harmful to concrete and embedded steel.

E. Air-Entraining Admixture: ASTM C 260.

F. Water-Reducing Admixture: ASTM C 494, Type A.

2.3 CONNECTION MATERIALS

A. Weld Plates: Structural quality, hot-rolled carbon steel, ASTM A 283, Grade C.

B. Steel Shapes: ASTM A 36.

C. Anchor Bolts: ASTM A 307, low-carbon steel bolts, regular hexagon nuts, and carbon steel washers.

D. Finish of Steel Units: Exposed units galvanized per ASTM A 153; others painted with rust-inhibitive primer.

E. Accessories: Provide clips, hangers, and other accessories required for installation of project units and for support of subsequent construction of finishes.

F. Cement Grout: Portland cement, ASTM C 150, Type I, and clean natural sand, ASTM C 404. Mix at ratio of 1.0-part cement to 3.0 parts sand, by volume, with minimum water required for placement and hydration.

G. Bearing Pads: Tempered hardboard, smooth on both sides, complying with AHA A 135.4.

2.4 PROPORTIONING AND DESIGN OF MIXES

A. General: Prepare design mixes for each type of concrete required.

B. Design mixes may be prepared by an independent testing facility or by qualified precast manufacturing plant personnel, at precast manufacturer's option.

1. Produce standard-weight concrete consisting of specified portland cement, aggregates, admixtures, and water to produce the following properties:

a. Compressive strength; 5,000 psi minimum at 28 days.
b. Release strength for prestressed units: 3,500 psi.

2. Produce lightweight concrete consisting of specified portland cement, aggregates, admixtures, and water to produce the following properties:

a. Compressive strength; 5,000 psi minimum at 28 days.
b. Air-dry density; not less than 90 nor more than 115 lbs. per cu. ft.
c. Release strength for prestressed units: 3,500 psi.

3. Cure compression test cylinders by the same methods used for precast concrete work.

C. Admixtures: Use water-reducing admixtures in strict compliance with manufacturer's directions. Admixtures to increase cement dispersion or provide increased workability for low-slump concrete may be used if acceptable to Architect.

D. Use amounts as recommended by admixture manufacturer for climatic conditions prevailing at time of placing. Adjust quantities of admixtures as required to maintain quality control.

2.5 FABRICATION

A. General: Fabricate 4’-0” wide (only) precast concrete units complying with manufacturing and testing procedures, quality control recommendations, and dimensional tolerances of PCI MNL-116 and in depths as required by Harlow Core Third Party Structural Engineer.

B. Accurately construct forms of sufficient strength to withstand pressures due to concrete placing operations, temperature changes, and pretensioning and detensioning operations. Maintain formwork to provide completed precast concrete units of shapes, lines, and dimensions indicated, within specified fabrication tolerances.

C. Furnish units that are free of voids or honeycomb, with straight true edges and surfaces and free from defect.

D. Standard Finish: Normal plant run finish produced in forms that impart a smooth finish to concrete. Fillable or repairable small surface holes caused by air bubbles, normal form joint marks, and minor chips and spalls will be tolerated, but major or unsightly imperfections, honeycomb or structural defects will not be permitted. Whether plant included or as a product of inappropriate field cutting and setting techniques. All cutting must be done by appropriate Mechanical sawcutting methods. No demolition of slab edges with hammers or other blunt force techniques is acceptable.

E. Adequately reinforce slab units to resist transporting and handling stresses.

F. Include cast-in weld plates where required for anchorage or lateral bracing to structural steel members.

G. Cooperate completely with other trades for installation of items to be cast- in or cut in hollow slab units. Notify General Contractor of items not received in ample time so as not to delay work.

H. Provide solid, monolithic precast slab units indicated to be an integral part of hollow slab unit system. Design and fabricate solid units to dimensions and details indicated, as specified for hollow slab units.

I. Provide headers of cast-in-place concrete or structural steel shapes for openings larger than one slab width in accordance with hollow slab unit manufacturer's recommendations.

J. Dimensional Tolerances: Fabricate hollow core slab units to comply with PCI MNL 116 fabricated dimensional tolerances. In 4'-0" panel width as shown on drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Lift, place, and secure hollow slab units in accordance with manufacturer's printed instructions, details on drawings, and final shop and Project Coordination drawings, keeping units tight and perpendicular to bearing supports. Do not install hollow slab units until supporting members are in place and secured.

