



MARK PESTRELLA, Director

# COUNTY OF LOS ANGELES

## DEPARTMENT OF PUBLIC WORKS

*"To Enrich Lives Through Effective and Caring Service"*

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ADDRESS ALL CORRESPONDENCE TO:  
P.O. BOX 1460  
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE

REFER TO FILE:

**BRC-2**

October 17, 2024

**NOTICE TO BIDDERS "A"  
FIRE CAMP 13 WOOLSEY FIRE RECONSTRUCTION PROJECT  
SPECS. NO. 7823R1  
LOW BID SOLICITATION NUMBER: BRC0000562**

This Notice to Bidders A responds to bidders' questions, clarifies the Low-Bid Solicitation dated September 24, 2024, and is hereby made a part thereof.

### **PROJECT MANUAL**

1. Refer to Section 00 03 00, Form of Bid.

**Delete:** Specifications Section 00 03 00 in its entirety and **replace** with the attached revised Specifications Section 00 03 00, Form of Bid, which includes receipt of Notice to Bidders A (Attachment 1).

2. **Add** section 284621.11 Addressable Fire-Alarm Systems. See Attachment 2.

### **QUESTIONS AND ANSWERS**

1. Question: Page 1026 of the specifications states that the Fire Alarm system is "as indicated in section 283111, DIGITAL, ADDRESSABLE FIRE-ALARM SYSTEM", but this section is missing.

Answer: Please see Attachment 2 (Addendum A).

2. Question: Can the steel columns at the canopy area be installed with an alternate detail that uses anchor bolts in lieu of an embedded steel column? If so, please request an alternate detail. If not, these columns would be FOB jobsite to be installed level and plumb by others.

Answer: Steel columns at the canopy will be installed as shown on plans. The contractor shall furnish all labor, equipment, materials to complete the scope as shown on the construction documents.

3. Question: Will there be any civil related work for this project?

Answer: All sheets required for this project are listed on Sheet G-001. No civil work is required.

4. Question: On P-110 Keynote 15. it says "See Fire Protection Set" Can you provide the Fire protection set?

Answer: The fire protection design for both fire alarm and fire sprinklers are listed as deferred approval items, see Detail 21/G-001. The contractor shall be responsible for the design and agency approval of these items.

5. Question: Refer to Sheet S100 BOQ Building, note SOG See Soil Report. Is there a soil report? Is there a site work drawing?

Answer: The Geotechnical Evaluation report is attached to the project specifications. There is no site work.

Notice to Bidders A  
October 17, 2024  
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Please notify your subconsultants to this effect.

If you have any questions, please contact Ms. Rori Rubio at [rrubio@pw.lacounty.gov](mailto:rrubio@pw.lacounty.gov) or (626) 458-2584.

Very truly yours,

MARK PESTRELLA, PE  
Director of Public Works

 for

SOO KIM  
Division Chief  
Business Relations and Contracts Division

SK:rr

**ATTACHMENT 1**

**REVISED FORM**  
**SECTION 00 03 00, FORM OF BID**  
(Affirming receipt of Notice to Bidders A)

**SECTION 00 03 00**

**FORM OF BID TO BE USED BY BIDDERS**

The undersigned proposes to furnish all materials, labor, and equipment required for the construction to complete the Fire Camp 13 Woolsey Fire Reconstruction Project, in accordance with Drawings and Specifications 7823R1, including addenda thereto, if any, adopted by the Board of Supervisors, and on file in the office of the Board of Supervisors, as follows:

**The lowest bid price shall be determined by adding the following items: Lump Sum Bid in Words (1) + [Extended Overhead Daily Rate (2) x Multiplied by 30 days] = Total Lump Sum Bid. Preference as stated in Section 00 01 00, 1.30, will be applied to the Total Lump Sum Bid, if applicable, to determine the final total bid amount.**

**1. LUMP SUM BID:**

The lump sum bid for the work, including Best Management Practices (BMP) and Construction and Demolition Debris Recycling, and Mandatory Jobs Coordinator requirements complete according to the Drawings and Specifications, will be:

