



ADDENDUM

Date: March 2, 2018	Addendum #: Five
Project: Eagle Hills Elem Library Remodel	Project #: 17029.01
Address: 650 E Ranch Dr, Eagle, ID 83616	File Code: 2-b

BIDS DUE	
Time: 10:00 AM	
Date: March 9th, 2018	
Place: West Ada School District central offices.	
Address: 1303 E. Central Dr.	
City, State: Meridian, Idaho 83642	

To All Plan holders: Please notify everyone concerned as your sub-contractors and suppliers of the issuance and contents of this addendum prior to date of bid opening.

GENERAL

BID OPENING WILL BE MARCH 9th, 2018. 10:00 AM.

Bids due same location.

SPECIFICATIONS

Clarifications:

- Project now includes an Add Alternate #1 to remove existing fire alarm system and install new Voice Evacuation System to bring the existing building up to current code.

Architectural:

- Bid Proposal Form: Replace with new one attached.
- Add section 012300 – Alternates
- Add section 283100 – Voice Evacuation Fire Alarm System

Mechanical:

- NONE

Electrical:

- Add sheet E2.3F FIRE ALARM PLAN.
- 1. THE EXISTING FIRE ALARM SYSTEM CONSISTS OF AN EXISTING PYROTRONICS SYSTEM 3 FIRE ALARM CONTROL PANEL WITH PULLSTATIONS AT THE HALLWAY EXITS AND MECHANICAL HORNS IN THE HALLWAY. A SMALL FIRE SPRINKLER RISER IS LOCATED ADJACENT TO THE STAGE. THE EXISTING FIRE ALARM CONTROL PANEL IS CURRENTLY LOCATED IN THE OFFICE, SHOWN ON THIS PLAN.
- 2. THE EXISTING BUILDING IS CURRENTLY NOT SPRINKLED, EXCEPT FOR THE THE STAGE AND A COUPLE SMALL OFFICES AND JANITOR'S ROOM.
- 3. THE OCCUPANCY FOR THIS BUILDING IS AN E OCCUPANCY, EXCEEDING 100.
- 4. EXISTING BUILDING SHALL BE BROUGHT UP TO CODE AS REQUIRED BY THE 2015 INTERNATIONAL FIRECODE. THE FIRE ALARM CONTRACTOR SHALL REMOVE THE EXISTING HORN NOTIFICATION APPLIANCES AND INSTALL A NEW SPEAKER/STROBES AS REQUIRED FOR A COMPLETE AND FUNCTIONING VOICE EVACUATION SYSTEM. EXISTING INITIATING EQUIPMENT SHALL BE REMOVED IF NOT COMPATIBLE WITH THE NEW FIRE ALARM

CONTROL PANEL AND SYSTEM. INITIATING AND NOTIFICATION APPLIANCES SHALL BE INSTALLED PER THE CURRENT NFPA 72. FURNISH AND INSTALL ALL EQUIPMENT REQUIRED BY THE LOCAL AHJ AND FOR A COMPLETE AND FUNCTIONING SYSTEM.

- 5. ELECTRICAL CONTRACTOR SHALL PROVIDE BLANK COVERS FOR EQUIPMENT THAT IS BEING REMOVED, SIZE AS REQUIRED TO COVER EXISTING OPENING. REMOVE EXISTING FIRE ALARM CONDUCTORS AND ACCESSIBLE CONDUIT AS REQUIRED.

DRAWINGS

- Sheet E2.3F FIRE ALARM PLAN

APPROVALS: *Approvals are based on manufacturers only. Contractors are responsible for bidding on approved equipment equivalent in size and performance to that specified. Contractor is also responsible for all special electrical, mechanical, or other field adaptations required for equipment or items used other than that shown in the original project design. All mechanical and electrical equipment shall bear the UL label.*

- NONE

ATTACHMENT LIST:

BID PROPOSAL FORM

SECTION 012300 – ALTERNATES

SECTION 283100 – VOICE EVACUATION FIRE ALARM SYSTEM

SHEET E2.3F

BID PROPOSAL FORM

BID# 804501

TO:

Gentlemen:

The Bidder, in compliance with your invitation for bids for the construction of the **Eagle Hills Elementary Library Enclosure and Office Remodel**, and having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials and supplies, and to construct the project in accordance with the Contract Documents, within the time set forth therein and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the Contract Documents, of which this proposal is a part. Bidder hereby agrees to commence work under this contract on a date to be specified in written "Notice to Proceed" of the Owner and to substantially complete by August 8, 2018 and final completion and acceptancy by August 16, 2018. Bidder further agrees to pay as liquidated damages, the sum of \$1,000.00 for each consecutive calendar day after the established substantial completion date or adjusted date as established by change order as hereinafter provided in Subparagraph 9.11.1 of the Supplementary Conditions.

Additional required milestones are as follows:

- Notice to Proceed expected to be issued: week of March 19, 2018
- All submittals due: April 16, 2018
- Last day of school: June 1, 2018 (acquire all products and materials prior to last day of school)
- Building available to construction activities: June 4, 2018
- Owner available to start flooring installation: week of July 30, 2018
- Substantial Completion: August 8, 2018
- Library books and supplies moved in by Owner: August 9, 2018
- Final Completion: August 16, 2018
- First day of school: August 22, 2018

Bidder acknowledges receipt of addendums No. _____.