B. Follow erection procedures and sequence of erection as recommended by hollow slab unit manufacturer and as acceptable to Architect. All erection will be coordinated with all field trades to prevent damage to other trades work.

C. Installation Tolerances: Install precast units without exceeding following tolerance limits:

1. Variations from Plumb: 1/4 inch in any 20-foot run or story height; 1/2-inch total in any 40-foot or longer run.
2. Variations from Level or Elevation: 1/4 inch in any 20-foot run; 1/2 inch in any 40-foot run; total plus or minus 1/2 inch at any location.
3. Variation from Position in Plan: Plus, or minus 1/2 inch maximum at any location.
4. Offsets in Alignment of Adjacent Members at Any Joint: 1/16 inch in any 10-foot run, 1/4 inch maximum.

D. Level slabs accurately or set to uniform slope as indicated.

E. Set slabs on solid, level bearing, with bearing surface of slab units not less than 2 inches at steel supports and not less than 3 inches at other supports, unless otherwise acceptable to Architect. Leave a minimum of 15/8" between bearing ends at all bearing points to accommodate conduit and small piping.

F. Align and level by methods, procedures, and equipment as recommended by hollow slab unit manufacturer.

G. Do not cut holes or install sleeves larger than size permitted by hollow slab unit manufacturer for pipe, conduits, duct, or other penetrations after fabrication. Provide complete coordination in General Contractors coordination drawings.

H. Do not cut reinforcing or prestressing strands without approval of manufacturer.

I. Field cut holes as shown on drawings or otherwise for openings that do not disturb prestressing strands in accordance with recommendations of hollow slab unit manufacturer. Coordinate all holes cut by others on General Contractors coordination drawings.

J. At continuous electrical raceway joints, carefully align cells and tape butt joints in accordance with manufacturer's recommendations and to comply with applicable code requirements. Keep hollow cores free from grout and other foreign materials.

K. This product is a finished ceiling element and as such this subcontractor will grout joints and repair damaged exposed surfaces, as directed by Architect. Place forms or other acceptable method to retain grout in place until sufficiently hard to support itself. Completely fill void with grout to finish smooth and level with adjacent surfaces. Keep grouted joints damp for not less than 24 hours after initial set. Promptly remove grout material from exposed finished surfaces before it hardens.

3.2 PLANT QUALITY CONTROL EVALUATIONS

A. The Owner may employ a separate testing laboratory to evaluate precast manufacturer's quality control and testing methods.

B. The precast manufacturer shall allow Owner's testing facility access to materials storage areas, concrete production equipment, and concrete placement and curing facilities. Cooperate with Owner's testing laboratory and provide samples of materials and concrete mixes as may be requested for additional testing and evaluation.

C. Dimensional Tolerances: Units having dimensions smaller or greater than required, and outside specified tolerance limits, may be subject to additional testing as herein specified.

D. Precast units having dimensions other than specified and shown on drawings and greater than required will be rejected if appearance of function of the structure is adversely affected or if larger dimensions interfere with other construction. Repair or remove and replace rejected units as required to meet construction conditions. All units must be 4’-0” nominal widths.

E. Strength of Units: Strength of precast concrete units will be considered potentially deficient if manufacturing processes fail to comply with requirements that may affect strength of precast units, including the following conditions.

1. Failure to meet compressive strength test requirements.
2. Reinforcement, and pretensioning and detensioning of tendons of prestressed concrete, not conforming to specified fabrication requirements.
3. Concrete curing, and protection of precast units against extremes in temperature, not as specified.
4. Precast units damaged during handling and erection.

F. Testing Precast Units: Where there is evidence that strength of precast concrete units does not meet specification requirements, the concrete testing service shall take core drilled from hardened concrete for compressive strength determination, complying with ASTM C 42 and as follows:

1. Take at least three representative cores from precast units of suspect strength from locations directed by Architect.
2. Test cores in a saturated-surface-dry condition per ACI 318 if concrete will be wet during use of completed structure.
3. Test cores in an air-dry condition per ACI 318 if concrete will be dry during use of completed structure.
4. Strength of concrete for each series of cores will be considered satisfactory if their average compressive strength is at least 85 percent of 28-day design compressive strength.
5. Test results will be made in writing with copies to Architect, General Contractor, and precast manufacturer. Include in test report the project identification name and number, date, name of precast concrete manufacturer, name of concrete testing service, identification letter, number, and type of member or members represented by core tests, design compression strength, compressive breaking strength and type of break (corrected for length-diameter

ratio), direction of applied load to core with respect to horizontal plane of concrete as placed, and moisture condition of core at time of testing.