(\$ \_\_\_\_\_ ) ( \_\_\_\_\_ )  
Lump sum bid in figures Lump sum bid in words

**2. EXTENDED OVERHEAD DAILY RATE:**

The daily rate for the sum of the Contractor's field office and home office overhead applicable to this project, for each day of compensable delay will be:

(\$ \_\_\_\_\_ ) ( \_\_\_\_\_ )  
Daily rate in figures Daily rate in words

**3. COUNTY PROGRAM PREFERENCE:**

The Local Small Business Enterprise Program Preference is provided by the County for purposes of bid evaluation only, as specified in Article 1.30 of Section 00 01 00. If Bidder is a qualifying Local Small Business Enterprise, check “yes” in the box below. Section 00 04 38 Request for County Program Preference Consideration must be submitted at the time of bid with a copy of the certification letter issued by the County of Los Angeles Department of Consumer and Business Affairs. If non-qualifying, check “no” in the appropriate box.

LSBE Yes  No

**4. RECEIPT OF NOTICE TO BIDDERS:**

I hereby certify and declare that I have received, reviewed and incorporated Notice to Bidders **A** dated October 17, 2024 into my Bid.

Executed this day of \_\_\_\_\_ (Month and Year)

By: \_\_\_\_\_  
(Authorized Signature of a Principal Owner, Officer, or Manager)

\_\_\_\_\_  
\_\_\_\_\_

NOTE: Any alteration or addition to the Form of Bid may invalidate same. All blank spaces shall be filled out completely. Line out nonapplicable blanks. An incomplete form may invalidate bid. The County reserves the right to waive any informalities or to reject any or all bids or to accept any alternatives when called for.

I (We) certify that on \_\_\_\_\_, 20\_\_\_\_, License No. \_\_\_\_\_, license classification(s) \_\_\_\_\_, was issued to me (us), in the name of \_\_\_\_\_, by the Contractors' State License Board, pursuant to California Statutes of 1929, as amended, and that said license has not been revoked.

**Firm Ownership Information**

Check where applicable:

- 1.  Minority-Owned
- Woman-Owned
- Disadvantaged-Owned
- Disabled Veteran-Owned
- LGBTQQ-Owned

- 2.  An individual
- A corporation. Name  
state or territory of  
Incorporation  
\_\_\_\_\_
- A copartnership
- A joint venture

**Race/Ethnic Composition**

For statistical purposes only.

- Black/African American
- Hispanic/Latino
- Asian or Pacific Islander
- Native Americans
- Subcontinent Asian
- White

If a copartnership or joint venture, list names of individuals comprising same below  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date signed \_\_\_\_\_, 20\_\_\_\_

Respectfully submitted,  
\_\_\_\_\_

Place \_\_\_\_\_  
City and State

Firm Name (if applicable)

Bidder's address, E-mail address, and telephone:

\_\_\_\_\_  
Number and Street

\_\_\_\_\_  
Signature and Print Name

\_\_\_\_\_  
City and State          Zip Code

\_\_\_\_\_  
Title and E-mail Address

\_\_\_\_\_  
Telephone

\_\_\_\_\_  
Signature and Print Name

\_\_\_\_\_  
Fax

\_\_\_\_\_  
Title and E-mail Address

## **ATTACHMENT 2**

### **ADDENDUM A TO SPECS 7823R1**

**(Adds missing section 284321.11 Addressable Fire-Alarm Systems)**



### Addendum A

<b>Date:</b>	October 1, 2024	<b>Architect:</b>	Huitt-Zollars, Inc. 555 W. 5 <sup>th</sup> St. Ste. 2950 Los Angeles, CA 90013
<b>Project Name:</b>	<b>Fire Camp 13 Reconstruction</b> 1250 Encinal Canyon, Rd. Malibu, CA 90265	<b>Owner:</b>	<b>LA County Public Works</b> 900 South Fremont Avenue Alhambra, CA 91803
<b>Architect's Project No.:</b>	R311608.14		
<b>Client's Project No.:</b>	00002191		

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#### NOTICE TO ALL BIDDERS

This Addendum forms part of the Contract Documents and modifies the original Bidding Documents dated, 03/30/2023 to the extent noted herein.