BASE PROPOSAL: Bidder agrees to perform all of the base proposal work described in the specifications and shown on the plans for the sum of:

_____ DOLLARS (\$_____).

(Amount shall be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.)

ADDITIVE Alternate No. 1 (Voice Evacuation Fire Alarm System) for the sum of:

_____ DOLLARS (\$_____).

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding. Owner may choose alternates in any order desired.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

Upon receipt of written notice of the acceptance of this bid, Bidder will execute the formal contract attached within 10-days and deliver a Surety Bond or Bonds as required by the Instructions to Bidders and as modified by the Supplementary Instructions to Bidders.

The bid security attached in the amount of 5% of the bid amount is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

IDAHO NAMING LAW

Pursuant to Section 67-2310, Idaho Code, commonly known as the Naming Law, the names of the entities who will perform the plumbing, heating and air conditioning, electrical and fire sprinkler work, if undersigned is awarded the contract, are as follows: (if project does not include specific work mark lines with NONE)

Plumbing (name) _____

Idaho Public Works Contractor's License No. _____

Idaho Plumbing Contractor's License No. _____

Heating and Air Conditioning (name) _____

Idaho Public Works Contractor's License No. _____

Idaho HVAC Contractor's License No. _____

Electrical (name) _____

Idaho Public Works Contractor's License No. _____

Idaho Electrical Contractor's License No. _____

IDAPA 18.01.49 requires that the fire sprinkler contractor/subcontractor be licensed as an Idaho **Fire Sprinkler Contractor**. The Owner requests the name, address and license numbers of the contractor/subcontractor who will perform the fire sprinkler work, subject to approval of Owner and Architect, if undersigned is awarded the Contract:

(Name) _____

Idaho Public Works Contractors License No. _____

Fire Sprinkler Contractors License No. _____

Failure to name a properly licensed contractor in each of the categories above will render the bid unresponsive and void.

The undersigned hereby notifies that he is of this date duly licensed as an Idaho State Public Works Contractor and possesses Idaho Public Works Contractor's License No. _____

Dated at ____ this ____ Day of _____, 2018.

Respectfully submitted,

By: _____
(Company)

(Seal if bid is by a corporation and required by state of incorporation)

_____ (Phone Number)

_____ (Signature)

_____ (Title)

(Note: If bidder is a foreign corporation, indicate State of Incorporation under signature, and, if a partnership give full name of all partners).

THE BIDDER SHALL COMPLETE AND SIGN THE ATTACHED:

"IDAHO/NATIONAL SEX OFFENDER REGISTRY" AND

"CONTRACTOR/VENDOR AFFIDAVIT CONCERNING ALCOHOL AND DRUG FREE WORK PLACE.

BOTH DOCUMENTS MUST BE COMPLETED AND INCLUDED WITH THE BID PROPOSAL.

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Any specification sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. : One – Complete fire alarm system upgrade throughout existing building.

1. Base Bid: Existing fire alarm system remains as is.
2. Alternate: Disconnect and remove the existing fire alarm system as required. Furnish and install blank covers, sized as required, to cover existing opening. Remove existing fire alarm conductors and accessible conduit as required. Install a new Voice Evacuation Fire Alarm system to bring the existing building up to current code. The occupancy for the existing building is an E occupancy that exceeds 100. The building is currently not sprinkled, except for a small portion at the stage area. Furnish and install new notification and initiating devices as required for a complete and functioning code compliant system. Refer to the attached drawings and specifications included in Addendum #5.

END OF SECTION 012300

SECTION 283200 – VOICE EVACUATION 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. This Section includes fire alarm systems.

1.3 DEFINITIONS

- A. FACP: Fire alarm control panel.
- B. LED: Light-emitting diode.
- C. NICET: National Institute for Certification in Engineering Technologies.
- D. Definitions in NFPA 72 apply to fire alarm terms used in this Section.

1.4 SYSTEM DESCRIPTION

- A. Addressable system; multiplexed signal transmission dedicated to fire alarm service with speaker/strobes. This system shall be capable of handling the entire fire system requirements of the building including, but not limited to fire sprinkler monitoring, magnetic door hold open equipment, HVAC equipment, and speaker/strobes throughout the entire building.

1.5 PERFORMANCE REQUIREMENTS

- A. Comply with NFPA 72.
- B. Premises protection includes Fully Sprinkled Type Occupancy.
- C. Fire alarm signal initiation shall be by one or more of the following devices:
 - 1. Manual stations.
 - 2. Smoke detectors.
 - 3. Heat Detectors
 - 4. Verified automatic alarm operation of smoke detectors.
 - 5. Automatic sprinkler system water flow.
 - 6. Fire extinguishing system operation.
 - 7. Fire standpipe system.
- D. Fire alarm signal shall initiate the following actions:
 - 1. Alarm notification appliances shall operate continuously.
 - 2. Identify alarm at the FACP and remote annunciators.
 - 3. De-energize electromagnetic door holders.
 - 4. Transmit an alarm signal to the remote alarm receiving station.