G. Patching: Where core test results in satisfactory and precast units are acceptable for use in work, fill core holes solid with patching mortar and finish to match adjacent concrete surfaces.

H. Defective Work: Precast concrete units that do not conform to specified requirements, including strength, tolerances, and finishes, shall be replaced with precast concrete units that meet requirements of this section. General Contractor shall also be responsible for cost of corrections to other work affected by or resulting from corrections to precast concrete work.

END OF SECTION 03 41 01

SECTION 280513 - CONDUCTORS AND CABLES FOR ELECTRONIC SAFETY AND SECURITY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Fire alarm wire and cable.
2. Identification products.

1.3 DEFINITIONS

A. BICSI: Building Industry Consulting Service International.

B. EMI: Electromagnetic interference.

C. IDC: Insulation displacement connector.

D. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control and signaling power-limited circuits.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.5 FIELD CONDITIONS

A. Do not install conductors and cables that are wet, moisture damaged, or mold damaged.

1. Indications that wire and cables are wet or moisture damaged include, but are not limited to, discoloration and sagging of factory packing materials.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: 25 or less.
2. Smoke-Developed Index: 50 or less.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 FIRE ALARM WIRE AND CABLE

A. General Wire and Cable Requirements: NRTL listed and labeled as complying with NFPA 70, Article 760.

B. Signaling Line Circuits: Twisted, shielded pair, size as recommended by system manufacturer, but not less than No. 18 AWG.

1. Circuit Integrity Cable: Twisted shielded pair, NFPA 70, Article 760, Classification CI, for power-limited fire alarm signal service Type FPL. NRTL listed and labeled as complying with UL 1424 and UL 2196 for a 2-hour rating.

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

1. Low-Voltage Circuits: No. 16 AWG, minimum.
2. Line-Voltage Circuits: No. 12 AWG, minimum.
3. Multiconductor Armored Cable: NFPA 70, Type MC, copper conductors, Type TFN/THHN conductor insulation, copper drain wire, copper armor with red identifier stripe, NTRL listed for fire alarm installation, and complying with requirements in UL 2196 for a 2-hour rating.

2.3 IDENTIFICATION PRODUCTS

A. Comply with UL 969 for a system of labeling materials, including label stocks, laminating adhesives, and inks used by label printers.

B. Comply with requirements in Section 260100 "Basic Electrical Materials and Methods."

PART 3 - EXECUTION

3.1 INSTALLATION OF HANGERS AND SUPPORTS

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for installation of supports for cables.

3.2 WIRING METHOD

A. Install wiring in metal pathways and wireways.

1. Minimum conduit size shall be 3/4 inch (21 mm). Control and data transmission wiring shall not share conduit with other building wiring systems.
2. Comply with requirements in Section 260533 "Raceways and Boxes for Electrical Systems."
3. Conduit shall be red the entire length. Junction boxes shall be painted red.

B. Install cable, concealed in accessible ceilings, walls, and floors.

C. Wiring within Enclosures:

1. Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii.
2. Install lacing bars and distribution spools.
3. Separate power-limited and non-power-limited conductors as recommended in writing by manufacturer.
4. Install conductors parallel with or at right angles to sides and back of enclosure.
5. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with intrusion system to terminal blocks.
6. Mark each terminal according to system's wiring diagrams.
7. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Comply with NECA 1.

B. Conductors: Size according to system manufacturer's written instructions unless otherwise indicated.

C. General Requirements for Cabling:

1. Terminate all conductors; no cable shall contain unterminated elements. Make terminations only at indicated terminals.
2. Cables shall not be spliced or “T” tapped. All cables shall be terminated on device or equipment terminals.

3.4 FIRE ALARM WIRING INSTALLATION

A. Comply with NECA 1 and NFPA 72.

B. Wiring Method: Install wiring in metal raceway according to Section 260533 "Raceways and Boxes for Electrical Systems."