Careful note of this Addendum shall be taken by all parties of interest so that proper allowance is made in all computations, estimates and contracts and so that all trades affected are fully advised in the performance of work that will be required by them.

Item revised on Drawings are designated by a cloud line and a triangle surrounding the corresponding revision letter. Items revised in the Project Manual are designated by an asterisk (\*) in the left-hand margin.

This Addendum supersedes all previous Drawings, Project Manual and instructions pertaining to those Drawings.

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**DOCUMENTS ISSUED:**

Revised sheets listed replaces previously issued sheet.

Drawings:

None

Specifications:

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	<ul style="list-style-type: none"><li>• Added section 28 4621.11.</li></ul>
28 4621.11	ADDRESSABLE FIRE-ALARM SYSTEMS
	<ul style="list-style-type: none"><li>• Added section.</li></ul>

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**End of Addendum**

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\* [28 4621.11 ADDRESSABLE FIRE-ALARM SYSTEMS](#)

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## SECTION 284621.11 - ADDRESSABLE FIRE-ALARM SYSTEMS

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
4. Nonsystem smoke detectors.
5. Heat detectors.
6. Notification appliances.
7. Remote annunciator.
8. Addressable interface device.
9. Digital alarm communicator transmitter.

#### 1.2 ACTION SUBMITTALS

##### A. General Submittal Requirements:

1. Submittals shall be reviewed and approved by the architect prior to submitting to authorities having jurisdiction.
2. Shop Drawings shall be prepared by persons with the following qualifications:
  - a. Trained and certified by manufacturer in fire-alarm system design.
  - b. NICET-certified, fire-alarm technician; **Level III** minimum.
  - c. Licensed or certified by authorities having jurisdiction.
3. Delegated-Design Submittal: For notification appliances and smoke and heat detectors, in addition to submittals listed above, indicate compliance with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

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

##### C. 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.

### 1.3 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:
  - 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.
  - d. Riser diagram.
  - e. Record copy of site-specific software.
  - f. 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.
  - g. Manufacturer's required maintenance related to system warranty requirements.
  - h. 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.



#### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.

### PART 2 - PRODUCTS

#### 2.1 SYSTEM DESCRIPTION

- A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.
- B. Noncoded, **UL-certified** addressable system, with multiplexed signal transmission and horn/strobe evacuation.
- C. Automatic sensitivity control of certain 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:
  - 1. Manual stations.
  - 2. Heat detectors.
  - 3. Smoke detectors.
  - 4. Duct smoke detectors.
  - 5. Carbon monoxide detectors.
  - 6. Automatic sprinkler system water flow.
  - 7. Fire-extinguishing system operation.
  - 8. Fire standpipe system.
  - 9. Dry system pressure flow switch.
- 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.
  - 3. Transmit an alarm signal to the remote alarm receiving station.
  - 4. Unlock electric door locks in designated egress paths.
  - 5. Release fire and smoke doors held open by magnetic door holders.
  - 6. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.

7. Close smoke dampers in air ducts of designated air-conditioning duct systems.
  8. Activate elevator power shunt trip.
  9. Activate emergency lighting control.
  10. Activate emergency shutoffs for gas and fuel supplies.
  11. Record events in the system memory.
- C. Supervisory signal initiation shall be by one or more of the following devices and actions:
1. Valve supervisory switch.
  2. High- or low-air-pressure switch of a dry-pipe or preaction sprinkler system.
  3. 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, or remote annunciator.
  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.
- E. System Supervisory Signal Actions:
1. Initiate notification appliances.
  2. Identify specific device initiating the event at fire-alarm control unit.
  3. After a time delay of **200 seconds**, transmit a trouble or supervisory signal to the remote alarm receiving station.