5. Activate voice/alarm communication system.
 6. Record events in the system memory with ability to be printed.
- E. Supervisory signal initiation shall be by one or more of the following devices or actions:
1. Operation of a fire-protection system valve tamper.
 2. Operation of any duct detectors or induct detectors.
- F. System trouble signal initiation shall be by one or more of the following devices or actions:
1. Open circuits, shorts and grounds of wiring for initiating device, signaling line, and notification-appliance circuits.
 2. Opening, tampering, or removal of alarm-initiating and supervisory signal-initiating devices.
 3. Loss of primary power at the FACP.
 4. Ground or a single break in FACP internal circuits.
 5. Abnormal ac voltage at the FACP.
 6. A break in standby battery circuitry.
 7. Failure of battery charging.
 8. Abnormal position of any switch at the FACP or annunciator.
 9. Fire-pump power failure, including a dead-phase or phase-reversal condition.
 10. Low-air-pressure switch operation on a dry-pipe.
- G. System Trouble and Supervisory Signal Actions: Annunciate at the FACP and remote annunciators. Record the event in the system memory with ability to be printed.
- 1.6 SUBMITTALS
- Prior to the start of work, the contractor shall provide a complete and comprehensive submittal for review by the engineer. The submittals shall be prepared by a NICET III certified, factory trained personnel. This person shall provide to the engineer of record the proof of NICET certification and proof of factory training if requested. Factory training means that this person has received training at the factory. These are to describe the proposed system and its equipment. Failure to provide a complete submittal shall be grounds for summary rejection of any incomplete submittal documentation. Contractors who provide re-submittal's, due to prior rejection shall be subject to a re-review fee, should the Engineer elect to do so. The complete submittal shall include, but not be limited to, all of the following material:
- A. Power Calculations
1. Battery capacity calculations shall be a minimum of 125% of the calculated requirement.
 2. Supervisory power requirements for all equipment.
 3. Alarm power requirements for all equipment.
 4. Power supply rating justification showing power requirements for each of the system power supplies. Power supplies shall be sized to furnish the total connected load in a worst case condition plus 25% spare capacity.
 5. Voltage-drop calculations for wiring runs demonstrating worst case condition.
- B. Complete manufacturers catalog data including supervisory power usage, alarm power usage, physical dimensions, finish and mounting requirements.
- C. Complete drawings covering the following shall be submitted by the contractor for the proposed system. Floor plans in a CAD compatible format showing all equipment and raceways, marked for size, conductor count with type and size, showing the percentage of allowable National Electric Code fill used. Floor plans will be prepared at 1/8" scale.
- D. A complete proposed system database including a description of all logic strings, control by event programming and point identification labels on a flash drive and in a formatted printed form, as required for offsite editing, shall be submitted for evaluation by the owner.
1. The program shall include all required interactive control functions between the local network systems and the methods for implementing these actions.
- E. Provide the address, telephone number, and contact person(s) of the manufacturer's local service facility for normal and off-hour warranty issues.

- F. If the fire alarm system and its equipment are supplied by a manufacturer's distributor, as part of the submittal documentation, the manufacturer shall provide, on its corporate letterhead, a "letter of support". Said "letter of support" shall state that, when in the opinion of the Engineer, the distributor's efforts require back-up and/or assistance, the manufacturer shall provide, at no cost to the Owner, all required technical support during the installation phase and for a one (1) year guarantee period starting on the date of final acceptance by the owner and the authority having jurisdiction. If said "letter of support" is not submitted, the manufacturer's equipment will be deemed unacceptable and shall be grounds for summary rejection.
- G. Provide a fire alarm system function matrix. Matrix shall illustrate alarm output events in association with initiating devices input events. Matrix shall represent a summary of the installed system alarm, supervisory and trouble functions. Include any and all departures, exceptions, variances or substitutions from these specifications and/or drawings at the time of bid. Failure to provide this requirement shall be cause for summary rejection of submittal documents where additional departures are discovered. (See NFPA-72 for minimum matrix requirements)
- H. For each system control panel and/or transponder panel, provide panel ampere loading during both normal and alarm modes, with time calculations to substantiate compliance with battery back-up power requirements (battery Ampere-Hour capacity), described elsewhere in these specifications.
- I. For each system control panel and/or transponder panel, provide written schedule of active and spare addresses provided on each addressable circuit to substantiate compliance with circuit usage/spare requirements, described elsewhere in these specifications.
- J. For each system control panel and system transponder notification appliance circuit provide a written schedule of spare capability in amperes available for future possible use.
- K. Provide manufacture's printed product data, catalog pages and descriptions of any special installation requirements and/or procedures. Drawings depicting any special physical installation requirements shall show physical plans, elevations, all dimensions, conduit entry, minimum access clearances and any other details required.
- L. Provide shop drawings as follows:
1. Drawing or catalog page showing actual dimensions of the main FCS.
 2. Drawing(s) or catalog page(s) showing actual dimensions of any additional system control panels, amplifier cabinets and/or battery cabinets.
 3. Drawing or catalog page showing actual dimensions of the remote annunciator(s).
 4. Single line riser diagram showing, all equipment, all connections and number and size of all conductors and conduits.
 5. Provide samples of various items when so requested by the architect/engineer.
- M. The fire protection contractor shall provide copies of certification for service technician's formal training by the system manufacture. As a minimum, certification documents shall indicate training dates, systems qualified, name of individual certified and current status.
- N. Product Data: For each type of product indicated within 90 days of notice to proceed.
- O. Within 30 days of notice to proceed, the contractor shall submit a programming printout and digital copy of the program to the Engineer for review.
- P. Qualification Data: For Installer and fire alarm submittal designer: NICET Level II certification within 30 days of notice to proceed.
- Q. Field quality-control test reports: provide test reports 10 days prior to final test requirements.
- R. Operation and Maintenance Data: For fire alarm system to include in emergency, operation, and maintenance manuals. Comply with NFPA 72, recommendations for Owner's manual. Include abbreviated operating instructions for mounting at the FACP.
- S. Documentation:
1. Approval and Acceptance: Provide the "Record of Completion" form according to NFPA 72 to Owner, Architect, and authorities having jurisdiction.
 2. Record of Completion Documents: Provide the "Permanent Records" according to NFPA 72 to Owner, Architect, and authorities having jurisdiction. Format of the written sequence of operation shall be the optional input/output matrix.
 - a. Hard copies on paper to Owner, Architect, and authorities having jurisdiction.