1. Fire alarm circuits and equipment control wiring associated with the fire alarm system shall be installed in a dedicated raceway system. This system shall not be used for any other wire or cable and shall be red in color entire length.

C. Wiring Method:

1. Cables and raceways used for fire alarm circuits, and equipment control wiring associated with the fire alarm system, may not contain any other wire or cable.
2. Signaling Line Circuits: Power-limited fire alarm cables shall not be installed in the same cable or raceway as signaling line circuits.

D. Wiring within Enclosures: Separate power-limited and non-power-limited conductors as recommended by manufacturer. Install conductors parallel with or at right angles to sides and back of the enclosure. Bundle, lace, and train conductors to terminal points with no excess. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with the fire alarm system to terminal blocks. Mark each terminal according to the system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.

E. Color-Coding: Color-code fire alarm conductors differently from the normal building power wiring. Use one color-code for alarm circuit wiring and another for supervisory circuits. Color-code audible alarm-indicating circuits differently from alarm-initiating circuits. Use different colors for visible alarm-indicating devices. Paint fire alarm system junction boxes and covers red.

F. Wiring to Remote Alarm Transmitting Device: 1-inch (25-mm) conduit between the fire alarm control panel and the transmitter. Install number of conductors and electrical supervision for connecting wiring as needed to suit monitoring function.

3.5 CONNECTIONS

A. Comply with requirements in Section 283111 "Digital, Addressable Fire-Alarm System for connecting, terminating, and identifying wires and cables.

3.6 FIRESTOPPING

A. Comply with requirements in Section 078413 "Penetration Firestopping."

3.7 IDENTIFICATION

A. Comply with requirements for identification specified in Section 260100 "Basic Electrical Materials and Methods."

3.8 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

B. End-to-end cabling will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 280513

SECTION 283111 - DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
4. Air-sampling smoke detectors.
5. Heat detectors.
6. Notification appliances.
7. Remote annunciator.
8. Addressable interface device.
9. Network communications.
10. System printer.

B. Related Requirements:

1. Section 260533 “Raceways and Boxes for Electrical Systems” for fire alarm system raceways and boxes.

2. Section 280513 "Conductors and Cables for Electronic Safety and Security" for cables and conductors for fire-alarm systems.

1.3 DEFINITIONS

A. ADA: Americans with Disabilities Act.

B. CxA: Commissioning Authority.

C. FAAP: Fire Alarm Annunciator Panel.

D. FACP: Fire Alarm Control Panel.

E. FATC: Fire Alarm Terminal Cabinet.

F. FATP: Fire Alarm Transponder Panel.

G. EMT: Electrical Metallic Tubing.

H. HLI: High Level Interface.

I. IBC: International Building Code.

J. LED: Light-emitting diode.

K. NFPA: National Fire Protection Association.

L. NICET: National Institute for Certification in Engineering Technologies.

M. PC: Personal computer.

N. Definitions in NFPA 72 apply to fire alarm terms used in this Section.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product, including furnished options and accessories.

1. Include construction details, material descriptions, dimensions, profiles, and finishes.
2. Include rated capacities, operating characteristics, and electrical characteristics.

B. Shop Drawings: For fire-alarm system.

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
2. Include plans, elevations, sections, details, and attachments to other work.
3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
4. Detail assembly and support requirements.
5. Include voltage drop calculations for notification-appliance circuits.
6. Include battery-size calculations.
7. Include input/output matrix.
8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
9. Include performance parameters and installation details for each detector.
10. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
11. Provide program report showing that air-sampling detector pipe layout balances pneumatically within the airflow range of the air-sampling detector.
12. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.

    a. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.
    b. Show field wiring required for HVAC unit shutdown on alarm.
    c. Show field wiring and equipment required for HVAC unit shutdown.
    d. Show field wiring and equipment required for HVAC unit shutdown on alarm and override by firefighters' smoke-evacuation system.

e. Locate detectors according to manufacturer's written recommendations.
f. Show air-sampling detector pipe routing.

13. Include voice/alarm signaling-service equipment rack or console layout, grounding schematic, power calculation, and single-line connection diagram.
14. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.

C. General Submittal Requirements:

1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Engineer.
2. Shop Drawings shall be prepared by persons with all of the following qualifications:

a. Trained and certified by manufacturer in fire-alarm system design.
b. NICET-certified, fire-alarm technician; Level IV minimum.
c. Licensed or certified by authorities having jurisdiction.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Field quality-control reports.