## 2.3 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Fire-alarm control unit and raceways shall withstand the effects of earthquake motions determined according to **ASCE/SEI 7**.
1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified **and the unit will be fully operational after the seismic event.**"

## 2.4 FIRE-ALARM CONTROL UNIT

- A. General Requirements for Fire-Alarm Control Unit:

1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with UL 864.
  2. Addressable Initiation Device Circuits: The FACP shall indicate which communication zones have been silenced and shall provide selective silencing of alarm notification appliance by building communication zone.
  3. Addressable Control Circuits for Operation of Notification Appliances and Mechanical Equipment: The FACP shall be listed for releasing service.
- B. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit 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, **80** characters, minimum.
  2. Keypad: Arranged to permit entry and execution of programming, display, and control commands.
- C. Initiating-Device, Notification-Appliance, and Signaling-Line Circuits:
1. Pathway Class Designations: NFPA 72, **Class B**
  2. Pathway Survivability: **Level 0**
- D. Notification-Appliance Circuit:
1. Audible appliances shall sound in a three-pulse temporal pattern, as defined in NFPA 72.
  2. Where notification appliances provide signals to sleeping areas, the alarm signal shall be a 520-Hz square wave with an intensity 15 dB above the average ambient sound level or 5 dB above the maximum sound level, or at least 75 dBA, whichever is greater, measured at the pillow.
  3. Visual alarm appliances shall flash in synchronization where multiple appliances are in the same field of view, as defined in NFPA 72.
- E. 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.
- F. Transmission to Remote Alarm Receiving Station: Automatically transmit alarm, supervisory, and trouble signals to a remote alarm station.
- G. 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** 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.

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

## 2.5 MANUAL FIRE-ALARM BOXES

- A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38.
  - 1. Single-action mechanism, **pull-lever** 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.

## 2.6 SYSTEM SMOKE DETECTORS

- A. General Requirements for System Smoke Detectors:
  - 1. Comply with UL 268; operating at 24-V dc, nominal.
  - 2. Detectors shall be **four**-wire type.
  - 3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
  - 4. 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.
  - 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. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition.
    - 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.
- B. 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.).

C. Ionization Smoke Detector:

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 CARBON MONOXIDE DETECTORS

- A. General: Carbon monoxide detector listed for connection to fire-alarm system.

1. Mounting: Adapter plate for outlet box mounting.
2. Testable by introducing test carbon monoxide into the sensing cell.
3. Detector shall provide alarm contacts and trouble contacts.
4. Detector shall send trouble alarm when nearing end-of-life, power supply problems, or internal faults.
5. Comply with UL 2075.
6. Locate, mount, and wire according to manufacturer's written instructions.
7. Provide means for addressable connection to fire-alarm system.
8. Test button simulates an alarm condition.

## 2.8 NONSYSTEM SMOKE DETECTORS

### A. General Requirements for Nonsystem Smoke Detectors:

1. Nonsystem smoke detectors shall be listed as compatible with the fire-alarm equipment installed or shall have a contact closure interface listed for the connected load.
2. Nonsystem smoke detectors shall meet the monitoring for integrity requirements in NFPA 72.

## 2.9 HEAT DETECTORS

### A. General Requirements for Heat Detectors: Comply with UL 521.

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

### B. Heat Detector, Combination Type: Actuated by either a fixed temperature or a rate of rise.

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.

### C. Heat Detector, Fixed-Temperature Type: Actuated by temperature that exceeds a fixed temperature.

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.

## 2.10 NOTIFICATION APPLIANCES

### A. General Requirements for Notification Appliances: Connected to notification-appliance signal circuits, zoned as indicated, 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, equipped for mounting as indicated, and with screw terminals for system connections.
- B. Chimes: Vibrating type.
- C. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464.
- D. 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. Mounting: Wall mounted unless otherwise indicated.
  2. Flashing shall be in a temporal pattern, synchronized with other units.
  3. Strobe Leads: Factory connected to screw terminals.
  4. Mounting Faceplate: Factory finished, **red**.

#### 2.11 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 **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.

#### 2.12 DIGITAL ALARM COMMUNICATOR TRANSMITTER

- A. Digital alarm communicator transmitter shall be acceptable to the remote central station and shall comply with UL 632.