- b. Electronic media may be provided to Architect.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.
- B. Installer Qualifications: Personnel certified by NICET as Fire Alarm Level III.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- D. 30 days after award of bid, the contractor shall conduct a meeting with the owner; owner's representative, the Engineer and the architect to discuss compliance of the specifications and drawings.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Initiating Appliances: Quantity equal to 10 percent of amount of each type installed, but not less than 1 unit of each type.
 - 2. Detector Bases: Quantity equal to 2 percent of amount of each type installed, but not less than 1 unit of each type.
 - 3. Keys and Tools: One extra set for access to locked and tamper proofed components.
 - 4. Audible and Visual Notification Appliances: One of each type installed.
 - 5. Fuses if applicable: Two of each type installed in the system.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- 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 following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. FACP, Amplifiers and Equipment:
 - a. Silent Knight by Honeywell
 - b. Farenhyt by Honeywell
 - 2. Wire and Cable:
 - a. Comtran Corporation.
 - b. Helix/HiTemp Cables, Inc.; a Draka USA Company.
 - c. Rockbestos-Suprenant Cable Corporation; a Marmon Group Company.
 - d. West Penn Wire/CDT; a division of Cable Design Technologies.
 - 3. Audible and Visual Signals:
 - a. System Sensor
 - b. Wheelock
 - c. Gentex

2.2 FACP

- A. General Description:
 - 1. Modular, power-limited design with electronic modules, UL 864 listed.

2. Addressable initiation devices that communicate device identity and status.
 - a. Smoke sensors shall additionally communicate sensitivity setting and allow for adjustment of sensitivity at the FACP.
 - b. Temperature sensors shall additionally test for and communicate the sensitivity range of the device.
 3. Addressable control circuits for operation of mechanical equipment.
- B. Alphanumeric Display and System Controls: Arranged for interface between human operator at the FACP and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.
1. Annunciator and Display: Liquid-crystal type, three line(s) of 80 characters, minimum.
 2. Keypad: Arranged to permit entry and execution of programming, display, and control commands; and to indicate control commands to be entered into the system for control of smoke-detector sensitivity and other parameters.
- C. Circuits:
1. Signaling Line Circuits: NFPA 72, Class B.
 - a. System Layout: Each signaling line circuit shall be loaded no more than 80% capacity.
 2. Notification-Appliance Circuits: NFPA 72, Class B.
 3. Actuation of alarm notification appliances, annunciation, smoke control, shall occur within 10 seconds after the activation of an initiating device.
 4. Electrical monitoring for the integrity of wiring external to the FACP for mechanical equipment shutdown and magnetic door-holding circuits is not required, provided a break in the circuit will cause doors to close and mechanical equipment to shut down.
- D. Smoke-Alarm Verification:
1. Initiate audible and visible indication of an "alarm verification" signal at the FACP.
 2. Activate a listed and approved "alarm verification" sequence at the FACP and the detector.
 3. Sound general alarm if the alarm is verified.
 4. Cancel FACP indication and system reset if the alarm is not verified.
- E. Notification-Appliance Circuit: Operation shall sound in a temporal pattern, complying with ANSI S3.41.
- F. Power Supply for Supervision Equipment: Supply for audible and visual equipment for supervision of the ac power shall be from a dedicated dc power supply, and power for the dc component shall be from the ac supply.
- G. Alarm Silencing, Trouble, and Supervisory Alarm Reset: Manual reset at the FACP and remote annunciators, after initiating devices are restored to normal.
1. Silencing-switch operation halts alarm operation of notification appliances and activates an "alarm silence" light. Display of identity of the alarm zone or device is retained.
 2. Subsequent alarm signals from other devices or zones reactivate notification appliances until silencing switch is operated again.
 3. When alarm-initiating devices return to normal and system reset switch is operated, notification appliances operate again until alarm silence switch is reset.
- H. Walk Test: A test mode to allow one person to test alarm and supervisory features of initiating devices. Enabling of this mode shall require the entry of a password. The FACP and annunciators shall display a test indication while the test is underway. If testing ceases while in walk-test mode, after a preset delay, the system shall automatically return to normal.
- I. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity settings, and control of changes in 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 make a print-out of the final adjusted values on the system printer.
- J. Service Modem: Ports shall be RS-232 for system printer and for connection to a dial-in terminal unit.
1. The dial-in port shall allow remote access to the FACP for programming changes and system diagnostic routines. Access by a remote terminal shall be by encrypted password algorithm.