1.6 Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following and deliver copies to authorities having jurisdiction:

a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
c. Complete wiring diagrams showing connections between all devices and equipment. Each conductor shall be numbered at every junction point with indication of origination and termination points.
d. Riser diagram.
e. Device addresses.
f. Air-sampling system sample port locations and modeling program report showing layout meets performance criteria.
g. Record copy of site-specific software.

h. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:

1) Equipment tested.
2) Frequency of testing of installed components.
3) Frequency of inspection of installed components.
4) Requirements and recommendations related to results of maintenance.
5) Manufacturer's user training manuals.

i. Manufacturer's required maintenance related to system warranty requirements.
j. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

C. As-Built Documentation: Contractor shall submit As-Built documentation of entire fire alarm system including floor plans, riser diagram, device details and addresses, and wiring diagrams in both hardcopy form and digitally in AutoCad Release 2011format.

D. Commissioning: Submit complete commissioning plan, systems manuals and commissioning process reports.

1.8 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Smoke Detectors: Two of each.
2. Heat Detectors: Two of each.
3. Detector Bases: Two of each.
4. Smoke Detectors: Two of each.
5. Visual Notification Devices: Two of each type.
6. Audio Visual Notification Devices: Two of each type.
7. Pull Stations: Two of each.
8. Keys and Tools: One extra set for access to locked or tamper-proofed components.

1.9 QUALITY ASSURANCE

A. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician as well as trained and certified by manufacturer for installation of units required for this Project.

B. Contractor shall have a State of Alabama Fire Marshal’s Permit.

C. NFPA Certification: Obtain certification according to NFPA 72 by an NRTL (nationally recognized testing laboratory).

D. NFPA Certification: Obtain certification according to NFPA 72 by a UL-listed alarm company.

1.10 PROJECT CONDITIONS

A. Perform a full test of the existing system prior to starting work. Document any equipment or components not functioning as designed.

B. Interruption of Existing Fire-Alarm Service: Do not interrupt fire-alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary Fire Watch service according to requirements indicated:

1. Notify Engineer and Owner no fewer than ten days in advance of proposed interruption of fire-alarm service.
2. Do not proceed with interruption of fire-alarm service without Engineer's or Owner's written permission.

C. Use of Devices during Construction: Protect devices during construction unless devices are placed in service to protect the facility during construction.

1.11 SEQUENCING AND SCHEDULING

A. Existing Fire-Alarm Equipment: Maintain existing equipment fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service, and label existing fire-alarm equipment "NOT IN SERVICE" until removed from the building.

B. Contractor shall provide 24/7 Fire Watch for any area of building not protected by fire alarm coverage during construction.

C. Equipment Removal: After acceptance of new fire-alarm system, remove existing disconnected fire-alarm equipment and wiring.

1.12 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.

1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
2. Warranty Period: One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Class B Fire Alarm system as specified herein and as indicated on drawings.

B. Noncoded, UL-certified addressable system, with automatic sensitivity control of smoke detectors, multiplexed signal transmission, dedicated to fire-alarm service only.

C. Automatic sensitivity control of smoke detectors.

D. All components provided shall be listed for use with the selected system.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices and systems:

1. Manual stations.
2. Heat detectors.
3. Smoke detectors.

B. Fire-alarm signal shall initiate the following actions:

1. Continuously operate alarm notification appliances.
2. Identify alarm and specific initiating device at fire-alarm control unit and remote annunciators.
3. Transmit an alarm signal to the remote alarm receiving station.
4. Unlock electric door locks in designated egress paths.
5. Activate voice/alarm communication system.
6. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
7. Activate smoke-control system (smoke management) at firefighters' smoke-control system panel.
8. Close smoke dampers in air ducts of designated air-conditioning duct systems.
9. Record events in the system memory.
10. Record events by the system printer.
11. Indicate device in alarm on the graphic annunciator.

C. Supervisory signal initiation shall be by one or more of the following devices and actions:

1. Valve supervisory switch.
2. Alert and Action signals of air-sampling detector system.
3. Duct smoke detectors.
4. User disabling of zones or individual devices.
5. Loss of communication with any panel on the network.

D. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of communication with any addressable sensor, input module, relay, control module, remote annunciator, printer interface, or Ethernet module.
4. Loss of primary power at fire-alarm control unit.
5. Ground or a single break in internal circuits of fire-alarm control unit.
6. Abnormal ac voltage at fire-alarm control unit.
7. Break in standby battery circuitry.
8. Failure of battery charging.
9. Abnormal position of any switch at fire-alarm control unit or annunciator.
10. Voice signal amplifier failure.

E. System Supervisory Signal Actions:

1. Identify specific device initiating the event at fire-alarm control unit and remote annunciators.
2. Record the event on system printer.
3. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.
4. Transmit system status to building management system.
5. Display system status on graphic annunciator.

2.3 PERFORMANCE REQUIREMENTS

A. Comply with ADA, IBC and NFPA 72.

2.4 FIRE-ALARM CONTROL UNIT (FACP)

A. Exiting fire alarm control panel is a Simplex 4007 unit to remain. Existing fire alarm control panel is located in the guard shack area of the jail. Provide new Simplex fire alarm extender panel in the new data room of the addition and interface with existing fire alarm control panel as required.

B. All new devices shall be Simplex to match the existing devices in building. Upon completion the entire Simplex fire alarm system shall be re-certified.

C. Initiating-Device, Notification-Appliance, and Signaling-Line Circuits:

1. Pathway Class Designations: NFPA 72, Class B.
2. Pathway Survivability: Level 1.
3. Install no more than 50 addressable devices on each signaling-line circuit.
4. Serial Interfaces:

a. One dedicated RS 485 port for remote station operation using point ID DACT.
b. One RS 485 port for remote annunciators, Ethernet module, or multi-interface module (printer port).
c. One USB port for PC configuration.

D. Smoke-Alarm Verification:

1. Initiate audible and visible indication of an "alarm-verification" signal at fire-alarm control unit.
2. Activate an approved "alarm-verification" sequence at fire-alarm control unit and detector.
3. Record events by the system printer.
4. Sound general alarm if the alarm is verified.
5. Cancel fire-alarm control unit indication and system reset if the alarm is not verified.

E. Notification-Appliance Circuit:

1. Audible appliances shall sound in a three-pulse temporal pattern, as defined in NFPA 72.
2. Visual alarm appliances shall flash in synchronization where multiple appliances are in the same field of view, as defined in NFPA 72.

F. Elevator Recall:

1. Elevator recall shall be initiated only by one of the following alarm-initiating devices:

   a. Elevator lobby detectors except the lobby detector on the designated floor.
   b. Smoke detector in elevator machine room.
   c. Smoke detectors in elevator hoistway.

2. Elevator controller shall be programmed to move the cars to the alternate recall floor if lobby detectors located on the designated recall floors are activated.
3. Water-flow alarm connected to sprinkler in an elevator shaft and elevator machine room shall shut down elevators associated with the location without time delay.

   a. Water-flow switch associated with the sprinkler in the elevator pit may have a delay to allow elevators to move to the designated floor.

G. Door Controls: Door hold-open devices that are controlled by smoke detectors at doors in smoke-barrier walls shall be connected to fire-alarm system.

H. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity settings, and change those settings. Allow controls to be used to program repetitive, time-scheduled, and automated changes in sensitivity of specific detector groups. Record sensitivity adjustments and sensitivity-adjustment schedule changes in system memory, and print out the final adjusted values on system printer.

I. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signals, supervisory signals and digital alarm communicator transmitters shall be powered by 24-V dc source.

1. Alarm current draw of entire fire-alarm system shall not exceed 80 percent of the power-supply module rating.

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

1. Batteries: Sealed lead calcium.

K. Instructions: Computer printout or typewritten instruction card mounted behind a plastic or glass cover in a stainless-steel or aluminum frame. Include interpretation and describe appropriate response for displays and signals. Briefly describe the functional operation of the system under normal, alarm, and trouble conditions.

2.5 MANUAL FIRE-ALARM BOXES

A. Products: Subject to compliance with requirements, provide one of the following:
1. SimplexGrinnell LP. to interface with existing FACP.

B. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.

1. Double-action mechanism requiring two actions to initiate an alarm, breaking-glass or plastic-rod type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
2. Station Reset: Key- or wrench-operated switch.
3. Indoor Protective Shield: Factory-fabricated, clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm. Lifting the cover actuates an integral battery-powered audible horn intended to discourage false-alarm operation. Provide only where indicated.