- B. Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire-alarm control unit and automatically capture **one** telephone line(s) and dial a preset number for a remote central station. When contact is made with central station(s), signals shall be transmitted. If service on either line is interrupted for longer than 45 seconds, transmitter shall initiate a local trouble signal and transmit the signal indicating loss of telephone line to the remote alarm receiving station over the remaining line. Transmitter shall automatically report telephone service restoration to the central station. If service is lost on both telephone lines, transmitter shall initiate the local trouble signal.
- C. Local functions and display at the digital alarm communicator transmitter shall include the following:
  - 1. Verification that both telephone lines are available.
  - 2. Programming device.
  - 3. LED display.
  - 4. Manual test report function and manual transmission clear indication.
  - 5. Communications failure with the central station or fire-alarm control unit.
- D. Digital data transmission shall include the following:
  - 1. Address of the alarm-initiating device.
  - 2. Address of the supervisory signal.
  - 3. Address of the trouble-initiating device.
  - 4. Loss of ac supply.
  - 5. Loss of power.
  - 6. Low battery.
  - 7. Abnormal test signal.
  - 8. Communication bus failure.
- E. Secondary Power: Integral rechargeable battery and automatic charger.
- F. Self-Test: Conducted automatically every 24 hours with report transmitted to central station.

### PART 3 - EXECUTION

#### 3.1 EQUIPMENT INSTALLATION

- A. Comply with NFPA 72, NFPA 101, 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."
- B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections.
- C. Equipment Mounting: Install fire-alarm control unit on finished floor.



1. Comply with requirements for seismic-restraint devices specified in Section 270548.16 "Seismic Controls for Communications Systems."
- D. Install wall-mounted equipment, with tops of cabinets not more than **78 inches (1980 mm)** above the finished floor.
1. Comply with requirements for seismic-restraint devices specified in Section 270548.16 "Seismic Controls for Communications Systems."
- E. 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. All devices shall be mounted at the same height unless otherwise indicated.
- F. Smoke- or Heat-Detector Spacing: Comply with NFPA 72.
- G. 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.
- H. Single-Station Smoke Detectors: Where more than one smoke alarm is installed within a dwelling or suite, they shall be connected so that the operation of any smoke alarm causes the alarm in all smoke alarms to sound.
- I. 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.
- J. Audible Alarm-Indicating Devices: Install not less than **6 inches (150 mm)** below the ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.
- K. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least **6 inches (150 mm)** below the ceiling. Install all devices at the same height unless otherwise indicated.
- L. Device Location-Indicating Lights: Locate in public space near the device they monitor.
- 3.2 PATHWAYS
- A. Pathways above recessed ceilings and in nonaccessible 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 shall be installed in EMT.
- C. Exposed EMT shall be painted **red** enamel.

### 3.3 CONNECTIONS

- A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Section 087100 "Door Hardware." Connect hardware and devices to fire-alarm system.
  1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.
- B. 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. Smoke dampers in air ducts of designated HVAC duct systems.
  2. Magnetically held-open doors.
  3. Electronically locked doors and access gates.
  4. Alarm-initiating connection to elevator recall system and components.
  5. Alarm-initiating connection to activate emergency lighting control.
  6. Alarm-initiating connection to activate emergency shutoffs for gas and fuel supplies.
  7. Supervisory connections at valve supervisory switches.
  8. Supervisory connections at low-air-pressure switch of each dry-pipe sprinkler system.
  9. Supervisory connections at elevator shunt-trip breaker.
  10. Supervisory connections at fire-extinguisher locations.

### 3.4 IDENTIFICATION

- A. Install framed instructions in a location visible from fire-alarm control unit.

### 3.5 GROUNDING

- A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.
- B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.6 FIELD QUALITY CONTROL

- A. Field tests shall be witnessed by **authorities having jurisdiction**.
- B. 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 NFPA 72 in its "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter.
    - 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 audible appliances for the private operating mode according to manufacturer's written instructions.
  - 5. Test visible appliances for the public operating mode according to manufacturer's written instructions.
  - 6. 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.
- C. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.
- D. Fire-alarm system will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.
- F. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.
- G. 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.

3.7 SOFTWARE SERVICE AGREEMENT

- A. Comply with UL 864.
- B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for **two** years.
- C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within **two** 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.

3.8 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION 284621.11