- K. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signal, supervisory signal supervisory and digital alarm communicator transmitter shall be powered by the 24-V dc source.
1. The alarm current draw of the entire fire alarm system shall not exceed 80 percent of the power-supply module rating.
 2. Power supply shall have a dedicated fused safety switch for this connection at the service entrance equipment. Paint the switch box red and identify it with "FIRE ALARM CIRCUIT."
- L. Secondary Power: 24-V dc supply system with batteries and automatic battery charger and an automatic transfer switch.
1. Batteries: Vented, wet-cell pocket, plate nickel cadmium.
 2. Battery and Charger Capacity: Comply with NFPA 72.
- M. Surge Protection:
1. Install surge protection on normal ac power for the FACP and its accessories. Comply with Division 26 Section "Transient Voltage Suppression" for auxiliary panel suppressors.
 2. Install surge protectors recommended by FACP manufacturer. Install on all system wiring external to the building housing the FACP.
- N. 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.

2.3 MANUAL FIRE ALARM BOXES

- A. Description: UL 38 listed; finished in red with molded, raised-letter operating instructions in contrasting color. Station shall show visible indication of operation. Mounted on recessed outlet box; if indicated as surface mounted, provide manufacturer's surface back box.
1. Single-action mechanism requiring single action to initiate an alarm, pull-lever type with integral addressable module, arranged to communicate manual-station status (normal, alarm, or trouble) to the FACP.
 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.

2.4 SYSTEM SMOKE DETECTORS

- A. General Description:
1. UL 268 listed, operating at 24-V dc, nominal.
 2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to the FACP.
 3. Multipurpose type, containing the following:
 - a. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to the FACP.
 - b. Heat sensor, combination rate-of-rise and fixed temperature.
 4. Plug-in Arrangement: Detector and associated electronic components shall be mounted in a plug-in module that connects to a fixed base. Provide terminals in the fixed base for connection of building wiring.
 5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
 6. Integral Visual-Indicating Light: LED type. Indicating detector has operated and power-on status.
 7. Where noted on drawings provide a welded wire screen protective cover.
 8. Remote Control: Unless otherwise indicated, detectors shall be analog-addressable type, individually monitored at the FACP for calibration, sensitivity, and alarm condition, and individually adjustable for sensitivity from the FACP.
 - a. Provide multiple levels of detection sensitivity for each sensor.
- B. Photoelectric Smoke Detectors:
1. Sensor: LED or infrared light source with matching silicon-cell receiver.
 2. Detector Sensitivity: Between 2.5 and 3.5 percent/foot (0.008 and 0.011 percent/mm) smoke obscuration when tested according to UL 268A.
- C. Duct Smoke Detectors:

1. Photoelectric Smoke Detectors:
 - a. Sensor: LED or infrared light source with matching silicon-cell receiver.
 - b. Detector Sensitivity: Between 2.5 and 3.5 percent/foot (0.008 and 0.011 percent/mm) smoke obscuration when tested according to UL 268A.
2. UL 268A listed, operating at 24-V dc, nominal.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to the FACP.
4. Plug-in Arrangement: Detector and associated electronic components shall be mounted in a plug-in module that connects to a fixed base. The fixed base shall be designed for mounting directly to the air duct. Provide terminals in the fixed base for connection to building wiring.
 - a. Weatherproof Duct Housing Enclosure: UL listed for use with the supplied detector. The enclosure shall comply with NEMA 250 requirements for Type 4X.
5. Self-Restoring: Detectors shall not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: LED type. Indicating status. Provide remote status and alarm indicator and test station where indicated.
7. Remote Control: Unless otherwise indicated, detectors shall be analog-addressable type, individually monitored at the FACP for calibration, sensitivity, and alarm condition, and individually adjustable for sensitivity from the FACP.
8. Each sensor shall have multiple levels of detection sensitivity.
9. Sampling Tubes: Design and dimensions as recommended by manufacturer for the specific duct size, air velocity, and installation conditions where applied.
10. Relay fan shutdown: Rated to interrupt fan motor-control circuit.

2.5 NOTIFICATION APPLIANCES

- A. Description: Equipped for mounting as indicated and with screw terminals for system connections.
 1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly.
- B. Speakers: shall be of sufficient number so that an alarm shall be clearly audible to all occupants of the building and/or fire area as required by these specifications. Mounting height shall be 96" to the centerline of the unit above the finished floor. Locations where ceilings prevent the installation at 96" centerline, the centerline of the unit shall be 6" below the ceiling.
- C. Visible Alarm Devices: Xenon strobe lights listed under 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: as indicated.
 2. Strobe Leads: Factory connected to screw terminals.
 3. Where called for on plans to have a wire guard, provide and install a welded wire screen guard of appropriate size. Polycarbonate or other transparent protective covers are prohibited.