2.6 SYSTEM SMOKE DETECTORS

A. Products: Subject to compliance with requirements, provide one of the following:
1. SimplexGrinnell LP. to interface with existing FACP.

B. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
3. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
4. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
5. Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.
6. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition and individually adjustable for sensitivity by fire-alarm control unit.

a. Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be selectable at fire-alarm control unit for 15 or 20 deg F (8 or 11 deg C) per minute.
b. Fixed-temperature sensing characteristic of combination smoke- and heat-detection units shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 or 155 deg F (57 or 68 deg C).
c. Multiple levels of detection sensitivity for each sensor.
d. Sensitivity levels based on time of day.

C. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

D. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

a. Primary status.
b. Device type.
c. Present average value.
d. Present sensitivity selected.
e. Sensor range (normal, dirty, etc.).

3. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector for smoke detection in HVAC system ducts.
4. Each sensor shall have multiple levels of detection sensitivity.
5. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
6. Relay Fan Shutdown: Fully programmable relay rated to interrupt fan motor-control circuit.

2.7 HEAT DETECTORS

A. Products: Subject to compliance with requirements, provide one of the following:
1. SimplexGrinnell LP. to interface with existing FACP.

B. General Requirements for Heat Detectors: Comply with UL 521.

1. Temperature sensors shall test for and communicate the sensitivity range of the device.

C. Heat Detector, Combination Type: Actuated by either a fixed temperature of 135 deg F (57 deg C) or a rate of rise that exceeds 15 deg F (8 deg C) per minute unless otherwise indicated.

1. Mounting: Twist-lock base interchangeable with smoke-detector bases.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

2.8 NOTIFICATION APPLIANCES

A. Products: Subject to compliance with requirements, provide one of the following:
1. SimplexGrinnell LP. to interface with existing FACP.

B. General Requirements for Notification Appliances: Individually addressed, connected to a signaling-line circuit, equipped for mounting as indicated, and with screw terminals for system connections.

C. 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- (25-mm-) high letters on the lens.

1. Rated Light Output:

a. 15/30/75/110 cd, selectable in the field as required in accordance with the Authority Having Jurisdiction.

2. Mounting: Wall and ceiling mounted as indicated.
3. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.
4. Flashing shall be in a temporal pattern, synchronized with other units.
5. Strobe Leads: Factory connected to screw terminals.
6. Mounting Faceplate: Factory finished, red.

D. Voice/Tone Notification Appliances:

1. Comply with UL 1480.
2. Speakers for Voice Notification: Locate speakers for voice notification to provide the intelligibility requirements of the "Notification Appliances" and "Emergency Communications Systems" chapters in NFPA 72.
3. High-Range Units: Rated 2 to 15 W.
4. Low-Range Units: Rated 1 to 2 W.
5. Mounting: Flush unless otherwise indicated.
6. Matching Transformers: Tap range matched to acoustical environment of speaker location.

2.9 REMOTE ANNUNCIATOR

A. Description: Annunciator functions shall match those of fire-alarm control unit for alarm, supervisory, and trouble indications. Manual switching functions shall match those of fire-alarm control unit, including acknowledging, silencing, resetting, and testing.

1. Mounting: Flush cabinet, NEMA 250, Type 1.

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.

2.10 ADDRESSABLE INTERFACE DEVICE

A. General:

1. Include address-setting means on the module.
2. Store an internal identifying code for control panel use to identify the module type.
3. Listed for controlling HVAC fan motor controllers.

B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

C. Integral Relay: Capable of providing a direct signal to elevator controller to initiate elevator recall and to circuit-breaker shunt trip for power shutdown.

1. Allow the control panel to switch the relay contacts on command.
2. Have a minimum of two normally open and two normally closed contacts available for field wiring.

D. Control Module:

1. Operate notification devices.
2. Operate solenoids for use in sprinkler service.

2.11 NETWORK COMMUNICATIONS

A. Modify and/or extend existing network communications infrastructure as required to interface new extender panel and new devices into existing Simplex fire alarm system.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.

1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.

B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EQUIPMENT INSTALLATION

A. Comply with NFPA 72, IBC, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

1. Devices placed in service before all other trades have completed cleanup shall be replaced.
2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.