2.6 SPRINKLER SYSTEM REMOTE INDICATORS

- A. Remote status and alarm indicator and test stations, with LED indicating lights. Light is connected to flash when the associated device is in an alarm or trouble mode. Lamp is flush mounted in a single-gang wall plate. A red, laminated, phenolic-resin identification plate at the indicating light identifies, in engraved white letters, device initiating the signal and room where the smoke detector or valve is located. For water-flow switches, the identification plate also designates protected spaces downstream from the water-flow switch.

2.7 MAGNETIC DOOR HOLDERS

- A. Description: Units are equipped for wall or floor mounting as indicated and are complete with matching door plate.
 1. Electromagnet: Requires no more than 3 W to develop 25-lbf (111-N) holding force.

2. Wall-Mounted Units: Flush mounted, unless otherwise indicated.
3. Rating: 24-V dc.

B. Material and Finish: Match door hardware.

2.8 REMOTE ANNUNCIATOR

A. Description: Duplicate annunciator functions of the FACP for alarm, supervisory, and trouble indications. Also duplicate manual switching functions of the FACP, including acknowledging, silencing, resetting, and testing.

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

B. Display Type and Functional Performance: Alphanumeric display same as the FACP. Controls with associated LED's permit acknowledging, silencing, resetting, and testing functions for alarm, supervisory, and trouble signals identical to those in the FACP.

2.9 ADDRESSABLE INTERFACE DEVICE

A. Description: Microelectronic monitor module listed for use in providing a system address for listed alarm-initiating devices for wired applications with normally open contacts.

B. Integral Relay: Capable of providing a direct signal to the elevator controller to initiate elevator recall where indicated to a circuit-breaker shunt trip for power shutdown and to release doors.

2.10 DIGITAL ALARM COMMUNICATOR TRANSMITTER

A. Listed and labeled according to UL 632.

B. Functional Performance: Unit receives an alarm, supervisory, or trouble signal from the FACP, and automatically captures one or two telephone lines and dials a preset number for a remote central station. When contact is made with the central station(s), the signal is transmitted. The unit supervises up to two telephone lines. Where supervising 2 lines, if service on either line is interrupted for longer than 45 seconds, the unit initiates a local trouble signal and transmits a signal indicating loss of telephone line to the remote alarm receiving station over the remaining line. When telephone service is restored, unit automatically reports that event to the central station. If service is lost on both telephone lines, the local trouble signal is initiated.

C. Secondary Power: Integral rechargeable battery and automatic charger. Battery capacity is adequate to comply with NFPA 72 requirements.

D. Self-Test: Conducted automatically every 24 hours with report transmitted to central station.

2.11 GUARDS FOR PHYSICAL PROTECTION

A. Description: Welded wire mesh of size and shape for the manual station, smoke detector, gong, or other device requiring protection.

1. Factory fabricated and furnished by manufacturer of the device.
2. Finish: Paint of color to match the protected device.

2.12 WIRE AND CABLE

A. Wire and cable for fire alarm systems shall be UL listed and labeled as complying with NFPA 70, Article 760.

- B. Signaling Line Circuits: Twisted, shielded pair, not less than No. 18 AWG size as recommended by system manufacturer.
 - 1. Circuit Integrity Cable: Twisted shielded pair, NFPA 70 Article 760, Classification CI, for power-limited fire alarm signal service. UL listed as Type FPL, and complying with requirements in UL 1424 and in 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. Line-Voltage Circuits: No. 12 AWG, minimum.
- D. All wire and cable shall be installed in conduit.

PART 3 - EXECUTION

3.1 EQUIPMENT INSTALLATION

- A. Smoke or Heat Detector Spacing:
 - 1. Smooth ceiling spacing shall not exceed [30 feet (9 m)] .
 - 2. Spacing of heat detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas, shall be determined according to Appendix A in NFPA 72.
 - 3. Spacing of heat detectors shall be determined based on guidelines and recommendations in NFPA 72.
- B. HVAC: Locate detectors not closer than 3 feet (1 m) from air-supply diffuser or return-air opening.
- C. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of the duct.
- D. Remote Status and Alarm Indicators: Install near each smoke detector and each sprinkler water-flow switch and valve-tamper switch that is not readily visible from normal viewing position.
- E. Audible Alarm-Indicating Devices: Install between 80" and 96" above finished floor, this height is to the visual lens portion of the device, or on ceiling. Install speakers on flush-mounted back boxes with the device-operating mechanism concealed behind a grille.
- F. Visible Alarm-Indicating Devices: Install integral to each alarm speaker if noted.
- G. Device Location-Indicating Lights: Locate in public space near the device they monitor.
- H. FACP: Mount as noted on drawings with tops of cabinets not more than 72 inches (1830 mm) above the finished floor.
- I. Annunciator: Install with top of panel not more than 72 inches (1830 mm) above the finished floor.

3.2 WIRING INSTALLATION

- A. Install wiring according to the following:
 - 1. NECA 1.
 - 2. TIA/EIA 568-A.
- B. Wiring Method: Install wiring in metal raceway according to Division 26 Section "Raceways and Boxes."
 - 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.
- 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. Fire-Rated Cables: Use of 2-hour fire-rated fire alarm cables, NFPA 70 Types MI and CI, is not permitted.
 3. Signaling Line Circuits: Power-limited fire alarm cables may 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. Cable Taps: Use numbered terminal strips in junction, pull, and outlet boxes, cabinets, or equipment enclosures where circuit connections are made.
- F. Color-Coding: Color-code fire alarm conductors differently from the normal building power wiring. Use one color-code for alarm circuit wiring and a different color-code 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.
- G. Wiring to Remote Alarm Transmitting Device: 1-inch (25-mm) conduit between the FACP and the transmitter. Install number of conductors and electrical supervision for connecting wiring as needed to suit monitoring function.

3.3 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals according to Division 26 Section "Electrical Identification."
- B. Install instructions frame in a location visible from the FACP.
- C. Paint power-supply disconnect switch red and label "FIRE ALARM CIRCUIT."
- D. The location of the branch-circuit overcurrent protective device shall be permanently identified at the fire alarm control unit.

3.4 GROUNDING

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

3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust field-assembled components and equipment installation, including connections, and to assist in field testing. Report results in writing.
- B. Testing Agency: Owner will engage a qualified testing and inspecting agency to witness field tests and inspections and prepare test reports. The contractor shall provide all personnel for this test. There shall be two tests, one prior to the Fire Marshall test and one with the Fire Marshall.
- C. Perform the following field tests and inspections and prepare test reports:
 1. Before requesting final approval of the installation, submit a written statement using the form for Record of Completion shown in NFPA 72.
 2. Perform each electrical test and visual and mechanical inspection listed in NFPA 72. Certify compliance with test parameters.
 3. Visual Inspection: Conduct a visual inspection before any testing. Use as-built drawings and system documentation for the inspection. Identify improperly located, damaged, or nonfunctional equipment, and correct before beginning tests.
 4. Testing: Follow procedure and record results complying with requirements in NFPA 72.
 - a. Detectors that are outside their marked sensitivity range shall be replaced.

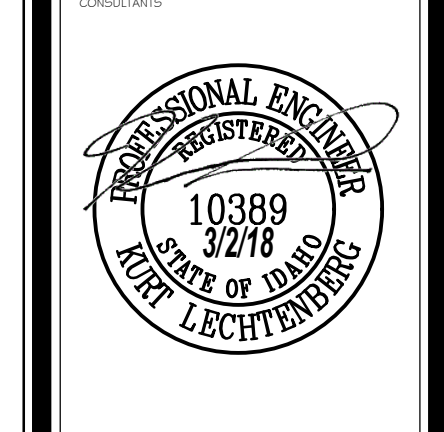
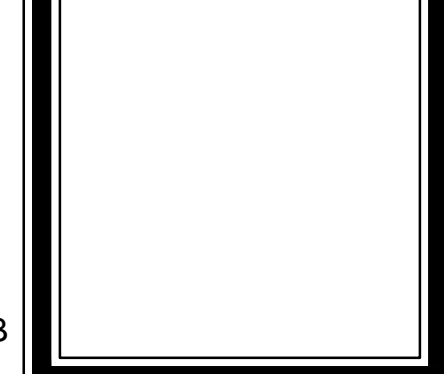
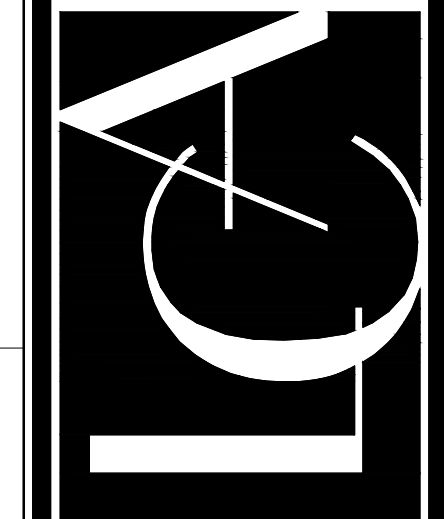
5. Test and Inspection Records: Prepare according to NFPA 72.

D. At no time shall the contractor make changes to the documents without written permission from the Engineer.

3.6 DEMONSTRATION

Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain the fire alarm system, appliances, and devices. Refer to Division 1 Section "Closeout Procedures and Demonstration and Training."