B. Install wall-mounted equipment, with tops of cabinets not more than 78 inches (1980 mm) above the finished floor.

C. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm box in the normal path of egress within 60 inches (1520 mm) of the exit doorway.
2. Mount manual fire-alarm box on a background of a contrasting color.
3. The operable part of manual fire-alarm box shall be between 42 inches (1060 mm) and 48 inches (1220 mm) above floor level in accordance with ADA criteria. All devices shall be mounted at the same height unless otherwise indicated.

D. Smoke- or Heat-Detector Spacing:

1. Comply with the "Smoke-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for smoke-detector spacing.
2. Comply with the "Heat-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for heat-detector spacing.
3. Smooth ceiling spacing shall not exceed 30 feet (9 m).
4. Spacing of detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas shall be determined according to Annex A in NFPA 72.
5. HVAC: Locate detectors not closer than 36 inches (910 mm) from air-supply diffuser or return-air opening.
6. Lighting Fixtures: Locate detectors not closer than 12 inches (300 mm) from any part of a lighting fixture and not directly above pendant mounted or indirect lighting.

E. Install a cover on each smoke detector that is not placed in service during construction. Cover shall remain in place except during system testing. Remove cover prior to system turnover.

F. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches (9100 mm) long shall be supported at both ends.

1. Do not install smoke detector in duct smoke-detector housing during construction. Install detector only during system testing and prior to system turnover.

G. Elevator Shafts: Coordinate temperature rating and location with sprinkler rating and location. Do not install smoke detectors in sprinklered elevator shafts.

H. Remote Status and Alarm Indicators: Install in a visible location near each smoke detector, sprinkler water-flow switch, and valve-tamper switch that is not readily visible from normal viewing position.

I. Audible Alarm-Indicating Devices: Install not less than 6 inches (150 mm) below the ceiling. Install all devices at the same height unless otherwise indicated.

J. Visible Alarm-Indicating Devices: Install as indicated and at least 6 inches (150 mm) below the ceiling. Install all devices at the same height unless otherwise indicated.

K. Device Location-Indicating Lights: Locate in public space near the device they monitor.

3.3 PATHWAYS

A. Pathways above recessed ceilings and in non-accessible locations may be routed exposed.

1. Exposed pathways located less than 96 inches (2440 mm) above the floor shall be installed in EMT.

B. Pathways in stairways and below 96 inches (2440 mm) above the floor shall be installed in GRC or IMC.

C. All fire alarm conduit shall be factory painted red entire length.

3.4 CONNECTIONS

A. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches (910 mm) from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

1. Alarm-initiating connection to smoke-control system (smoke management) at firefighters' smoke-control system panel.
2. Alarm-initiating connection to stairwell and elevator-shaft pressurization systems.
3. Smoke dampers in air ducts of designated HVAC duct systems.
4. Magnetically held-open doors.
5. Electronically locked doors and access gates.
6. Alarm-initiating connection to elevator recall system and components.
7. Alarm-initiating connection to activate emergency shutoffs for gas and fuel supplies.

8. Supervisory connections at valve supervisory switches.
9. Supervisory connections at low-air-pressure switch of each dry-pipe sprinkler system.
10. Supervisory connections at elevator shunt-trip breaker.
11. Data communication circuits for connection to mass notification system.
12. Data communication circuits for connection to building management system.
13. Supervisory connections at generator annunciator panel.

3.5 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

B. Install framed instructions in a location visible from FACP.

3.6 GROUNDING

A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to FACP.

B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.7 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by Engineer and the authorities having jurisdiction.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections.

D. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

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

    a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
    b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Test audible appliances for the public operating mode according to manufacturer's written instructions. Perform the test using a portable sound-level meter complying with Type 2 requirements in ANSI S1.4.

4. Test visible appliances for the public operating mode according to manufacturer's written instructions.
5. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

E. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

F. Fire-alarm system will be considered defective if it does not pass tests and inspections.

G. Prepare test and inspection reports.

H. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

I. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.8 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

1. Include visual inspections according to the "Visual Inspection Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
2. Perform tests in the "Test Methods" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Perform tests per the "Testing Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

3.9 SOFTWARE SERVICE AGREEMENT

A. Comply with UL 864.

B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for three years.

C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within three years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.

1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.10 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION 283111