END OF SECTION 283200



MARK	DATE	DESCRIPTION	DATE	DESCRIPTION
△	03-01-2018	ADDENDUM 3 ADD ALTERNATE		

JOB NO.: 17029.01
 DATE: 01-11-2018
 DRAWN BY: JD
 CHECKED BY: KL

SHEET NO.
E2.3

GENERAL FIRE ALARM NOTES:

- A. FIRE ALARM SYSTEM FOR THIS PROJECT SHALL BE A DESIGN BUILD, DEFERRED SUBMITTAL TO ALL APPROVING AGENCIES BY THE FIRE ALARM CONTRACTOR.
- B. FIRE ALARM CONTRACTOR SHALL PRODUCE FIRE ALARM SYSTEM SUBMITTAL THAT INCLUDES ALL DRAWINGS AND CALCULATIONS REQUIRED TO OBTAIN COMPLETE APPROVAL FROM ALL APPROVING AGENCIES.
- C. PRIOR TO SUBMISSION TO AGENCIES, FIRE ALARM SYSTEM SUBMITTAL SHALL BE DELIVERED TO THE ARCHITECT AND ENGINEER FOR REVIEW AND COMMENT FOR GENERAL CONFORMANCE WITH THE BUILDING DESIGN.
- D. FIRE ALARM SYSTEM SHALL BE SUBMITTED TO ALL APPROVING AGENCIES FOR REVIEW, COMMENT, REVISION AND APPROVAL.
- E. THE FIRE ALARM CONTRACTOR SHALL FURNISH AND INSTALL ALL FIRE ALARM SYSTEM EQUIPMENT, MAKE ALL CONNECTIONS, AND PERFORM ALL TESTING AND DEMONSTRATION REQUIRED TO THE FULL ACCEPTANCE AND APPROVAL TO OBTAIN OCCUPANCY OF THE AUTHORITY HAVING JURISDICTION.
- F. THE FIRE ALARM CONTRACTOR SHALL PRODUCE RECORD DOCUMENTS OF THE ACTUAL SYSTEM INSTALLED FOR THIS PROJECT. THE RECORD DOCUMENTS SHALL BE PRODUCED TO THE ACCEPTANCE OF THE ARCHITECT. ONE COMPLETE SET OF RECORD DOCUMENTS SHALL BE DELIVERED TO THE ARCHITECT.
- G. THE FIRE ALARM SYSTEM SHALL BE AN ADDRESSABLE AND SHALL BE FULLY INTEGRATED WITH BUILDING SYSTEMS AS REQUIRED BY AUTHORITY HAVING JURISDICTION.
- H. LIMITED FIRE ALARM SYSTEM INFORMATION PROVIDED ON THE MECHANICAL POWER PLAN FOR REFERENCE ONLY.
- I. ALL NEW CONDUIT AND JUNCTION BOXES ARE TO BE CONCEALED IN NEW WALLS, EXISTING FURRED OUT WALLS AND EXISTING ACCESSIBLE CEILINGS. USE OF SURFACE MOUNTED RACEWAYS MUST BE APPROVED BY THE ARCHITECT FOR EACH LOCATION, WHERE APPROVED UTILIZE WIREMOLD OR APPROVED EQUAL SURFACE MOUNTED RACEWAYS PAINTED TO MATCH SURROUNDING WALLS.
- J. FIRE ALARM CONTRACTOR SHALL DISCONNECT AND REMOVE ALL UNUSED FIRE ALARM CONDUIT, FIRE ALARM CONDUCTORS AND FIRE ALARM EQUIPMENT NOT BEING USED AS REQUIRED.

FIRE ALARM PROJECT INFORMATION:

- 1. THE EXISTING FIRE ALARM SYSTEM CONSISTS OF AN EXISTING PYROTRONICS SYSTEM 3 FIRE ALARM CONTROL PANEL WITH PULL STATIONS AT THE HALLWAY EXITS AND MECHANICAL HORNS IN THE HALLWAY. A SMALL FIRE SPRINKLER RISER IS LOCATED ADJACENT TO THE STAGE. THE EXISTING FIRE ALARM CONTROL PANEL IS CURRENTLY LOCATED IN THE OFFICE, SHOWN ON THIS PLAN.
- 2. THE EXISTING BUILDING IS CURRENTLY NOT SPRINKLED, EXCEPT FOR THE STAGE AND A COUPLE SMALL OFFICES AND JANITORS ROOM.
- 3. THE OCCUPANCY FOR THIS BUILDING IS AN E OCCUPANCY, EXCEEDING 100.
- 4. EXISTING BUILDING SHALL BE BROUGHT UP TO CODE AS REQUIRED BY THE 2015 INTERNATIONAL FIRE CODE. THE FIRE ALARM CONTRACTOR SHALL REMOVE THE EXISTING HORN NOTIFICATION APPLIANCES AND INSTALL A NEW SPEAKER/STROBES AS REQUIRED FOR A COMPLETE AND FUNCTIONING VOICE EVACUATION SYSTEM. EXISTING INITIATING EQUIPMENT SHALL BE REMOVED IF NOT COMPATIBLE WITH THE NEW FIRE ALARM CONTROL PANEL AND SYSTEM. INITIATING AND NOTIFICATION APPLIANCES SHALL BE INSTALLED PER THE CURRENT NFPA 72, FURNISH AND INSTALL ALL EQUIPMENT REQUIRED BY THE LOCAL AHJ AND FOR A COMPLETE AND FUNCTIONING SYSTEM.
- 5. ELECTRICAL CONTRACTOR SHALL PROVIDE BLANK COVERS FOR EQUIPMENT THAT IS BEING REMOVED, SIZE AS REQUIRED TO COVER EXISTING OPENING. REMOVE EXISTING FIRE ALARM CONDUCTORS AND ACCESSIBLE CONDUIT AS REQUIRED.

